



**EMS Physio Ltd.**  
Grove Technology Park  
Downsview Road  
Wantage  
Oxfordshire OX12 9FE  
England

**User Manual**  
**Bio-Trac Plus**

**CE**  
**0120**



## ***General Information***

This manual provides the necessary information for the installation and operation of the Bio-Trac Plus.

These instructions must be studied before putting the unit into operation.

The information contained in this manual is subject to change without notice.

No part of this manual may be photocopied, reproduced or translated into another language without the prior written consent of EMS Physio Ltd.

The Bio-Trac Plus is a combined dual-channel EMG biofeedback unit and neuromuscular stimulator.

EMG biofeedback has been shown to be useful in enabling patients to perform an activity which they find difficult to do at will and also for control of stress related conditions. In addition the Bio-Trac Plus may be used for muscle stimulation and re-education.

It is intended that the Bio-Trac Plus is only used by, or under the supervision of, qualified healthcare professionals such as physiotherapists who have received training in electrotherapy.

## ***Record of Amendments***

ISSUE	COMMENTS	DATE
1	Initial Issue	01/08/2001
2	Revised	28/02/2002
3	Updated for Software V 1.22	03/09/2003
4	Revised	22/10/2003
5	Revised	23/02/2005
6	Updated for model 97A	24/06/2005
7	Updated for new PCB	04/07/2007

## EC Declaration of Conformity

EMS Physio Ltd.  
Downsview Road  
Grove technology Park  
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Oxfordshire  
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United Kingdom

Declares that the following medical device is in conformity with the essential requirements and provisions of Council Directive 93/42/EEC and is subject to the procedure set out in Annex 2 of Directive 93/42/EEC under the supervision of Notified Body Number 0120, SGS United Kingdom Ltd.

Product Name            Bio-Trac Plus

Model Numbers        97, 97A

Signature                

Position                Technical Director

Date first issued      1<sup>st</sup> September 2001

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## ***Warranty***

This EMS Physio Ltd., (hereinafter called the Company) product is warranted against defects in materials and workmanship for a period of two years from the date of shipment. The Company will at its option, repair or replace components which prove to be defective during the warranty period, provided that the repairs or replacements are carried out by the Company or its approved agents.

The Company will consider itself responsible for the effects on safety, reliability and performance of the product:-

only if assembly operations, re-adjustments, modifications or repairs are carried out by persons authorised by it,

only if the product is used in accordance with the instructions for use,

only if the electrical installation of the relevant room complies with the appropriate national requirements.

Should the product be returned to the Company for repair it must be sent carriage paid.

Consumable items, for example, electrodes, electrode covers and batteries, are excluded from the above warranty.

## *Introduction*

The Bio-Trac Plus is a dual-channel EMG biofeedback, neuromuscular stimulator and TENS unit.

### *EMG*

Electromyography (EMG) is the recording and study of the electrical changes associated with muscle activity. These electrical signals may vary from a few microvolts to one or two millivolts. The magnitude of the electrical signal increases as the muscle contracts and decreases as it relaxes. The EMG can, therefore, provide information about the current state of the muscle.

The Bio-Trac Plus, detects and amplifies the electrical signals from the muscles and displays them in graphic and numeric form. By observing the displayed EMG the patient can learn to control the muscle activity. Biofeedback is the process where the patient observes data acquired, in this case an EMG, to control the bodily function which produces that data, in this case the muscle activity. EMG biofeedback has two main applications. The first is the control of muscle activity or movement. In some applications biofeedback may be used to enable patients to perform an activity which they find difficult to do at will.

Secondly, EMG biofeedback has also been used for control of stress related conditions such as tension headache or migraine. In these applications the patient is encouraged to relax and obtain a minimum EMG.

### *Neuromuscular Stimulation*

The basic principle of neuromuscular electrical stimulation (NMES) is that a muscle can be forced to contract by means of stimulating the motor nerve supplying the muscle fibres. By selecting appropriate stimulation, the type, nature and effectiveness of the contraction can be controlled. Importantly, recent research evidence has demonstrated that changes in muscle physiology can be achieved as a direct result of muscle stimulation.

