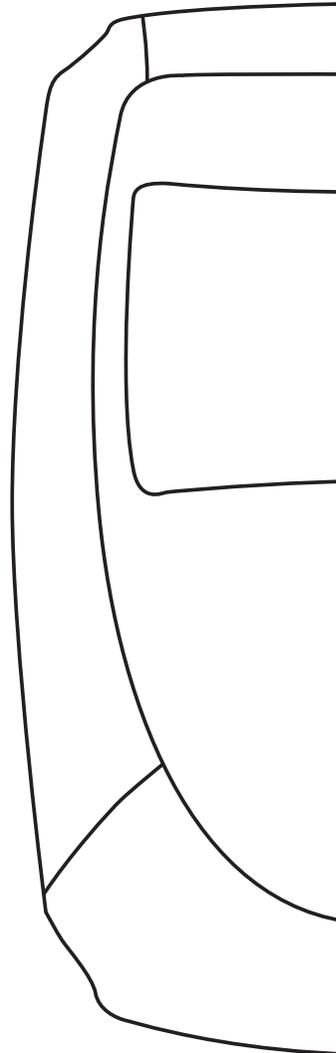


# COMPEX 3 USER MANUAL





# FOREWARD

Please read this manually carefully prior to using your Complex 3 stimulator.

We strongly recommend that you familiarize yourself with the content of chapter 1 (warnings) and the specific instructions chapter in the accompanying Practical Guide.

The Complex 3 stimulator is designed to be used by health professionals.

## Customer support...

### FRANCE

---

Compex  
19, avenue du Pré de Challes  
F - 74940 Annecy-le-vieux  
Hotline: 0811 02 02 74  
(prix appel local à partir d'un poste fixe)  
Fax: +33 (0) 4 50 09 25 70  
Email: info@compex.fr

### ITALIA

---

Compex Italia Srl  
Via Algardi, 4  
I - 20148 Milano  
Tel.: +39 02 30412057  
Fax: +39 02 30412058  
E-mail: info@compex-italia.it

### BENELUX

---

Compex  
19, avenue du Pré de Challes  
F - 74940 Annecy-le-vieux  
Fax: +33 (0) 4 50 09 25 70

#### Belgique/ Belgique

Hotline: 0800 99 104  
(numéro gratuit/gratis nummer)  
E-mail: info.be@compex.info

#### Nederland

Hotline 0800 022 2593  
(Gratis nummer)  
E-mail: info.nl@compex.info

#### Luxembourg/Luxemburg

Hotline: +33 450 10 24 63  
E-mail: info.lu@compex.info

### DEUTSCHLAND

---

Compex Medical GmbH  
Hotline: 0185 266 739  
(€ 0.12 pro Minute)  
Fax: + 49 (0) 611 690 7474  
E-mail: info@compex-medical.de

### ESPAÑA

---

MediCompex Ibérica, S.L.  
Rambla Catalunya 2,  
1° Derecha  
E - 08007 Barcelona  
Hotline: 0900 801 280  
(número gratuito)  
Fax: +34 93 342 42 33  
E-mail: info@compex.es

### EXPORT DEPARTMENT

---

Compex  
19, avenue du Pré de Challes  
F - 74940 Annecy-le-vieux  
Tél.: +33 (0) 4 50 10 24 80  
Fax: +33 (0) 4 50 09 25 70  
Email: info@compex.info

### SUISSE/ SCHWEIZ/ SVIZZERA & ÖSTERREICH

---

Compex Medical SA  
Z.I. " Larges Pièces A " "  
Chemin du Dévent  
CH - 1024 Ecublens  
Fax: +41 (0) 21 695 23 61  
E-mail: info@compex.ch

#### Suisse/ Schweiz/ Svizzera

Hotline/FR: 0848 11 13 12  
(tarif interurbain)  
Hotline/DE: 0848 11 13 13  
(Fernbereich)  
E-mail: info@compex.ch

#### Österreich

Hotline: 0810 102515 19  
(Orstarif)  
E-mail: info.at@compex.info

# CONTENTS

## I WARNINGS

---

1 - Counter-indications .....	8
2 - Safety measures .....	8

## II PRESENTATION

---

1 - Reception of equipment and accessories .....	10
2 - Warranty .....	10
3 - Maintenance .....	11
4 - Storage and transportation conditions .....	11
5 - Usage conditions .....	11
6 - Elimination .....	12
7 - Standards .....	12
8 - Patents .....	12
9 - Standardized symbols .....	12
10 - Technical specifications .....	13

## III USAGE GUIDELINES

---

1 - Placement of electrodes .....	14
2 - Body position .....	15
3 - Adjusting stimulation energies .....	15
4 - Level progression active .....	15
5 - Alternation of stimulation/active reeducation sessions .....	16

## IV **mi** TECHNOLOGY

---

1 - Practical guidelines for using the <b>mi</b> system .....	16
---	----

## V USING THE STIMULATOR

---

1 - Description of stimulator .....	19
2 - Connections	
A) Connecting the cables .....	20
B) Connecting the motor point pen .....	20
C) Connecting the charger .....	21
3 - Preliminary settings	
A) Date and time .....	21
B) Language, contrast, volume .....	22
4 - Neurostimulation programmes	
A) Choosing a type of treatment .....	22
B) Choosing a programme category .....	23
C) Choosing a programme .....	23
D) Personalising a programme .....	23
E) During the stimulation session .....	24
F) Using the <b>Intelligent TENS</b> function .....	27
5 - Direct currents	
A) Iontophoresis .....	28
B) Hyperhidrosis .....	29
C) Oedema .....	29
6 - Denervated programmes	
A) Automatic mode .....	31
B) Manual mode .....	31
7 - Electricity consumption and recharging	
A) Battery life .....	33
B) Recharging .....	33
8 - Troubleshooting	
A) Electrode error .....	34
B) Memory full .....	34
VI LIST OF PROGRAMMES	35

---

## VII COMPEX 3 SOFTWARE

---

1 - Scope	
A) Creating a patient list .....	38
B) Creating a patient history .....	38
C) Creating a personalised programme .....	38
2 - Mode of operation	
A) Creating a patient file .....	39
B) Preparing data to transfer to Compex 3 .....	42
C) Synchronising the stimulator .....	44
D) Tools .....	45
3 - Using the Compex 3 stimulator with a patient list	
A) Using the Compex 3 stimulator with a patient list.....	48
B) Creating a new patient in the Compex 3 stimulator .....	48

# I WARNINGS

## 1 - Counter-indications

- Cardiac stimulator (pacemaker).
- Pregnancy (do not use in abdominal region).
- Troubles Serious arterial circulation disorders in lower limbs.
- Abdominal or inguinal hernia.

### Important!

- Never use Compex 3 on patients who have sensitivity problems or who are unable to let you know if they feel any discomfort, however slight.
- Read this manual and the accompanying Practical Guide carefully.

## 2 - Safety measures



### Important points to take into account when using Compex 3 and the *Mi* system

- Do not use the Compex 3 stimulator or the *Mi*-SENSOR system in water or humid environments (saunas, hydrotherapy pools, etc.).
- Do not use the stimulator or *Mi*-SENSOR system in oxygen-rich environments.
- Never carry out the first 5 minutes of any stimulation session on a patient who is standing. Make sure they are seated or lying down. In rare instances, people of a nervous disposition may experience a vasovagal reaction. This is a psychological response triggered by fear of the procedure and the shock of seeing one of their muscles contract involuntarily. A vasovagal reaction causes a patient's heart to slow down and blood pressure to drop, which can make them feel weak and faint. Should this happen, simply interrupt the session and help the patient to lie down with their legs raised until the feeling disappears (5 to 10 minutes).

- Contractions should always be isometric. Never allow active muscle contractions during a stimulation session.
- Do not use the stimulator or *Mi*-SENSOR system on a patient who is connected to a high-frequency surgical instrument as this could cause skin irritation or burns under the electrodes.
- Do not use the stimulator or *Mi*-SENSOR system within 1 metre of short wave or microwave devices as this could alter the currents generated by the stimulator.
- Do not use the stimulator or *Mi*-SENSOR system in areas where unprotected devices are used to emit electromagnetic radiation. Portable communications equipment can interfere with electrical medical equipment.
- Only use stimulation cables supplied by Compex.
- Always switch off the stimulator before disconnecting any stimulation cables during a session.
- Never connect the stimulation cables to an external power source due to risk of electric shock.
- Only use rechargeable battery units supplied by Compex.

- Never recharge the stimulator without first disconnecting all stimulation cables.
- Do not recharge the battery with a charger other than that supplied by Compex.
- Do use the Compex 3 stimulator, docking station, or charger if any of the elements are damaged (case, cables, etc.) or if the battery compartment is open. There is a risk of electric shock.
- Unplug the charger immediately if your Compex 3 emits a continuous beeping sound or if you notice any abnormal heat, smells, or smoke from either the charger or the stimulator.

- Never recharge the battery in a confined space (carrying case, etc.) as this could cause a fire or electric shock.
- Keep Compex 3 and its accessories out of the reach of children.
- Keep the stimulator, battery compartment, docking station, and charger free of foreign matter (soil, water, metal, etc.)
- Sudden temperature changes can cause condensation to build up inside the stimulator. To prevent this, allow it to reach ambient temperature before use.
- Do not use your Compex 3 while driving or operating machinery.
- Do not use the stimulator at altitudes of over 3,000 metres.



**Never use the electrodes or the motor point pen:**

- In the vicinity of the head.
- Counter-laterally, i.e. do not use two poles connected to the same channel on opposite sides of the body.
- On or near skin lesions of any kind (wounds, swelling, burns, irritation, eczema, etc.).



**Precautions when using the mi-SENSOR system**

- To access Compex 3's mi functions, make sure that the stimulation cable fitted with the mi-SENSOR is connected before you turn on the stimulator.
- Do not connect the mi-SENSOR cable while the Compex 3 is connected.
- Do not disconnect the mi-SENSOR cable while the sensor is being used.
- The mi-SENSOR system may not work correctly if restrained or subject to pressure in any way.



**Precautions when using the electrodes and the motor point pen**

- Only use electrodes and pens supplied by Compex. Other electrodes and pens may have electrical properties that are incompatible with the Compex 3 stimulator.
- Always turn off the stimulator before moving or removing any electrodes during a session.
- Do not place the electrodes or the pen in water.
- Do not apply solvents of any kind to the electrodes or pen.
- For optimal results, wash and clean the skin of any oil and dry it before attaching the electrodes.
- Attach the electrodes in a such a way that their entire surface is in contact with the skin.
- For hygiene reasons, each patient must have his own set of electrodes. Never use the same electrodes on different patients.
- Never use a set of adhesive electrodes for more than 15 sessions as their sticking power deteriorates with time and optimal contact is very important for both user comfort and treatment efficacy.
- Some people with very sensitive skin may experience redness under the electrodes after a session. This redness is generally harmless and normally disappears within 10 to 20 minutes. Never start another stimulation session in the same area, however, if the redness is still visible.
- Clean and disinfect the tip of the motor point pen that comes in contact with the skin before each use.

# II PRESENTATION

## 1 - Reception of equipment and accessories

Your kit contains:

- |               |   |               |   |
|---------------|---|---------------|---|
| <b>513000</b> | 1 stimulator  | <b>602110</b> | 1 set of denervated electrodes                  |
| <b>683028</b> | 1 docking station   | <b>642110</b> | 1 set of iontophoresis electrodes               |
| <b>683010</b> | 1 battery charger   | <b>842302</b> | 1 directions for use manual including:          |
| <b>601131</b> | 1 set of black snap connectors for electrodes, colour-coded (blue, green, yellow, red)          | <b>820002</b> | 1 folder  |
| <b>601132</b> | 1 set of grey 2.1 mm pin connectors for electrodes, colour-coded (blue, green, yellow, and red) | <b>841402</b> | 1 user manual                                   |
| <b>601161</b> | 1 adapter cable for probe   | <b>841302</b> | 1 practical guide                               |
| <b>601160</b> | 4 black electrodes cables fitted with the <b>Mi-SENSOR</b> system                               | <b>880042</b> | 1 electrode placement booklet                   |
| <b>601162</b> | 1 USB cable   | <b>880307</b> | 1 software/docking station installation leaflet |
| <b>602076</b> | 3 bags of small electrodes (5x5 cm)   | <b>880308</b> | 1 EMC Compex 3 leaflet                          |
| <b>602077</b> | 3 bags of large electrodes (5x10 cm)  | <b>880041</b> | 1 Compex 3 Software CD                          |
|               |   | <b>980020</b> | 1 motor point pen                               |
|               |   | <b>602047</b> | 1 bottle of gel (260 g)                         |
|               |   | <b>690001</b> | 1 protective cover                              |
|               |   | <b>949000</b> | 1 belt clip                                     |
|               |   | <b>680031</b> | 1 carrying case                                 |

## 2 - Warranty

Your Compex 3 stimulator is guaranteed for a period of 2 years from the date of purchase. The warranty covers the stimulator and the stimulation cables fitted with the **Mi-SENSOR** system (material and workmanship) but not the battery unit, other cables, or battery unit. All defects arising from substandard material or workmanship are covered. The warranty does not cover damage resulting from impact, accident, improper use, insufficient protection against damp, immersion in water, or repair work conducted by unauthorized personnel.

This warranty is valid only if accompanied by proof of purchase.

Your legal rights are not affected by this warranty.

## 3 - Maintenance

Do not sterilize the stimulator.

Clean with a soft cloth and an alcohol-based, solvent-free cleaning product.

Use only a minimum amount of liquid when cleaning the unit. unit should not be exposed to excessive fluids during cleaning).

Do not attempt to repair the stimulator or any of its accessories. Do not disassemble the stimulator, docking station, or charger as these all contain high-voltage components that could cause electric shock.

Compex Médical SA declines all responsibility for any damages or consequences resulting from unauthorized attempts to open, modify, or repair the stimulator. This may only be done by persons or repair services authorized by Compex Médical SA.

Your stimulator does not require calibration. All Compex 3 units are systematically tested and validated prior to distribution. Their characteristics do not vary under normal conditions.

Nonetheless, as Compex 3 is a high-quality electrical instrument, its life span depends on the use that is made of it and the care and maintenance it receives during its lifetime. If your stimulator contains parts that seem worn or defective, please contact your nearest Compex Médical SA customer service centre (see page 4 in this manual) regarding an upgrade. Medical and health professionals are obliged to service the unit in compliance with relevant national laws and regulation. This involves testing performance and safety parameters at regular intervals.

## 4 - Storage and transportation conditions

The Compex 3 contains rechargeable batteries and so the storage and transportation conditions must not exceed the following figures:

- Storage and transportation temperature: -20°C to 45°C
- Maximum relative humidity: 75%
- Atmospheric pressure: 700 hPa to 1060 hPa

## 5 - Usage conditions

Temperature: 0°C to 40°C

Relative humidity: 30% to 75%

Atmospheric pressure: 700 hPa to 1060 hPa.

*Do not use in an explosion risk area.*

## 6 - Elimination

The main purpose of the Directive 2002/96/EEC is to prevent the creation of waste electrical and electronic equipment (WEEE) and to reduce the amount of waste to be disposed of by encouraging reuse, recycling, and other forms of recovery. Any products bearing the WEEE marking (a crossed-out wheeled bin) must be separated from ordinary household waste and sent to special collection facilities for recycling and

recovery. By doing so, you will be contributing to the safeguarding of natural resources and health.

Batteries must be disposed of in compliance with relevant national regulatory requirements.

## 7 - Standards

Compex 3 is designed for use by health professionals and as such complies with relevant medical standards and regulatory requirements.

To guarantee your safety, Compex 3 has been designed, manufactured, and distributed in compliance with the requirements of the European Directive 93/42/EEC on medical devices.

Compex 3 also complies with the IEC 60601-1 standard on general safety requirements for medical electrical devices, the IEC 60601-1-2 standard on electromagnetic compatibility, and the IEC

60601-2-10 standard on particular safety requirements for nerve and muscle stimulators. International standards (IEC 60601-2-10-am1 2001) require that a warning be given concerning the application of electrodes to the thorax (increased risk of cardiac fibrillation).

Compex 3 also complies with Directive 2002/96/EEC on waste electrical and electronic equipment (WEEE).

## 8 - Patents

The Compex 3 incorporates several innovations with patents pending.

## 9 - Standardized symbols



Caution: read User Manual or operating instructions (symbol no. 0432 IEC 60878).



Compex 3 is a class II device with internal electric power and type BF applied parts (symbol no. 5333 IEC 60878).



Waste electrical and electronic equipment (WEEE) marking according to EN 50419 standard.



The On/Off switch is a multi-function key (symbol no. 5009 IEC 60878)

**Functions**

- On/Off [2 positions, stable]
- Waiting or preparation for part of the unit
- Off [turns system off]

## 10 - Technical specifications

### A) General information

**941210** Power: Nickel metal hydride (NiMH) rechargeable battery (4.8 ≈ V 1200 mA/h).

Battery chargers: Only battery chargers bearing the following information can be used to recharge the batteries supplied with Compex 3 stimulators.

Europe

683010

Type TR1509-06-E-133A03

Input: 90-264 VAC / 47-64 Hz / 0.5 A max.

Output: 9 V / 1.4 A / 15 W

USA

683016

Type TR1509-06-A-133A03

Input: 90-264 VAC / 47-64 Hz / 0.5 A max.

Output: 9 V / 1.4 A / 15 W

UK

683012

Type TR1509-06-U-133A03

Input: 90-264 VAC / 47-64 Hz / 0.5 A max.

Output: 9 V / 1.4 A / 15 W

### B) Neurostimulation

All electrical specifications are given for an impedance of 500-1000 Ohm per channel.

Channels: Four independent and individually adjustable channels that are electrically isolated from each other and earthed.

Impulse shape: Constant rectangular current with pulse compensation to eliminate any direct current component to prevent residual polarization at skin level.

Maximum pulse intensity: 120 mA

Pulse intensity increments: Manual adjustment of stimulation intensity: 0.999 [energy units] - Minimum increment: 0.5 mA

Pulse width: 30 to 400 microseconds  
Maximum electrical charge per pulse: 96 microcoulombs (2 x 48 µC, compensated)

Standard pulse ramp-up time: 3 microseconds (20%-80% of maximum current)

Pulse frequency: 1-150 Hz.

### C) Denervated currents

Impulse shape: Compensated, rectangular, or triangular

Maximum pulse intensity: 30 mA

Minimum intensity increment: 0.25 mA

Pulse width: 10 ms - 1000 ms

Pulse frequency: 1/30 Hz - 10 Hz

### D) Direct currents

**Iontophoresis and Hyperhidrosis:**

Continuous current

Maximum intensity: 20 mA

Minimum intensity increment: 0.125 mA

**Oedema:**

Rectangular, non-compensated current

Pulse width: 150 µs

Maximum intensity: 120 mA

Minimum intensity increment: 1 mA

Pulse frequency: 100 Hz

### E) General technical specifications

**601131** Snap-connector stimulation cables

Machine connector: 6 poles

Electrode connector: Female snap connector

Length: 1500 mm

**601132** Pin-connector stimulation cables

Machine connector: 6 poles  
 Electrode connector: 2.1 mm pins  
 Length: 1500 mm

**601161** Adapter cable for probe

Machine connector: 6 poles  
 Probe connector: DIN 41524 female, 3 poles  
 Length: 750 mm

**601160** stimulation cables fitted with **Mi-SENSOR** system.

Machine connector: 6 poles  
 Electrode connector: Female snap connector  
 Length: 1500 mm

**601162** USB cable

Machine connector: 4 poles  
 PC connector: USB  
 Length: 1500 mm

**IPX0** protection rating (IEC 60529)

## III USAGE GUIDELINES

The usage guidelines described in this section are valid only for Compex 3's neurostimulation programmes. Please consult separate guidelines for the **Denervated**, **Iontophoresis**, and **Oedema**

programmes. In all cases, read the information and recommendations in the Practical Guide carefully.

### 1 - Placement of electrodes (neurostimulation programmes)

For optimal results, use the electrode positions recommended by Compex. For the placement of electrodes, refer to the electrode placement booklet.

Each stimulation cable has two poles:

- positive pole (+) = red connection
- negative pole (-) = black connection

A different electrode must be connected to each pole.

**NOTE:** When working with large electrodes, there are cases where just 1 of the 2 connections are used. This is perfectly normal.

Depending on the characteristics of the current, efficacy can be optimized in certain programmes by placing the electrodes connected to the positive pole (red connection) "strategically".

When working with a muscle stimulation programme (programme involving muscle contractions), it is important to place the positive electrode on the motor point of the muscle.

It is crucial to choose the right size electrodes (large or small) and correctly position these on the muscle group you want to stimulate to ensure the efficacy of the treatment. To do this, always use the sizes and positions shown in the pictograms unless otherwise required by medical needs. Where necessary, look for the best possible position by slowly moving the positive electrode over the muscle until you find the point that will produce the best contraction or the most comfort for the patient.

These recommended positions are also the optimal positions for the **Mi-SENSOR** system, and as such should be followed closely.



**Compex disclaims all responsibility for consequences arising from electrodes placed in other positions.**

## 2 - Body position

Refer to the pictograms and pictures in the electrode placement booklet to determine the stimulation position for your patient depending on the placement of the electrodes and the chosen program.

This position will vary depending on the position of the electrodes, the muscle group you wish to stimulate, and the programme you are using.

When working with programmes involving muscle contractions (prolonged, or tetanic, contractions), always make the muscle work

isometrically as this will prevent cramps and serious muscle soreness after the session. For example, when stimulating the quadriceps, place the patient in a seated position with his ankles strapped in place to prevent him from extending his knees. For programmes that do not involve muscle contractions (Analgesic programmes, for example), make sure that the patient is as comfortable as possible.

## 3 - Adjusting stimulation energies (neurostimulation programmes)

The number of fibres recruited in a stimulated muscle depends on the stimulation energies used. It is therefore extremely important to use maximum stimulation energies where possible in order to recruit the maximum number of fibres. If the stimulation energy is too low, too few fibres will be obliged to work and the improvement in muscle quality will be negligible.

The more fibres that are recruited, the greater the improvement that will be seen. For example, if only 10% of the fibres in a muscle are stimulated, only this 10% will improve. The improvement will obviously be much greater if 60%, 70%, or even 80% of the fibres are stimulated. It is crucial therefore to work with maximum stimulation energy levels, i.e. the maximum levels that a

patient can tolerate. It takes at least 3 sessions to reach this maximum energy level. The first few sessions serve to introduce progressive increments in stimulation energy (and muscle contraction) levels and to help the patient to become used to the method.

After an initial warm-up period, which should produce very clear muscle twitches, increase the stimulation energies gradually, contraction by contraction, for the duration of the session. Also seek to progressively increase energy levels from session to session.

## 4 - Level progression

Generally speaking, it is not advisable to try and reach maximum stimulation levels too quickly. The different levels in each stimulation programme are designed to reeducate the muscle gradually. We recommend you prioritize the stimulation energies at each level to recruit as many fibres as possible before moving on to the next level.

Ideally, therefore, you should start at level 1, maintain this level for an entire stimulation cycle, and only move up to the next level when you start a new cycle.

For maintenance purposes, it is a good idea to hold one session per week with the energy level you used in the previous cycle.

## 5 - Alternation of stimulation/ active reeducation sessions

Stimulation sessions are mostly used as part of a reeducation programme. If you wish to combine a reeducation session involving voluntary muscle training with a muscle stimulation session, we generally recommend you schedule the

reeducation session first. This ensures that the patient does not have to work on tired muscle fibres.

## IV *Mi* TECHNOLOGY

Compex's *Mi* technology provides practitioners with specific information on different muscles and allows them to adapt each stimulation session to the needs of their patients.

The corresponding data is transferred automatically from the sensor to the stimulator!

### 1 - Practical guidelines for using the *Mi* system



To access the *Mi* functions, make sure that the stimulation cable fitted with the *Mi*-SENSOR is connected to the stimulator **before** this is turned on.

Do not connect the *Mi*-SENSOR cable if the stimulator is already on.

The *Mi*-SENSOR system may not work properly if restrained or subject to pressure in any way.

The *Mi*-SENSOR must be connected to an adhesive electrode at all times during a stimulation session.

#### *Mi*-SENSOR

This is a small sensor that links the stimulator to the electrodes. It performs a key function in that it measures certain physiological characteristics of the muscle to be stimulated and transfers this data to the stimulator, which, in turn, analyses the data and adapts its parameters accordingly. This tailoring of each programme to the changing condition of the muscle clearly enhances both patient comfort and therapeutic efficacy.

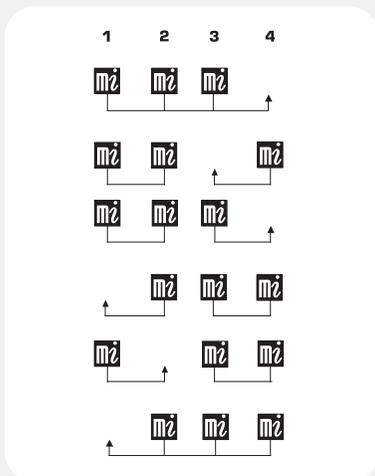
#### *Mi*-SCAN

Just before beginning a stimulation session, the *Mi*-SCAN analyses the excitability of the muscle to be stimulated. The *Mi*-SCAN determines the chronaxy of the muscle in approximately 12 seconds and sends this data to the stimulator so that it can adapt the pulse width [duration] accordingly. Adapting the pulse width to the chronaxy of the muscle to be stimulated allows the same muscle response to be achieved with less energy.