The Bio-Trac Plus has been developed for muscle stimulation and re-education and is particularly suited for the treatment of incontinence and trophic stimulation for Bell's palsy.

### *TENS*

Transcutaneous electrical nerve stimulation (TENS) refers to the application of low-intensity, short-duration pulses for the purpose of relieving pain. The Bio-Trac Plus provide two channels of asymmetric biphasic output with a wide range of pulse widths and repetition rates. The outputs are available in continuous, burst, modulated and surged modes.

### *ECS*

EMG controlled stimulation combines the EMG biofeedback and stimulation modes of the Bio-Trac Plus. When using EMG biofeedback with a work / rest cycle, the stimulator may be used to assist the muscle contraction during the work cycle.

Initially the stimulator is off. At the start of the work cycle, the patient contracts the muscle and the EMG signal increases. If the EMG exceeds the preset threshold value for a continuous period of 1 second, the stimulator output is enabled to assist the contraction until the end of the cycle.

## ***Contraindications and Precautions***

TENS and Stimulation contraindications:-

Patients fitted with demand-type pacemakers.

Electrodes should not be placed over the carotid sinus as this could lead to arrhythmias.

Electrodes should not be placed over the pharyngeal region.

Electrodes should not be placed over or close to the pregnant uterus.

Electrodes should not be used over broken skin due to variation in impedance and risk of infection.

Do not use TENS or Stimulation with any patient who does not understand the nature of the treatment.

Do not use TENS for treating undiagnosed pain conditions.

In **all** modes do not use the unit with vaginal electrodes during menstrual period or if there is evidence of bladder or vaginal infection.

## ***Technical Specification***

Dimensions	140 x 92 x 29 mm
Power	9V Battery PP3 (6LR61)
Display	100 x 65 pixel LCD with LED backlight
Weight	200 g excluding battery

### ***EMG***

Channels	2 displayed as A+B or A + A/B
Sensitivity	20 $\mu$ V to 2 mV full scale
Graphs	Line or Bar graph with numeric values
Audio Feedback	Above or below threshold, or proportional
Threshold	1.5 $\mu$ V to 1 mV
Work / Rest	Periods from 2 to 30 seconds
Cycles	1 to 50 Work / Rest cycles
Notch Filter	50 Hz or 60 Hz selectable
Memory	Save up to 30 minutes of data for statistical analysis or transfer to PC

### ***Stimulator***

Channels	2 with independent output control
Waveform	Asymmetric biphasic pulse
Pulse Rate	2 to 100 Hz
Pulse Width	50 to 450 $\mu$ s
Work / Rest	1 to 20 seconds
Treatment Time	0 to 30 minutes
Output Current	80 mA peak into 500 Ohms

### ***TENS***

Channels	2 with independent output control
Waveform	Asymmetric biphasic pulse
Pulse Rate	2 to 150 Hz
Pulse Width	50 to 300 $\mu$ s
Modes	Continuous, Burst, Modulated and Surged

### ***ECS (EMG Controlled Stimulation)***

Stimulation Work cycle is initiated when EMG has exceeded the threshold level for at least 1 second

*Environmental Conditions for Transport and Storage*

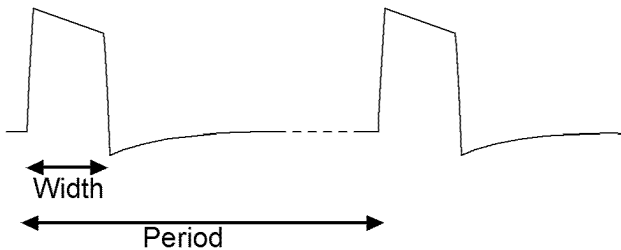
Temperature	-10 to +35 C
Relative Humidity	5 to 95%
Atmospheric Pressure	500 to 1060 hPa

Information on model, serial number and month/year of manufacture is located on the label on the back of the unit.