**NOTE:** The *Mi*-SCAN function is enabled only when a cable fitted with the *Mi*-SENSOR system is connected to the stimulator.

As many as 4 different chronaxy measurements – corresponding to 4 different muscle groups – can be taken per session. The number of measurements depends on how many sensors are connected to the stimulator.

Each channel that is connected to a standard cable receives the same data as a channel connected to a **Mi-SENSOR** cable (see below).



Before a programme is executed, the sensor scans the muscle briefly. During this time, a horizontal bar will move up and down the figure on the left of the screen.

It is essential that the patient remains completely still and relaxed while these measurements are being taken. The **Mi-SENSOR** system is very sensitive and the slightest contraction or movement could interfere with its results.

Note that certain people might feel an unpleasant tingling sensation during the test.

Once the test is complete, a symbol will appear  on the screen indicating that the programme can be started.

### **Mi-ACTION** \_\_\_\_\_

**Mi-ACTION** is a work mode in which the patient triggers an electrically induced stimulation by voluntarily contracting one of his muscles. The stimulation contraction is therefore controlled by the patient.



For a patient to fully benefit from the **Mi-ACTION** training mode, his muscles must be well developed. Insufficiently developed muscles may, in some cases, prevent the triggering of the electrically induced contraction.

Programmes run in **Mi-ACTION** mode offer a number of distinct benefits:

- They require the active participation of patients and encourage them to become fully involved in their treatment.
- They allow patients to control their contractions, allowing them to feel more at ease with the system.
- They optimize performance by combining voluntary and electrical stimulation exercises, which results in a more intensive recruitment of muscle fibres.
- They help to retone the body and facilitate motor reeducation in patients with neuromuscular disorders.
- They integrate the stimulation of stabilising muscles into a broader functional exercise plan.

The **Mi-ACTION** mode is only available for certain programmes.

Programmes run in **Mi-ACTION** mode are always preceded by a **Mi-SCAN** test.

The **Mi-ACTION** mode is enabled only during work sequences (not during warm-up and relaxation sequences).

The first muscle contraction in the work sequence is triggered automatically.

This is followed by an active rest phase consisting of a series of muscle twitches.

Le déclenchement volontaire d'une nouvelle contraction n'est possible qu'après un temps de repos minimum, qui varie selon le programme. A new contraction can only be triggered after a minimum rest time, which varies from programme to programme. The stimulator emits a signal to notify the patient when he can trigger another contraction.

This signal can take different forms:

- A series of increasingly fast short beeps: voluntary contraction possible.
- A continuous beep: ideal moment for voluntary contraction.
- A series of increasingly slow beeps: voluntary contraction still possible and work rate still satisfactory.
- If no voluntary contractions are detected within a certain time (this varies from programme to programme), the stimulator will automatically enter Standby mode.

**NOTE:** The **Mi-SENSOR** system needs to record the muscle twitches in the active rest phase in order to offer optimal results. If the twitches are not sufficiently intense during this phase, the stimulator will emit a series of beeps and a  sign will appear on the screen.

Note that these muscle twitches will only occur if the muscles are sufficiently relaxed. Patients should therefore be encouraged to adopt a position in which they will be as relaxed as possible at the end of each contraction phase.



In contrast to Common Treatment programmes in which the stimulator adjusts the stimulation energies during the rest phase, these energies often need to be increased manually when in **Mi-ACTION** mode.

### **Mi-TENS**

The **Mi-TENS** function can be used to considerably reduce the number of unwanted muscular contractions, enhancing both user comfort and treatment efficacy.

It is available only for the **TENS, Modulated TENS, Epicondylitis** and **Arthralgia** programmes.

When enabled, the **Mi-TENS** function controls stimulation energies by keeping them at an effective level and reducing the number of unwanted contractions.

It works by performing a series of short measurement tests (lasting 2 to 3 seconds) at regular intervals throughout the entire programme.

A test is automatically launched whenever the stimulation energies are increased. The subject must remain perfectly still during the test to ensure optimal results.

Depending on the results, the stimulator may automatically reduce the stimulation energies slightly.

**NOTE:** It is important to ensure that patients adopt the most comfortable position possible during stimulation, remain still, and do not contract any of the muscles in the stimulation area.

### **Mi-RANGE**

The **Mi-RANGE** function is used in programmes which depend on the triggering of vigorous muscle twitches to indicate the optimal stimulation energy range.

It is therefore only available in programmes that use low stimulation frequencies (less than 10 Hz).

When the **Mi-RANGE** function is enabled, the stimulator will check whether you are working in the optimal energy range. If the level is too low, it will prompt you to increase the level by displaying a series of  signs on the screen.

Once the stimulator has detected the ideal energy range, a square bracket will appear to the right of the bar graph corresponding to the stimulation channel the **Mi-SENSOR** is connected to. The figures enclosed by this bracket indicate the range you must work in in order to achieve optimal results.

If you set the energy level below this range, the stimulator will prompt you to increase it by flashing a series of  signs on the screen.

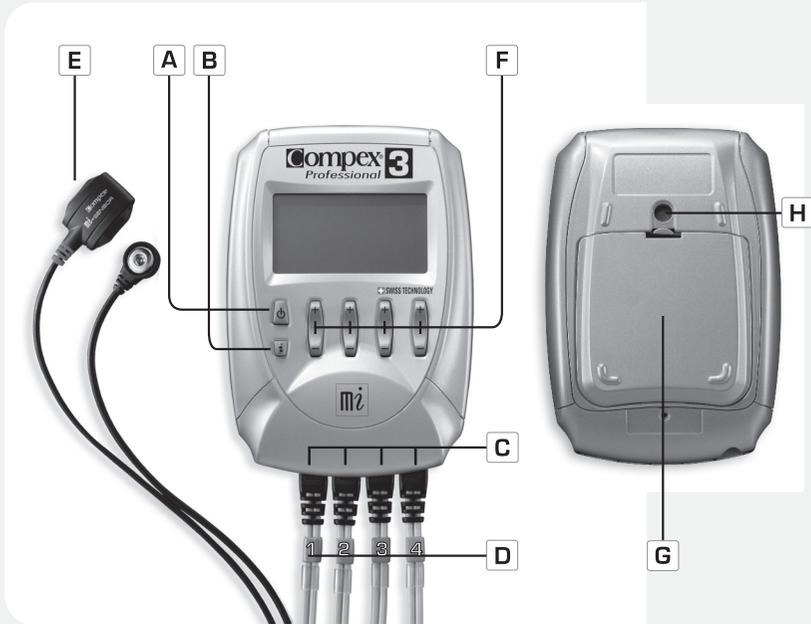
# V USING THE STIMULATOR



You are strongly advised to carefully read the counter-indications and safety measures described at the

beginning of this manual (chapter 1 "Warnings") prior to using your stimulator

## 1 - DESCRIPTION OF STIMULATOR



**A** - On/Off button

**B** - i button. This is used to:

- Increase stimulation energies in several channels simultaneously.
- Access the Top 5 menu (showing 5 most recently used programs)
- Access the contraction info menu (showing number of contractions and total contraction time).
- Access parameter info menu for personalised programmes.
- Access electrode placement info (for Hyperhidrosis menu only).

**C** - Sockets for 4 stimulation cables

**D** - Stimulation cables

Channel 1 = blue    Channel 2 = green  
Channel 3 = yellow    Channel 4 = red

**E** - Stimulation cables fitted with *mi-SENSOR* system

**F** - +/- buttons for 4 stimulation channels

**G** - Rechargeable battery compartment

**H** - Belt clip socket

## 2 - Connections

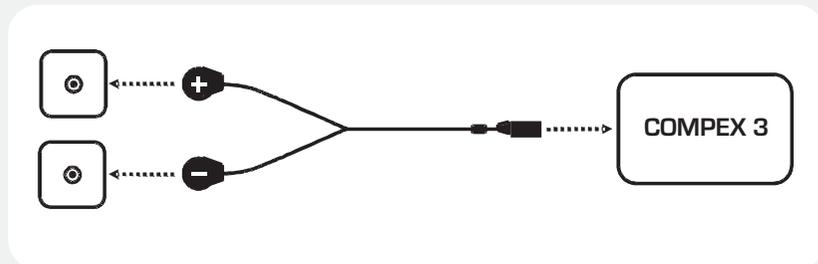
### A) Connecting the cables

The stimulator cables plug into the 4 sockets on the base of the device.

All 4 cables can be connected simultaneously. Both the sockets and the cables are colour-coded to simplify use and facilitate identification of the different channels:

blue=channel 1      green = channel 2  
yellow = channel 3      red = channel 4

The kit includes four snap-connector cables and four 2,1 mm pin-connector cables.



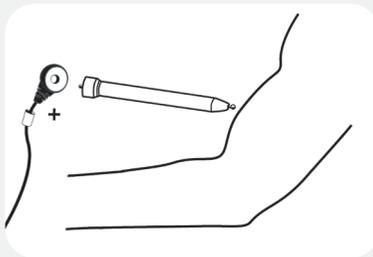
**NOTE:** The pin-connector cables are designed for use only with **Denervated**, **Iontophoresis** and **Hyperhidrosis** programmes.

To connect a snap-connector cable to an electrode, simply insert the snap end of the cable into the electrode eyelet and twist it a quarter turn.

In addition to these standard cables, Complex 3 comes with 2 special cables fitted with the **Mi-SENSOR** system.

These cables can be connected to any of the 4 sockets for the stimulation channels, on the base of the stimulator. Just like the standard cables, they must also be connected to 2 electrodes.

All Complex 3 stimulators are supplied with a motor point pen designed to help you to find the exact location of the motor point of the muscle group(s) you wish to stimulate. Refer to the picture below to see how to connect the pen.



### B) Connecting the motor point pen

Never use the motor point pen for any purposes other than locating the motor point of the muscle. Follow the instructions in this manual. Clean and disinfect the tip of the motor point pen that comes in contact with the skin before each use.

Apply a small amount of Complex gel to the skin when looking for the motor point to enhance patient comfort.

Connect the tip of the motor point pen to the positive connector (red). The other snap connector (black) must be connected to a negative electrode already on the muscle to be stimulated.

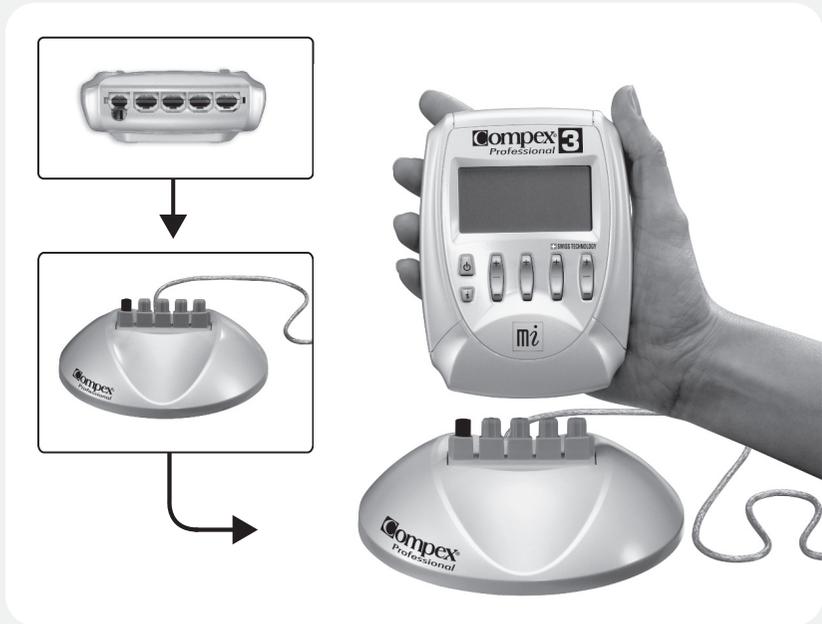
For details on how to use the motor point pen, refer to the chapter "Specific indications" in the Practical Guide.

### C) Connecting the charger

The Compex 3 is a portable muscle stimulator powered by a rechargeable battery unit. To recharge the stimulator, simply connect the charger to the base of the stimulator or the docking station supplied with the unit.

Connect the charger to the mains.

Remove any stimulation cables connected to the stimulator before recharging it. We strongly recommend you fully charge the battery before using it for the first time as this will improve its autonomy and life span.



## 3 - Preliminary settings

### A) Date and time

Your Compex 3 has an internal clock for recording the dates and times of different programme activities (see chapter "Compex 3 software"). The clock needs to be set to the current date and time when the stimulator is started up for the first time.

**1b:** Use the channel 1 +/- button to select the parameter you wish to set: year, month, day, hour, and minutes (in this order).

**1c:** Use the channel 2 +/- button to define the value of each parameter.

**1e:** Use the channel 4 +/- button to confirm your choice and bring up the language settings screen.

**NOTE:** The clock will be automatically updated with the date and time of your PC during computer synchronisation operations (see chapter "Compex 3 software").

The clock will need to be updated if the battery is changed.

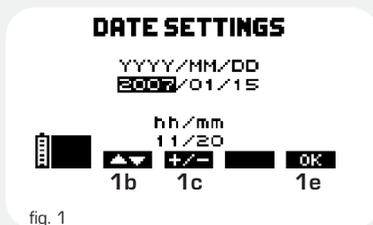


fig. 1

## B) Language, contrast, volume

When you start up the stimulator for the first time, you will need to choose the interface language you wish to use from the options screen. See below for instructions on how to proceed. There are a range of settings that you can adjust to suit your needs (interface language, display contrast, backlighting, volume). To change any of these settings, bring up the options screen by holding the On/Off button on the front of the stimulator for a few seconds.



fig. 2

**2b:** Use the channel 1 +/- button to choose the language you wish to use.

**2c:** Use the channel 2 +/- button to adjust the contrast of the screen.

**2d:** Use the channel 3 +/- button to adjust the volume.

**2e:** Use the channel 4 +/- button to adjust the backlighting.

On: Backlighting always on

Off: Backlighting always off

Auto: Backlighting activated whenever a button is pressed.

**2a:** Use the On/Off button to confirm and save your choices. The settings will be applied immediately.

## 4 - Neurostimulation programmes



The presence of osteosynthesis equipment (metallic equipment in contact with the bone: pins, screws, plates, prostheses, etc.) is not a counter-indication for the use of Compex programmes. The electrical current of the Compex is specially designed to have no harmful effect with regard to osteosynthesis equipment.

To start the stimulator, press the On/Off button. To choose a programme, you must first choose a type of treatment and a programme category.

**NOTE:** There is a table summarizing the different programmes and their functions at the end of this manual.

### A) Choosing a type of treatment



Common treatment



Specific treatment



Conditioning

The default type of treatment is COMMON.

### COMMON TREATMENT

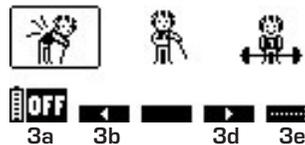


fig. 3

**3a:** Press the On/Off button to turn off the unit.

**3b - 3d:** Use the channel 1 and 3 +/- buttons to choose another type of treatment menu (Specific Treatment or Conditioning).

**3e:** Press the channel 4 +/- button to confirm your choice and access the programme category selection screen.

Press the i button to access the Top 5 menu.

## B) Choosing a programme category

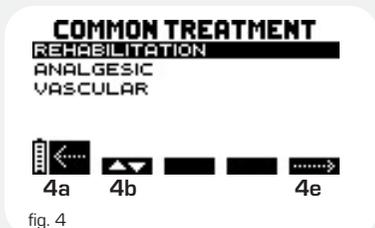


fig. 4

**4a:** Press the On/Off button to return to the previous screen.

**4b:** Use the channel 1 +/- button to choose a category.

**4e:** Press the channel 4 +/- button to confirm your choice and access the programme selection screen.

Press the **i** button to access the Top 5 menu.

## C) Choosing a programme

**NOTE:** Consult our Practical Guide for help in choosing a programme.

Once you choose a category, the screen will display a list of available programmes.



fig. 5

**5a:** Press the On/Off button to return to the previous screen.

**5b:** Use the channel 1 +/- button to choose the programme you want.

**5e:** Press the channel 4 +/- button to confirm your choice. Certain programmes start right away while others allow you to specify additional options.

## TOP 5

The TOP 5 menu is designed to make your Complex 3 easier to use and more efficient by providing quick access to the last 5 programmes run.

To access the menu, press the **i** button before selecting a programme.

The menu can be accessed from the type of treatment screen (Figure 3), the programme category screen (Figure 4), or the programme list screen (Figure 5).

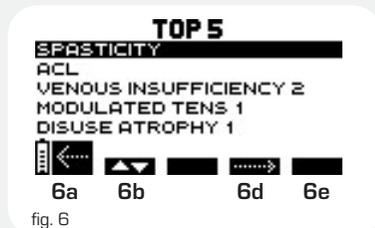


fig. 6

**6a:** Press the On/Off button to return to the previous screen.

**6b:** Use the channel 1 +/- button to choose the programme you want.

**6d:** Use the channel 3 +/- button to personalize the programme.

**6e:** Press the channel 4 +/- button to execute the programme.

## D) Personalising a programme

Not all programmes have an options screen.

### Mi-SENSOR not connected

In certain programmes, you will need to choose the muscle group you want to stimulate when there are no Mi-SENSOR cables connected to the stimulator. The target area is shown in black on the figure above channel 1.

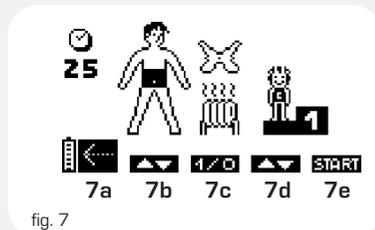


fig. 7

**7b:** Use the channel 1 +/- button to choose the desired treatment area. You can choose from among 7 areas.



Current international standards require that a warning be given concerning the application of electrodes to the thorax (increased risk of cardiac fibrillation).

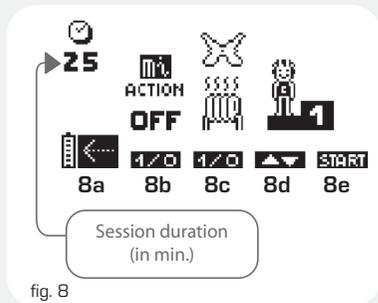


fig. 8

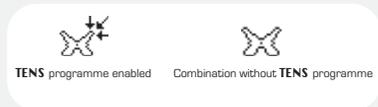
### **Mi-SENSOR** connected

The stimulator will automatically select the muscle group to be stimulated when a **Mi-SENSOR** cable is connected to the unit.

Reminder: The **Mi-SCAN** function will activate automatically in programmes that accommodate this function when at least 1 **Mi-SENSOR** cable is connected to the stimulator.

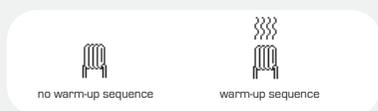
**8b:** Use the channel 1 +/- button to enable the **Mi-ACTION** function. When the function is enabled, the screen will display the word ON rather than OFF. When in ON mode, it is the patient who triggers the stimulation. Reminder: Not all motor nerve stimulation programmes use the **Mi-ACTION** function. If the **Mi-ACTION** function is not available, there will be no symbol above channel 1.

**7- 8c:** Press the channel 2 +/- button to enable the **TENS** function. When enabled, channels 1 and 2 are used for the programme chosen, and channels 3 and 4 for the **TENS** treatment.



**NOTE:** When the **TENS** function is enabled, the **Mi-ACTION** cannot be activated and the corresponding symbol will disappear automatically from the screen.

Use the channel 2 - button to delete the default warm-up period.



**7 - 8d:** Use the channel 3 +/- button to choose the programme difficulty level.

**7 - 8a:** Press the On/Off button to return to the previous screen.

**7 - 8e:** Use the channel 4 +/- button to confirm your choices and launch the programme.

## E) During the stimulation session

### Preliminary **Mi-SCAN** test

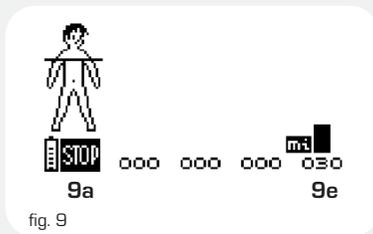
This test is launched only if a cable fitted with the **Mi-SENSOR** system is already connected to the stimulator when this is turned on!



It is essential that the patient remains completely still and relaxed during the entire test.

If the **Mi-SENSOR** cable is connected, the test will begin as soon as you choose and personalise your programme.

**NOTE:** The test is not launched if you choose a programme that does not require the preselection of a muscle group.



**9e:** The **Mi** logo above channel 4 indicates that the **Mi-SENSOR** cable is connected to the stimulator. The figures above channel 4 will automatically change during the test as the sensor records different measurements.

**NOTE:** When several sensors are connected simultaneously, the **Mi-SCAN** test is performed progressively, one **Mi-SENSOR** connected channel after the other. The channel being scanned is easily identified by its changing numbers and the **Mi** logo above the channel. The 4 +/- buttons will be disabled for the duration of the test.

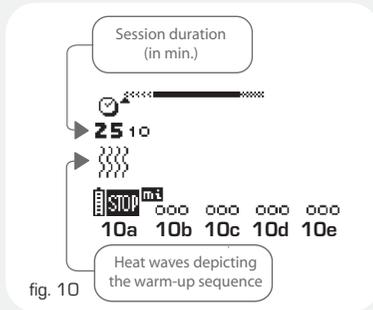
**9a:** Press the On/Off button to interrupt the test at any moment. To relaunch the test from the start, press any of the 4 +/- buttons.

Press the On/Off button a second time to return to the list of programmes.

Once the test is complete, you will automatically be taken to the default programme start screen and prompted to increase the stimulation energies.

## Adjusting stimulation energies

When you start a programme, you will be prompted to increase the stimulation energies. This is key to the success of any treatment.



**10a:** Press the On/Off button to return to the previous screen.

**10 b c d e:** The unit will beep and the symbols for the 4 channels will alternate between + and 000.

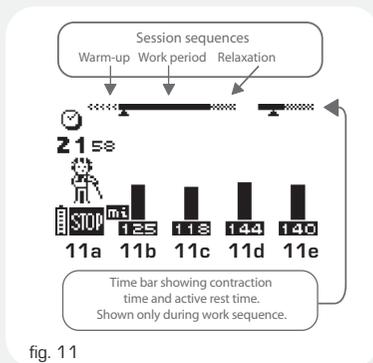
The energy level for the 4 channels is at 0. To start the programme, you will need to increase the energy levels in the channels you are going to use.

To do this, use the corresponding + buttons.

**NOTE:** If you want to increase the energy levels in all 4 channels simultaneously, press the **i** button. Press it twice to increase the levels in the first 3 channels, and 3 times to increase the levels in the first 2 channels.

Interdependent channels will be highlighted in white against a black background.

## Programme progression



**11 b c d e:** The different energies reached during the contraction phase are shown by a series of black bar graphs. Active rest phase energies are shown by hatched bar graphs.

**NOTE:** Active rest phase stimulation energies are automatically set at 50% of contraction intensities but can be modified during the rest phase. Once modified, they will be totally independent of the contraction intensities.

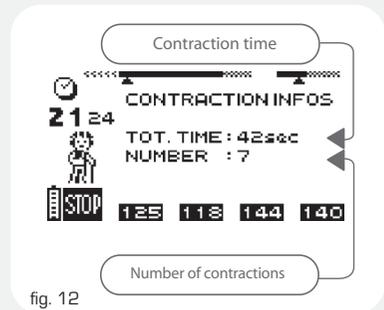
**11a:** Press the On/Off button to interrupt the programme momentarily. To restart it, simply press the channel 4 +/- button (**11e**). The session will resume at 80% of the energy levels that were being used prior to the interruption.

**NOTE:** If your Complex 3 emits a beeping sound and the + symbols under the active channels begin to flash, the stimulator is suggesting you increase the level of the stimulation energies. If you are working at the patient's maximum tolerance level, simply ignore this message.

## Contraction information

When working with a muscle contraction programme, you can access the contraction info screen at any time to consult the number of contractions and total contraction time.

To access the screen, simply hold down the **i** button.



## SKIP function

In certain programmes, the SKIP function allows you to end the current programme phase and move on to the next one. For SKIP function to work, the unit must be in Pause mode.

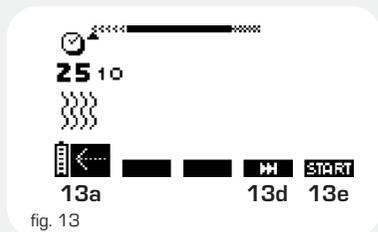


fig. 13

**13a:** Press the On/Off button to return to the list of programmes in the category you are working with.

**13d:** Use the channel 3 +/- button to skip a particular sequence of a programme. When you do this, the unit will beep and the cursor under the progress bar will move to the beginning of the next sequence.