The Bio-Trac Plus has been designed to meet the requirements of IEC 601-1:1988 (BS 5724:Part 1:1989) "Medical Electrical Equipment, Part 1:General requirements for Safety".

The Bio-Trac Plus is supplied with electrode leads, battery, carrying pouch, two sets of 4 self-adhesive electrodes and this manual.

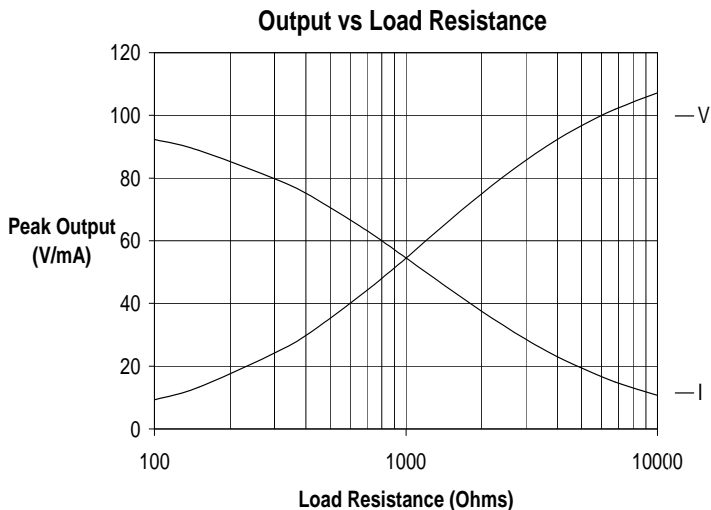
*Output Waveform*



Width = 50, 100, 150, 200, 250, 300, 350, 400 or 450  $\mu$ s  
Period (1/Rate) = 67 to 500 ms

### *Output Current and Voltage*

Graph shows the variation in output current and voltage with load resistance at maximum output.