**13e:** Use the channel 4 +/- button to resume the programme at the chosen sequence.

**NOTE:** The SKIP function is not available for all programmes. It should also be noted that this function can reduce the effectiveness of a programme if used to shorten the work sequence excessively.

### Statistics

The Complex 3 stimulator includes a statistics menu containing important programme information that can be consulted in real time. To access the statistics screen, you must place the stimulator in pause mode or wait for the programme to end.

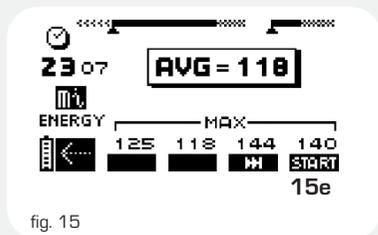


fig. 15

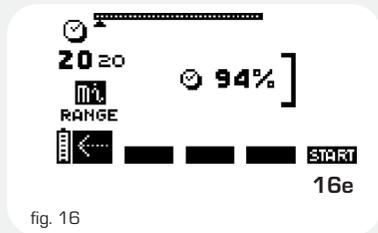


fig. 16

**Fig. 15:** Neuromuscular electrostimulation programmes

MAX indicates the maximum stimulation energy level reached per channel during the contraction phase. AVG indicates the average stimulation energy level used by the different channels during the contraction phase.

**Fig. 16:** In low frequency programmes, the Mi-RANGE function figure enclosed by a single square bracket shows what percentage of stimulation time was spent in the optimal energy range.

**15-16e:** Press the channel 4 +/- button to resume the programme at the point where it was interrupted.

**NOTE:** The i button allows you to consult settings for personalised programmes when the unit is in pause mode. Example:

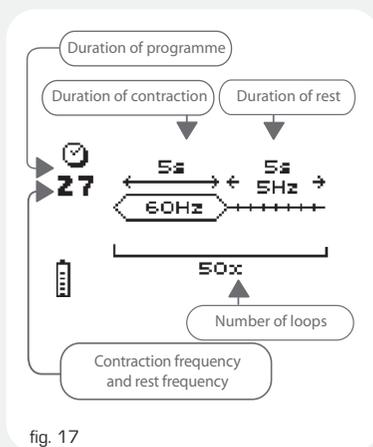


fig. 17

### End of programme

Different statistics are displayed depending on the programmes and options used (see Figures 15 and 16). It should be noted, however, that statistics are not available for all programmes.

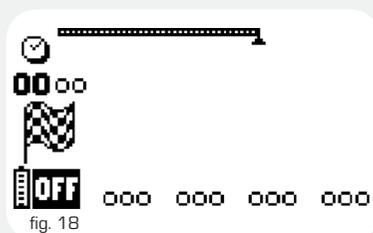


fig. 18

At the end of each session, a small flag will be displayed on the screen and a short melody will be played.

**NOTE:** Press the **i** button to access the contraction info screen.

To turn off the stimulator, press the ON/OFF button.

## F) Using the Intelligent TENS function

When you choose a **TENS** programme from the **Analgesic** programme category, you will automatically be shown an options screen where you can specify your patient's sensitivity level.

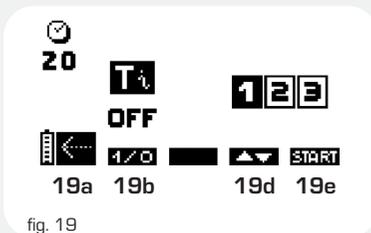


fig. 19

There are 3 sensitivity levels. To tailor the level to your patient, choose one of these levels manually or activate the **Intelligent TENS** function. This measures the patient's sensitivity threshold automatically and ensures that each programme is perfectly adapted to the patient's needs.

**19a:** Press the On/Off button to return to the previous screen.

**19b:** Press the channel 1 +/- button to enable the **Intelligent TENS** function. When enabled, the term ON will replace OFF above channel 1.

**19d:** Use the channel 3 +/- button to choose the Tens sensitivity level manually.  
1 = **TENS** for patients with a low sensitivity threshold.

2 = **TENS** for patients with a normal sensitivity threshold

3 = **TENS** for patients with a high sensitivity threshold.

**19e:** Press the channel 4 +/- button to confirm your choice:

- The **TENS** Analgesic programme will be launched.
- If you have chosen the sensitivity level manually, and the sensitivity threshold test if you have chosen the **Intelligent TENS** function.

### Using the **Intelligent TENS** function

Once you have enabled the **Intelligent TENS** function in the corresponding options screen and confirmed your choice, the sensitivity test will start automatically. The MEMO symbol will appear over any channels that are connected.

**NOTE:** If no channels are connected, the electrode error symbol will be displayed on the screen.

When your patient feels the first signs of tingling, press any MEMO button. The programme will start automatically.

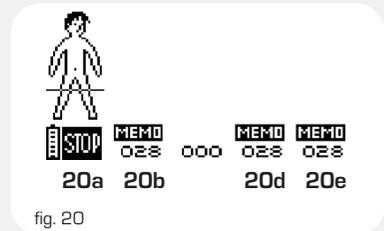


fig. 20

**20a:** Press the On/Off button to stop the programme.

**20 b d e:** Press any of the active channel +/- buttons (any but number 2 in the example above) to register your patient's sensitivity threshold.

The programme will begin automatically.

You can use any of the active +/- buttons to adjust the stimulation energies in the different channels during a **TENS** treatment session.

## 5 - Direct currents



Never use direct currents on patients with osteosynthesis devices or other metal implants.



Direct currents are used by the **Iontophoresis**, **Hyperhidrosis** and **Oedema** programmes.

Although these currents are not used for therapeutic purposes in the chest region, international standards require the inclusion of a warning against attaching electrodes to this region (increased risk of cardiac fibrillation).

### A) Iontophoresis



Read the chapter "Iontophoresis" in the practical guide to become fully familiar with this programme before using it.

**NOTE:** Use the coloured electrodes (red, green, yellow) supplied with the stimulator whenever you use an **Iontophoresis** programme. Use the 2.1 mm pin-connector cables (grey) to connect the electrodes.

The **Iontophoresis** programme is in the direct current category in the specific type of treatment.

#### SPECIFIC TREATMENT

**DIRECT CURRENT**  
**DEREGATED**  
**AGONIST/ANTAGONIST**  
**INCONTINENCE**  
**SPASTICITY**



21a 21b 21e

fig. 21

**21a:** Press the On/Off button to return to the previous screen.

**21b:** Use the channel 1 +/- button to choose the category you want.

**21e:** Press the channel 4 +/- button to confirm your choice and access the programme selection screen.

#### DIRECT CURRENT

**IONTOPHORESIS**  
**HYPERHIDROSIS**  
**OEDEMA**



22a 22b 22e

fig. 22

**22a:** Press the On/Off button to return to the previous screen.

**22b:** Use the channel 1 +/- button to choose a programme.

**22e:** Press the channel 4 +/- button to confirm your choice.

When working with an **Iontophoresis** programme, you can choose the number of channels and size of electrodes you want to use. There are 3 electrode sizes [red, green, and yellow].

You can also edit the default parameters - Duration, Electrical density - recommended by Complex.

CHAN	1		RED
	2		----
	3		----
	4		----
DENSITY	mA/cm2	0.050	
TIME	min	6	

23a 23b 23c 23e

fig. 23

**23a:** Press the On/Off button to return to the previous screen.

**23b:** Use the channel 1 +/- button to select the parameters you wish to edit: channel to use, density, and duration of session. In the above example, only channel 1 [red electrodes] is active. The electrical density is 0.05 mA and the session duration is 6 minutes.

**23c:** Use the channel 2 +/- button to choose the electrode size (colour) you wish to use for each channel and/or to modify the default values (density, duration).

**23e:** Press the channel 4 +/- button to confirm your choices and access a confirmation screen.

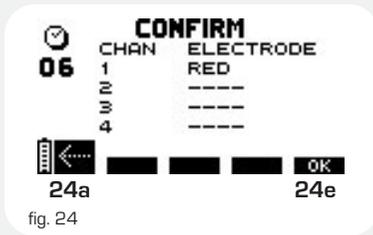


fig. 24

**24a:** Press the On/Off button to return to the previous screen

**24e:** Use the channel 4 +/- button to confirm your choices and launch the programme.

**NOTE:** Current intensity is automatically calculated in line with the size of electrode used. Electrode size is determined by colour. Make sure you choose the correct colour before running the programme.

Press the *i* button from the stimulation screen or the end of programme screen to access the programme parameters.

## B) Hyperhidrosis



Read the chapter "Hyperhidrosis" in the Practical Guide to become fully familiar with this programme before using it.

**NOTE:** The **Hyperhidrosis** programme should always be run in channel 1 with the large (red) iontophoresis electrodes supplied with the stimulator.

Use the 2.1 mm pin-connector cables (grey) to connect the electrodes

The **Hyperhidrosis** programme is in the Direct Current category of the Specific Treatment type.

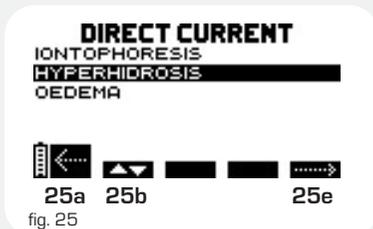


fig. 25

**25a:** Press the On/Off button to return to the previous screen.

**25b:** Use the channel 1 +/- button to choose a programme.

**25e:** Press the channel 4 +/- button to confirm your choice and execute the programme.

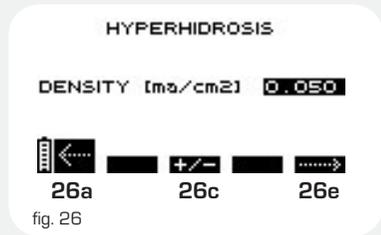


fig. 26

**26a:** Press the On/Off button to return to the previous screen.

**26c:** Use the channel 2 +/- button to change the default electrical density value.

**26e:** Press the channel 4 +/- button to confirm your choices and access a confirmation screen.

Use the *i* button to access the electrode placement pictogram.

The **Hyperhidrosis** programme lasts for 12 minutes and can only be run on channel 1. Only use the red electrodes with this programme. Other electrodes will cause current intensity calculation errors.

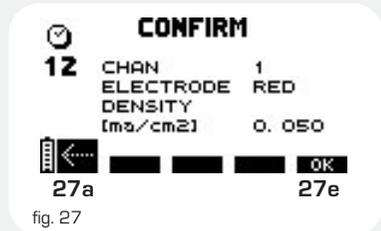


fig. 27

**27a:** Press the On/Off button to return to the previous screen.

**27e:** Press the channel 4 +/- button to confirm your choices and launch the programme.

Use the *i* button to access the electrode placement pictogram.

**NOTE:** Press the *i* button from the stimulation screen or the end of programme screen to access the programme parameters.

## C) Oedema



Read the chapter "Oedema" in the Practical Guide to become fully familiar with this programme before using it.

The **Oedema** programme is in the Direct Current category of the Specific Treatment type.

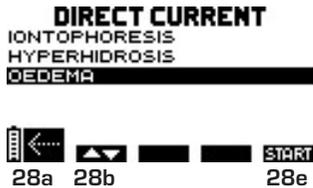


fig. 28

**28a:** Press the On/Off button to return to the previous screen.

**28b:** Use the channel 1 +/- button to choose a programme.

**28e:** Press the channel 4 +/- button to confirm your choice and execute the programme.

The **Oedema** programme begins by looking for the motor evoked potential (MEP) threshold in order to calculate the current intensity that will offer optimal therapeutic efficacy. While this is happening, the MEMO symbol will be displayed over any channels that are connected. To confirm the MEP threshold, press any of the active +/- buttons as soon as you see or feel a motor response.

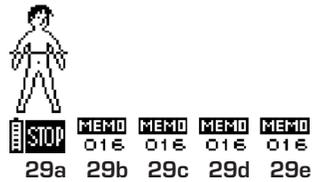


fig. 29

**29a:** Press the On/Off button to stop the programme or return to the previous screen.

**29 b c d e:** Press any of the active +/- buttons to confirm the MEP threshold. Once confirmed, the programme will start automatically with the optimal stimulation energy.

**NOTE:** If no channels are connected, the electrode error symbol will be displayed.

## 6 - Denervated programmes



The **Denervated** programmes are of the Specific Treatment type.

Although these currents are not used for therapeutic purposes in the chest region, international standards require the inclusion of a warning against attaching electrodes to this region (increased risk of cardiac fibrillation).



Comex 3 **Denervated** programmes are not contraindicated in patients with osteosynthesis devices or other metal implants



**Denervated** programmes should only be run with 2.1 mm pin-connector cables (grey cables supplied with stimulator) and carbon electrodes (black electrodes supplied with stimulator). For optimal results, apply conductor gel to the electrodes before use.

Do not use snap-connector cables or self-adhesive electrodes for **Denervated** programmes.

There are 4 types of **Denervated** treatments.



fig. 30

**30a:** Press the On/Off button to return to the previous screen.

**30b:** Use the channel 1 +/- button to choose a programme.

**30e:** Press the channel 4 +/- button to confirm your choice.

## A) Automatic mode

The stimulator will automatically detect which channels are connected when in automatic mode.

### Total automatic

Full denervation with fixed parameters:  
Pulse width: 100 ms  
Period: 2000 ms  
Programme duration: 8 min

**NOTE:** These are the default values recommended in the **Total manual** mode.

### Partial automatic

Partial denervation, with automatic calculation of initial current ramp. The width of the pulse before validation of the ramp is 100 ms.

#### How it works

When you start the programme, stimulation will automatically begin through the first channel you are using. As soon as you perceive a muscle response, confirm the ramp by pressing the corresponding +/- button (under the MEMO symbol). The stimulator will display the value for this channel (see Figure 31 below) and automatically begin the search for the next channel.

The Complex 3 can calculate and manage 4 different initial current ramps.

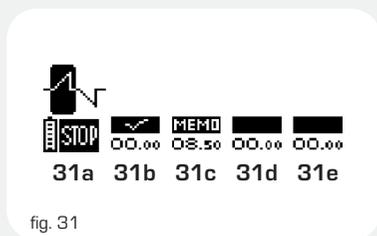


fig. 31

**MEMO** displayed above channel where ramp search is being performed

■ displayed above inactive channels (channels that are not connected).

✓ displayed once intensity value for corresponding channel has been validated.

**31a:** Press the On/Off button to stop the programme and return to the previous screen.

**31b:** Press the +/- button under the MEMO symbol to confirm the current intensity calculated during the ramp search process. The width of the current (pulse length) does not change during this

search. In the above example, the search is being performed in channel 1. Once the ramp is validated, the ✓ symbol will replace the MEMO symbol and, where applicable, the search will begin in the other channels. **31 c d e:** the +/- buttons for the other channels remain inactive while a search is being performed.

When all the ramps for the active channels have been calculated, the programme will start automatically.

When you increase the stimulation intensity, the pulse width will automatically be modified to maintain the appropriate initial ramp.

## B) Manual mode

### Total manual

Full denervation programme. This programme works with rectangular pulses and allows the following parameters to be modified:

- Pulse width
- Period
- Programme duration

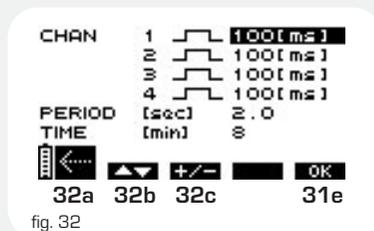


fig. 32

**32a:** Press the On/Off button to return to the previous screen.

**32b:** Use the channel 1 +/- button to select the parameter you wish to edit: pulse width for each channel, period, or programme duration.

**32c:** Use the channel 2 +/- button to edit the value of the parameter you have selected.

**32e:** Press the channel 4 +/- button to confirm you wish to exit the programme.

**NOTE:** The default values of the **Total manual** programme are the same as the default values of the **Total automatic** programme.

### Partial manual

Partial denervation with choice of stimulation parameters to define the desired ramp.

## How it works

To use a ramp of your choice, first select the pulse width option in the corresponding channel. Confirm your choice and increase the stimulation intensity to the desired level.

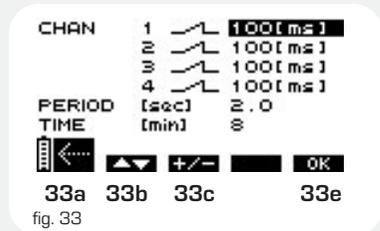


fig. 33

**33a:** Press the On/Off button to return to the previous screen.

**33b:** Use the channel 1 +/- button to edit: pulse width for each channel, period, or programme duration.

**33c:** Use the channel 2 +/- button to edit the value of parameter you have selected.

**33e:** Press the channel 4 +/- button to confirm your choice.

**NOTE:** Hold down the i button when in the stimulation or end of programme screen to access the parameters for the programme you are using.

## 7 - Electricity consumption and recharging

Never recharge the stimulator without first disconnecting the stimulation cables. Never recharge the battery with a charger other than that supplied by Compex.

The Compex 3 is powered by a rechargeable battery unit. The battery's life varies according to the programmes and stimulation energies used.

We strongly recommend you fully charge the battery before using it for the first time as this will extend its battery life and life span. If you do not use your stimulator for long periods of time, remember to recharge the battery regularly.

### A) Electricity consumption

The charge state of the battery is indicated by a small battery icon on the screen. If the battery icon contains just two lines, this means that power is running low. Stop the session and recharge the unit.

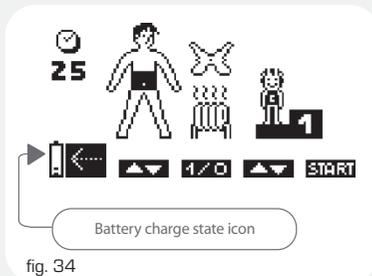


fig. 34

If the START symbol normally displayed above the channel 4 +/- button is not visible and the battery icon is flashing, this means that the battery is completely discharged. The stimulator can no longer be used. Recharge immediately.

### B) Recharging

Remove all stimulation cables from the stimulator before recharging it. Connect the charger to the mains and then connect the stimulator to the charger. The charge menu shown below will automatically appear on the screen.

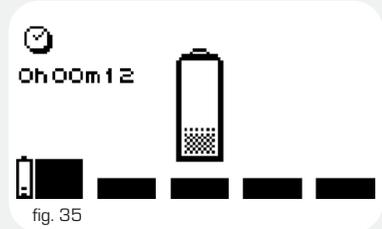


fig. 35

The duration of the recharging operation is displayed on the screen. The quick charger supplied with the stimulator fully recharges the stimulator within 60 to 90 minutes;

The battery icon is animated while the battery is recharging. When fully charged, the icon will be full and the total time taken to recharge the battery will flash on the screen. Simply disconnect the charger and the Compex 3 will turn off automatically.

**NOTE:** You can also use the docking station supplied with the Compex 3 to recharge your stimulator. (See chapter "Compex 3 Software").

## 8 - Troubleshooting

### A) Electrode error

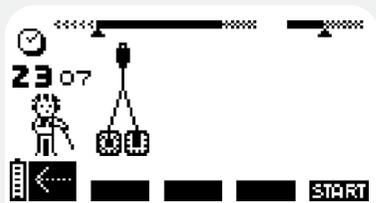


fig. 36

The Complex 3 will beep and alternately display a pair of electrodes and an arrow pointing to the channel where the problem was detected. In the example above, the stimulator has detected an error in channel 1.

The electrode error message can mean that:

- there are no electrodes connected to this channel,
- the electrodes are old, worn, and/or the contact is poor: try using new electrodes,
- the electrode cable is faulty: try connecting it to another channel. If the problem persists, replace the cable.

If this message appears, disconnect the charger. The unit will automatically turn off. Contact your customer support service and quote the corresponding error code. If you experience any other problems with your unit, contact your nearest authorized customer service support service.

### B) Memory full

Programme statistics are stored in the Complex 3's memory as compiled. When this memory is full, the following screen will appear.

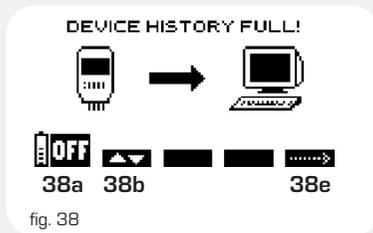


fig. 38

**38a:** Press the On/Off button to turn off the unit.

**38b:** Press the channel 1 +/- button to access the screen shown in Figure 39 and empty the memory without saving the data.

**38e:** Press the channel 4 +/- button to continue using the stimulator without emptying the memory. If you choose this option, no further programme data will be stored.

**NOTE:** If you are using Complex 3 software, you can store all the data from your stimulator in your PC. (See "Synchronizing" in the "Complex 3 Software" chapter.)

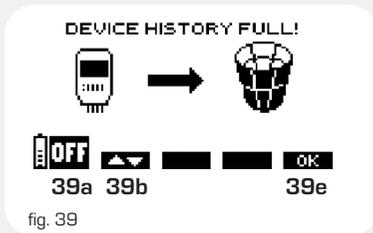


fig. 39

**39a:** Press the On/Off button to turn off the unit.

**39b:** Press the channel 1 +/- button to return to the previous screen.

**39e:** Press the channel 2 +/- button to confirm your choice. This will erase all the data stored in the Complex 3 without storing it in your computer.

# VI LIST OF PROGRAMMES

COMMON TREATMENT						
Categories	Programmes	Mi-SCAN	Mi-TENS	Mi-ACTION	Mi-RANGE	Channel TENS
Rehabilitation	Disuse atrophy	■		▼		2
	Preu of disuse atrophy	■		▼		2
	Reinforcement	■		▼		2
	Hip prosthesis	■				2
	Patellar syndrome	■				1
	Rotator cuff	■		▼		2
	ACL	■				
	Muscle lesion	■		▼		2
	Motor Point					
	Analgesic	TENS		●		
Modulated TENS			●			
Endorphinic		■			▲	2
Decontracture		■			▲	2
Cervical pain		■			▲	2
Thoracic back pain		■			▲	2
Low back pain		■			▲	2
Lumbosciatica		■			▲	2
Lumbago		■			▲	2
Epicondylitis			●			
Torticolis		■			▲	2
Arthralgia		●				
Vascular	Heavy legs	■			▲	
	Venous insufficiency 1	■				
	Venous insufficiency 2	■				
	Arterial insufficiency 1	■				
	Arterial insufficiency 2	■				
	Cramp Prevention	■			▲	
	Capillarization	■			▲	

## SPECIFIC TREATMENT

Categories	Programmes	Mi-SCAN	Mi-TENS	Mi-ACTION	Mi-RANGE	Channel TENS
Direct current	Iontophoresis					
	Hyperhidrosis					
	Oedema					
Denervated	Total automatic					
	Partial automatic					
	Total manual					
	Partial manual					
Ago/Antago	Atrophy 1/1	■				
	Reinforcement 1/1	■				
	Atrophy 2/1	■				
	Reinforcement 2/1	■				
Incontinence	Stress incontinence					
	Urge incontinence					
	Mixed incontinence					
	Post partum prev.					
Spasticity	Hemiplegic foot	■				
	Spasticity	■				
	Shoulder subluxation	■				2
Haemophilia	H Disuse atrophy	■				2
	H Reinforcement	■				2
Aesthetic	Toning	■		▼		
	Firming	■		▼		
	Shaping	■		▼		
	Refinement	■		▼		
	Abs	■				
	Buttocks	■				
	Elasticity	■			▲	
	Calorilysis	■				
	Adipostress					
Personalized						

## CONDITIONING

Categories	Programmes	mi-SCAN	mi-TENS	mi-ACTION	mi-RANGE	Channell TENS
Sport	Potentiation	■				
	Endurance	■				
	Resistance	■		▼		
	Strength	■		▼		
	Explosive strength	■		▼		
	Plyometry	■		▼		
	Hypertrophy	■		▼		
	Regeneration	■		▼		
	Stretching	■				
	Low back reinforcement	■		▼		
	Core stabilization	■		▼		
	Active recovery	■				▲
	Recovery plus	■				▲
Fitness	Muscle building	■		▼		
	Body building	■		▼		
	Muscle definition	■		▼		
	Aerobic	■		▼		
	Anaerobic	■		▼		
	Power	■		▼		
	Step	■		▼		
	Cross-training	Fartlek	■		▼	
Cross-endurance		■		▼		
Cross-resistance		■		▼		
Cross-explosivity		■		▼		
Massage	Toning massage	■				▲
	Relaxing massage	■				▲
	Reviving massage	■				▲
	Anti-stress massage	■				▲
	Undulated massage 1	■				▲
	Undulated massage 2	■				▲
Test	Demo	■	●	▼	▲	

# VII COMPEX 3 SOFTWARE

## 1 - Scope

Your Compex 3 stimulator comes with a Compex 3 software programme that will help you to manage your patients.