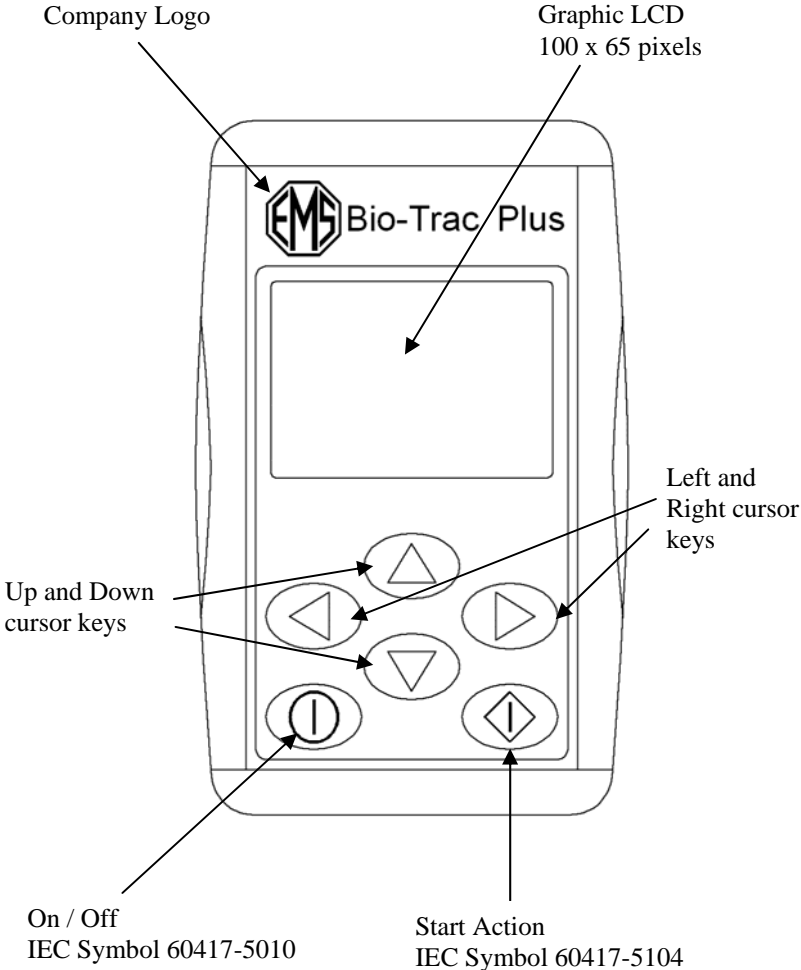


### *Accessories*

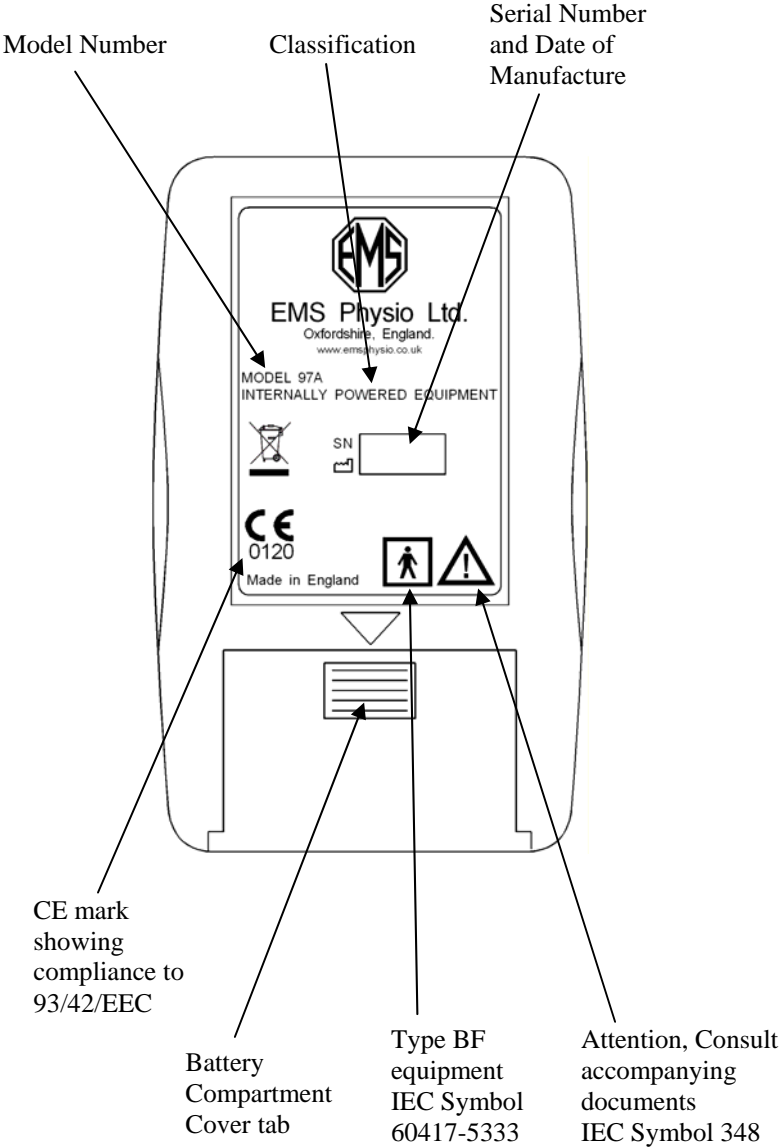
Catalogue Number	Description
16-223	Dual Electrode Lead (Black)
16-224	Dual Electrode Lead (White)
16-225	Reference Electrode Lead
RB450	Self-adhesive Electrodes 25mm diameter (Pack of 4)
RB5160	Periform Vaginal Electrode
RB5164	Anuform Anal Electrode
1-75	PP3 Battery