The programme offers 3 main features that will allow you to:

- Create a list of patients under treatment
- Create a patient history
- Create personalised programmes

### A) Creating a patient list

Compex 3 software allows you to create a list of patients on your computer and assign each patient a list of treatments to be performed. You can then transfer this information to the Compex 3 stimulator, where you will have direct access to priority treatments and be able to ensure that the treatments performed, by you or a colleague, are consistent with your therapeutic choices.

The option also allows you to initiate an electrotherapy session without having to first consult the patient's file on your computer.

### B) Creating a patient history

Any treatments performed on a patient are recorded by the stimulator and can then be transferred to the patient's history file stored on the computer.

In addition to creating a patient history, you can also consult statistics on stimulator use and check which treatments have been used most.

### C) Creating a personalised programme

The software also allows you to design your own treatment programmes, which can then be transferred to the stimulator and used like any other programmes.

**NOTE:** Compex 3 software is optional. It is not a requirement for using the Compex 3 stimulator.

## 2 - Mode of operation

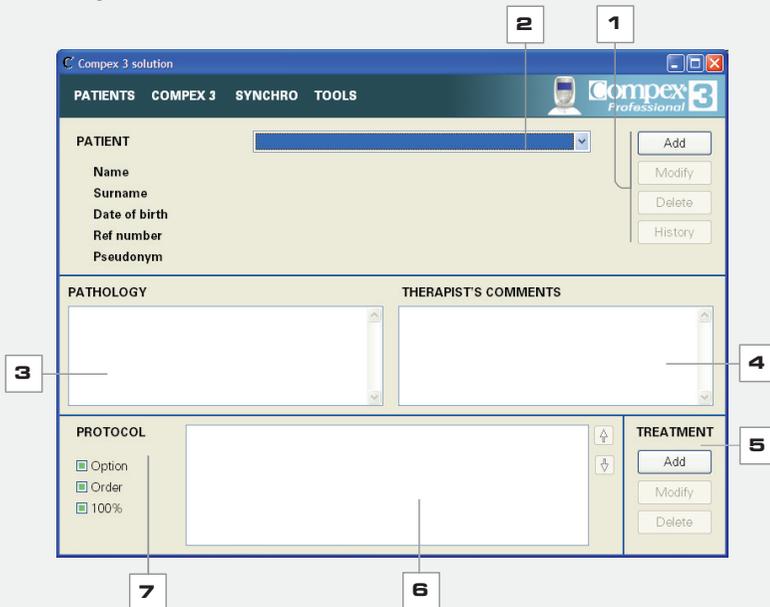
Once the software is installed on your computer, you will see the following task bar on your screen.

This bar allows you to access the different features of the programme.



### A) Creating a patient file

Click on the PATIENTS button to bring up the following screen:



**1** This screen allows you add, edit, or delete a patient's file or consult his history.

**Add.** Use this to create a new patient file.

Two of the fields in the patient file are obligatory:

- the patient's surname
- the user name that you wish to use in the stimulator. The programme will automatically propose a user name consisting of the patient's surname and the first letter of his first name. If the name already exists, you will be asked to change it. You can assign any user name you wish as long as it does not exceed 20 characters (including spaces). All of the other fields are optional.

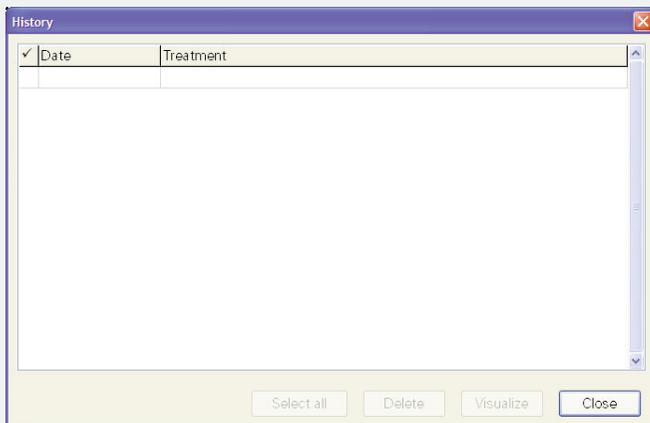
**OK:** Click this to create a new patient.

**Cancel:** Click this to cancel the creation of a new patient.

**Edit:** Click this to modify a new patient file.

**Delete:** Click this to permanently remove a patient file from the computer's memory.

**History:** Click this to consult a patient's history.



**Select all:** Click this to assign all the checked treatments to your patient. You can also assign treatments manually by double clicking on the corresponding line.

**Delete:** Click this to delete checked treatments.

**View:** Click this to view details of checked treatments:

- normal mode shows the patient's personal details, treatments received, and any comments added by the therapist.
- detailed mode shows the same information as above in addition to details of maximum and average energy levels and programme parameters.

**NOTE:** You can print or save any of the files you view.

**Close:** Click this to close the window.

**NOTE:** Click the heading of the corresponding column to sort the entries by date or treatment.

**2** Use option 2 to select a patient.

The patient list contains a list of all the patients for whom you have created a file using the Complex 3 software programme.

These files are stored in your computer and can be used to define the electrotherapy treatments (type of treatment and number of sessions) you wish to assign to each patient.

To select a patient, click  and choose the name you want from the drop-down list.

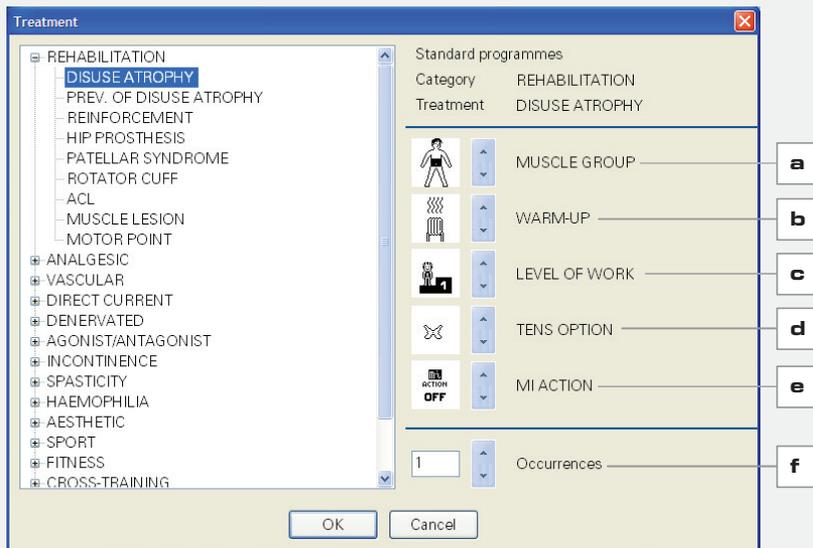
**NOTE:** To make it easier to find a particular patient, key in the first letter of his name or right click to search by surname, first name, or user name.

**3** Use this box to enter details of the patient's pathology.

**4** Use this box to enter any additional comments.

**5** Use these options to add, edit, or delete a treatment from the patient's protocol (if you add a treatment, it will be added to area no. 6).

**Add:** Click this to add a new treatment.



The window on the left of this screen contains a list of standard programmes and their respective categories. Personalised programmes are at the end of the list.

Click on any of the plus signs to view a list of options within the corresponding category.

Once you have selected a programme (by clicking on its name), you will be able to define different usage parameters by using the arrows (For meaning of symbols, refer to chapter "Neurosimulation programmes, Personalising a programme" in page 23.

- a) choose muscle group
- b) choose warm-up
- c) choose level of work
- d) choose **TENS** option
- e) choose **MI-ACTION** or Personalised **TENS** option
- f) choose number of times you wish each treatment to be performed

**OK:** Click this to create a new treatment.

**Cancel:** Click this to exit without saving your changes.

**Edit:** Click this to edit the parameters for the treatment that is highlighted in the protocol.

**Delete:** Click this to remove the treatment that is highlighted in the protocol.

**6** This window allows you to view the contents of a patient's protocol.

To change the order of treatments, use the programme's drag and drop option. In other words, left click on the treatment you wish to move, drag it to its new position, and release the mouse button.

**NOTE:** maximum of 50 treatments can be added to any protocol.

**7** Option 7 allows you to personalise a patient's entire protocol.

**Option menu access:** This option, which is enabled by default, allows the user to access the stimulator's treatment options screen and edit the corresponding options (muscle group, warm-up, level of work, etc.). If you wish to prevent access to this menu, uncheck the corresponding box.

**Fixed execution order:** This option, which is unchecked by default, can be used to execute treatments in the order you want. By checking this box, you will ensure that the treatments in the list are executed in the order shown (starting from the top).

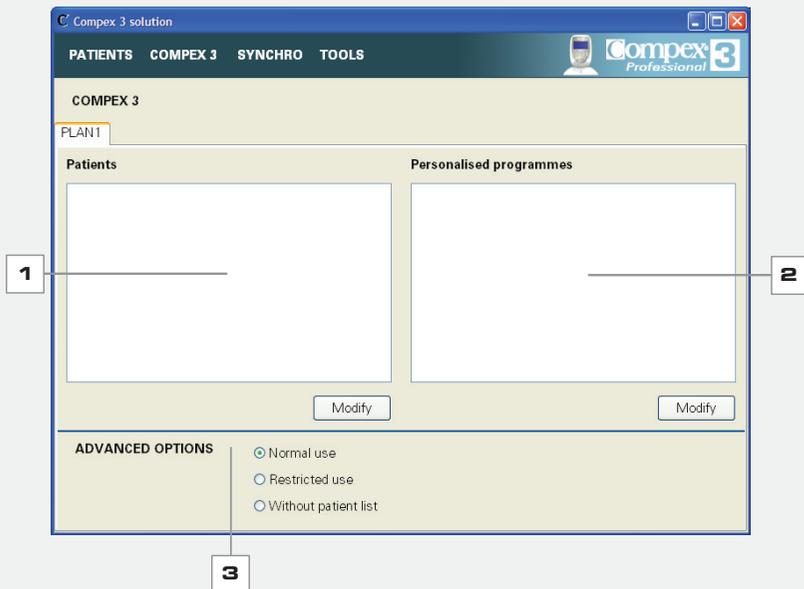
**100% treatment execution compulsory:** This option, which is unchecked by default, can be used to add treatments that have only been 100% completed to the patient's history. If left unchecked, any treatment that has been 10% completed will be added. This option is particularly useful when the stimulator is given to a patient to use at home.

## B) Preparing data to transfer to Complex 3

Once you have created a patient list using Complex 3 software, it is a good idea to transfer a list of patients that are currently being treated, together with their treatment protocol, to the Complex 3

stimulator. It does not make much sense to transfer all the patients in the computer's database to the stimulator.

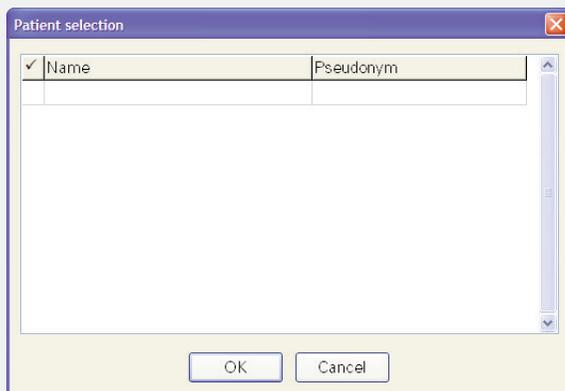
Click on the COMPLEX 3 button to bring up the following screen.



**1** This screen allows you to view the patients that will be transferred to the stimulator during the next synchronisation process. The user names in this list will appear on the stimulator's screen following synchronisation.

**NOTE:** A maximum of 50 patients can be transferred to the stimulator.

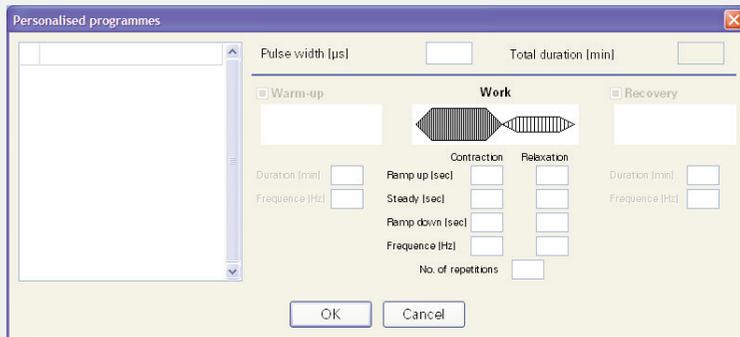
**Edit:** Click this to edit the list, i.e. add or remove patients.



Double click on the lines containing the patients you wish to transfer to your stimulator. Their names will appear in area 1. To remove a patient from the list simply uncheck the corresponding box.

**OK:** Click this to confirm your choices.

**Cancel:** Click this to exit without saving your changes.



Double click on the lines corresponding to the programmes you wish to transfer to your stimulator and view their corresponding parameters. The programmes will be stored in the Personalised programmes category of the Specific Treatment type of the Complex 3 stimulator.

To remove a programme from the list simply uncheck the corresponding box.

**OK:** Click this to confirm your choices.

**Cancel:** Click this to exit without saving your changes.

**3** This section of the screen contains a series of advanced options that can be used to define your plans. A plan contains the different data that you wish to transfer to the stimulator. There are 3 possible settings.

**Normal use:** Default mode that allows users to access all the options available for the Complex 3 stimulator and software. The stimulator can work with or without a patient list. New patients can be created in the stimulator. Users have unrestricted access to both normal and personalised programmes.

**2** This window shows the list of personalised programmes that will be transferred to the stimulator during the next synchronisation process. The names of these programmes will appear on the stimulator's screen following synchronisation.

**NOTE:** A maximum of 100 personalised programmes can be added to the stimulator.

**Edit:** Click this to edit the list, i.e. add or remove personalised programmes.

**Restrictive use:** Mode that allows users access only to the list of treatments for the patient[s] stored in stimulator's memory. New patients cannot be created in the stimulator. Treatments can no longer be performed when a preestablished number is reached.

**Without patient list:** There is no patient list in the stimulator. Users can, however, access personalised programmes.

## C) Synchronising the stimulator

When the stimulator is connected to your computer, either via the docking station or directly, via a USB cable, you can transfer data from the computer to the stimulator and vice versa.

The software retrieves the data stored in the stimulator since the last synchronisation and updates the data on the computer by recording the content of the stimulator's history file.

It then updates the patient list on the stimulator so that it coincides with the list on the computer.

Click the SYNCHRO button to bring up the following screen:



**1** This screen allows you to lock the stimulator (anti-theft system). Complex 3 software allows you to block the stimulator after a fixed number of days. To do this, check the corresponding box and enter the number of days you wish it to operate for.

When the lock option is checked, the stimulator will only function for the number of days you have specified. The days are counted from the moment of synchronisation. After this time, the user will not be able to execute any treatments and the stimulator will only function again once it has been resynchronised. To release the lock function, the stimulator must be synchronised with the same computer that was used to lock it.

**OK:** Click this to start the synchronisation process.

**Annuler:** Click this to cancel the synchronisation process.

A message will appear on the screen indicating the successful completion of the process.

**NOTE:** When working in multi-plan mode (see D) Tools, Plans settings), you will be asked to choose which plan you wish to synchronise.

### When should you synchronise a stimulator ?

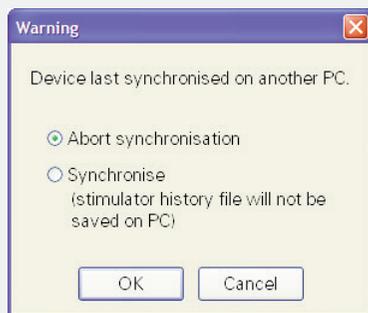
Synchronisation is necessary whenever you wish to modify the list of patients in the stimulator, when you wish to update your patients' treatment histories, or when you wish to transfer a new set of personalised programmes to the stimulator.

### When should you synchronise several stimulators at the same time?

When you are using several Complex 3 stimulators, we recommend that you synchronise these regularly in order to keep the patients' treatment histories up to date. When synchronising several stimulators at a time, first synchronise each stimulator to retrieve the information stored in their memories, and then repeat the process to ensure that they are all updated with the same data.

### Synchronising with another computer

If you attempt to synchronise your stimulator with a computer other than the one you normally use, the following screen will appear.

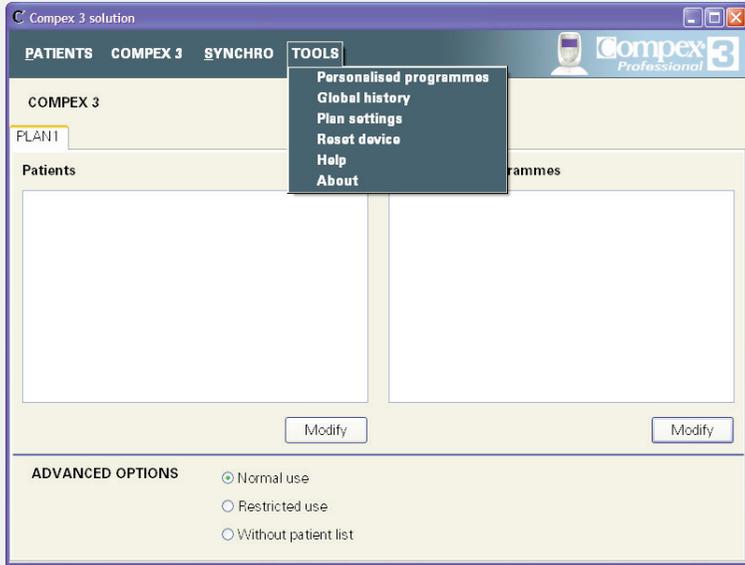


You can choose to abort or continue the process. If you continue, however, bear in mind that you will lose any data stored in the stimulator's history file since the last synchronisation. You will also be updating the stimulator with the data contained in the software on the computer you are using.

**NOTE:** Complex 3 software is only compatible with the Complex 3 stimulator. It cannot be used to synchronise other stimulators.

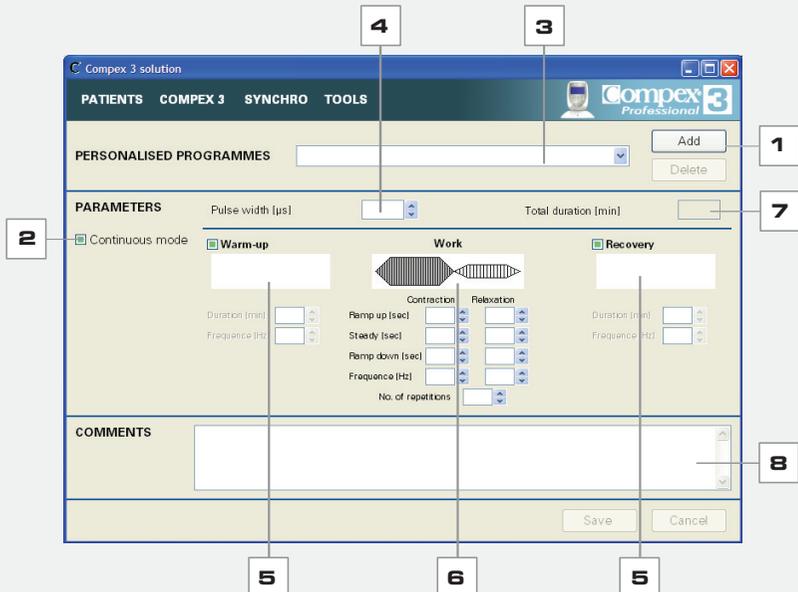
## D) Tools

Click on the TOOLS button to view the following drop-down menu:



Personalised programmes: This option allows you to create your own programmes with a view to transferring them to the Compex 3 stimulator.

Click on the Personalised Programmes option to bring up the following screen:





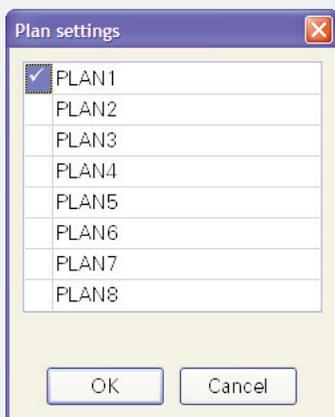
Double click on the lines of any entries you wish you to print or delete.

**Print.** Click this to print the checked entries on the screen.

**Delete.** Click this to delete the checked entries.

**NOTE:** Click the heading of the corresponding column to sort entries by date, patient, or treatment. Remember that you can also consult a patient's history in the Complex 3 patient file on the computer (see A) Creating a patient history, point 1).

**Plan setting.** This window allows you to programme and manage up to 8 different plans on 8 different stimulators. Click on Plan Setting to bring up the following screen:



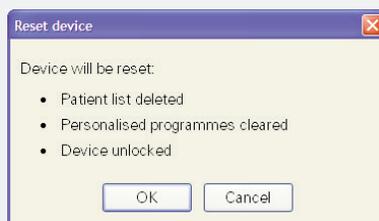
Double click on any entries you wish you to print or delete. To change the name of the plan, simply click on its name. Any new plans will be added to the screen of your Complex 3 stimulator (see B) Preparing data to transfer to Complex 3).

**OK:** Click this to confirm the number of plans.

**Cancel:** Click this to exit without saving your changes.

**NOTE:** Working in multi-plan mode is useful when you wish to install different plans on different stimulators. However, if you wish to install the same plan on several stimulators, you can work in mono-plan mode.

**Reset the device.** Use this option to restore your stimulator to its original settings (settings prior to first synchronisation). This will delete the patient list and any personalised programmes installed on the stimulator. It will also delete the lock option (See C) Synchronising the stimulator, point 1).



**OK:** Click this to confirm you wish to restore the original settings.

**Cancel:** Click here to cancel the operation and return to the previous screen.

**Help.** The help section provides you with access to the different Complex 3 manuals (User Manual, Practical Guide, and the electrode placement video).

## 3 - Using the Complex 3 stimulator with a patient list

When you synchronise your Complex 3 stimulator with the Complex 3 software for the first time, you will transfer any patients you have selected, together with their protocols, to the stimulator.

### A) Using the Complex 3 stimulator with a patient list

When the transfer is complete, the Complex 3 screen will appear as follows:

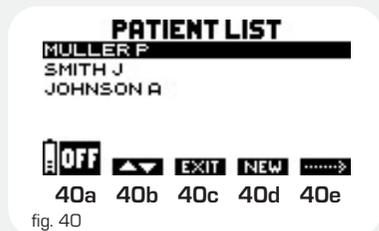


fig. 40

**40a:** Press the On/Off button to turn off the unit.

**40b:** Use the channel 1 +/- button to select a patient from the list.

**40c:** Use the channel 2 +/- button to remove the patient list and access the different types of treatment (common treatments, specific treatments, and conditioning). When you use this button, the treatment you execute will not be recorded under the name of a patient.

**40d:** Use the channel 3 +/- button to create a new patient.

**40e:** Use the channel 4 +/- button to access the patient's programme list and bring up the following screen.

**NOTE:** Channel 2 and 3 +/- buttons are disabled if the restrictive mode is selected (see B) Preparing data to transfer to Complex 3, point 3).



fig. 41

**41a:** Press the On/Off button to go back to the previous screen.

**41b:** Use the channel 1 +/- button to select a programme from the list.

**41c:** Use the channel 2 +/- button to access a programme that is not on the list.

**41d:** Use the channel 3 +/- button to access the programme options menu.

**41e:** Press the channel 4 +/- button to start the programme.

**NOTE:** Press the I button to access the history of treatments performed on the patient.

### B) Creating a new patient in the Complex 3 stimulator

This function allows you to start an electrotherapy treatment for a new patient and store his history without having to first create the patient file on the computer.

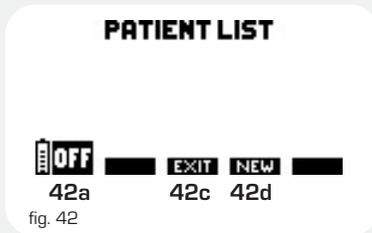


fig. 42

**42a:** Press the On/Off button to turn off the unit.

**42c:** Use the channel 2 +/- button to remove the patient list and access the different types of treatment (common treatments, specific treatments, and conditioning).

**42d:** Use the channel 3 +/- button to confirm the creation of a new patient and bring up the following screen.

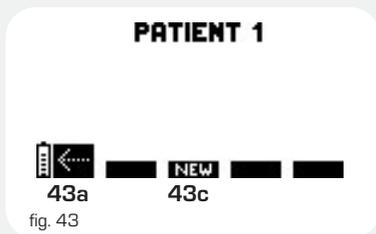


fig. 43

**43a:** Press the On/Off button to go back to the previous screen.

**43c:** Use the channel 2 +/- button to select a new treatment for the patient that is highlighted (in this example, patient 1). The history of this treatment will be saved in the stimulator under the patient's name (in this example, patient 1).

**NOTE:** Whenever you select a new patient, the treatment performed will be recorded in his history.

Press the *i* button to view the screen containing the history of treatments performed for the patient that is highlighted.

When you synchronise the stimulator with your computer, you will be asked to rename the new patient (in our example patient 1) in order to create a patient file in the Compex 3 database stored on the computer. The patient's history will then be stored on the computer. Completed treatments will be removed from the protocol you design for this patient.