*Controls and Markings*

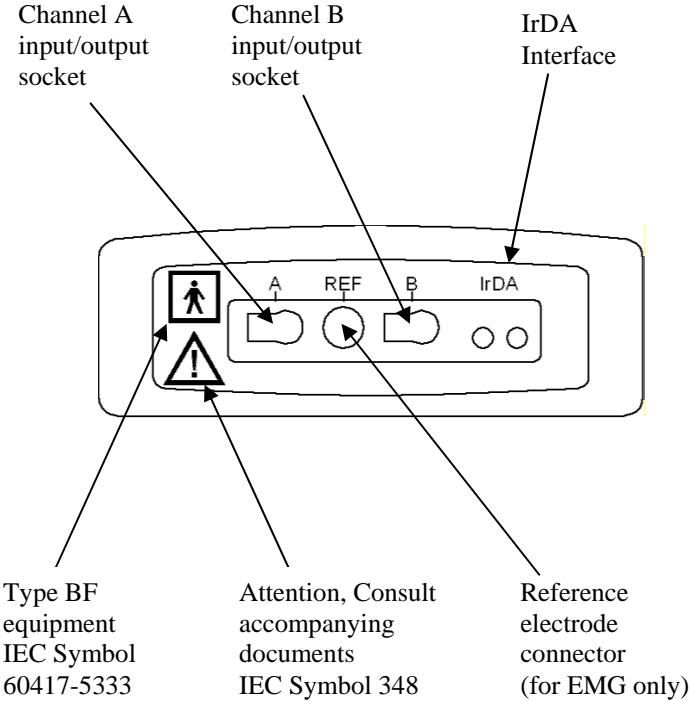
**Bio-Trac Plus Control Panel**



**Bio-Trac Plus Rear Panel**



# Bio-Trac Plus Connectors



## ***Installation***

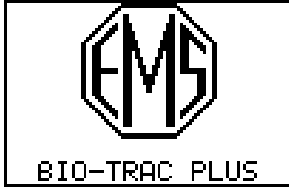
Upon receipt, check for any visible damage which may have occurred in transit. If any signs of damage are found then retain all packing material and inform the carrier and the Company or its agent from whom the unit was purchased.

The Bio-Trac Plus is battery powered and is supplied with a suitable battery. To fit the battery, first remove the battery compartment cover by pressing the tab on the cover and sliding the cover downward away from the unit. Insert the battery into the compartment observing the battery polarity and replace the cover.

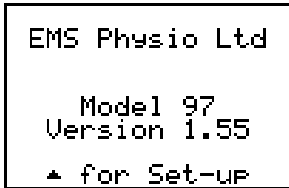
When the battery in the Bio-Trac Plus is spent or if the Bio-Trac Plus is not to be used for several days then the battery should be removed. The use of an alkaline 9V battery is recommended. Rechargeable NiMh (nickel metal-hydride) batteries may be used but it must be remembered that their capacity is typically 20% of that of an alkaline battery.

Never attempt to power the Bio-Trac Plus from a source other than the specified battery type.

## *Operating Instructions*

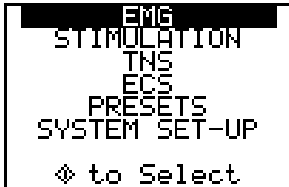


Switch on the Bio-Trac Plus by holding down the on/off button until the company Logo is displayed on the LCD.



After 2 seconds the start-up screen will show the company name, the model number and software version.

At the bottom of the screen a message is displayed showing that pressing the up cursor key will enter Set-up. Set-up provides a method of setting the LCD contrast, sounder volume, key-click, display language and EMG notch filter frequency (see page 27).



After 3 seconds the LCD will show the main menu.

Use the up and down cursor keys to highlight the required option and then press the action key.

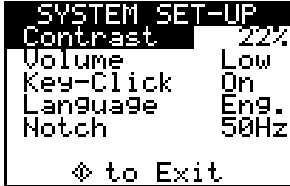
The Bio-Trac Plus may be turned off at any time by pressing the on/off key.

All other keys on the Bio-Trac Plus repeat if held down.

When using the Bio-Trac Plus for the first time, it is recommended that the system set-up option is entered and the settings reviewed.

## System Set-up

Set-up may be entered by pressing the up cursor key when prompted from the start-up screen or by selecting it from the main menu.



In the system set-up menu, use the up and down cursor keys to highlight the parameter to be modified and then use the left and right cursor keys to change the setting.

Set-up gives access to the following options:-

**Contrast** - Use the left and right cursor keys to set the LCD contrast.

**Volume** - The internal sounder has two volume settings low or high.

**Key-Click** - The key-click option will give a short beep each time a key is pressed to give an audible confirmation of the action.

**Language** - Sets the language of the displayed text.

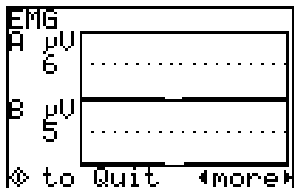
**Notch** – This option is used to set the frequency of the notch filter to that of the local mains (line) frequency to reduce interference to the EMG signal. In the UK this should always be set to 50 Hz. Some countries, eg. USA and Canada, use 60 Hz mains supply, so the unit has the capability of setting the notch filter to this frequency.

When the start action key is pressed to exit set-up, the settings are saved to non-volatile<sup>1</sup> memory so that they will be available each time the unit is turned on.

<sup>1</sup> Non-volatile memory retains its data even when the unit is turned off.

## EMG Mode

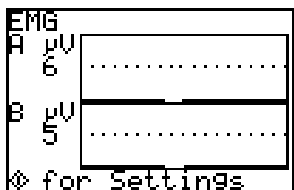
For EMG mode, from the main menu highlight EMG and press the start action key.



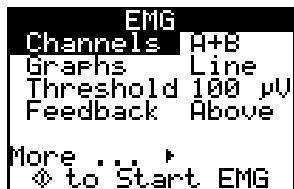
The default EMG display is 2 channels (A+B), line graphs with a fullscale sensitivity of 200 $\mu$ V.

The default action is to return to the main menu by pressing the start action key. To view the other available options

press the left or right cursor keys and the Bio-Trac Plus will change the action on the bottom line of the display.



To change the EMG settings, press the left or right cursor key until the action reads “for Settings” and then press the start action key.



To change the EMG settings, highlight the parameter to be modified using the up and down cursor keys and then use the left and right keys to change the setting to the previous or next option.

The following options are available:-

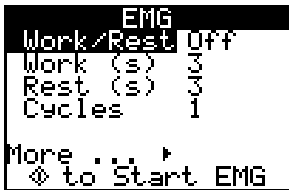
**Channels** - The Bio-Trac Plus is a dual channel unit and normally displays both channels A and B. When single channel operation is required, A only may be selected when the line graph uses more of the available display area. In some applications the relative EMG output from two muscles may be significant. It is, therefore, possible to display channel A and the ratio A/B as a percentage. The range is 0 to 200%.

**Graphs** - The EMG may be displayed as line graphs or as numeric values and a bar graph for channel A.

**Threshold** - The threshold value sets the point at 50% of full scale on the line or bar graphs. This is used as a "target" value for biofeedback. The value may be set from the main menu or can be set from the EMG display screen automatically.

**Feedback** - Audio feedback is available as an alarm when the channel A EMG is above the threshold value, below the threshold value or as a signal with a repetition rate proportional to the EMG voltage.

The set-up for EMG continues on to a second display page. To access the second page, highlight the label "More ..." and press the right cursor key.



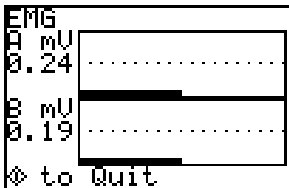
A preset work / rest cycle may be used with EMG. If a work / rest cycle is to be used the **Work /Rest** must be set to On.

The **Work** and **Rest** time may be set in seconds by highlighting the Work or Rest labels using the up and down cursor keys and then setting the number of seconds required using the left and right keys.

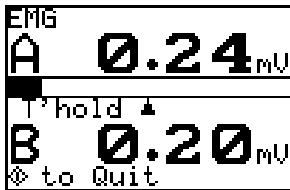
**Cycles** sets the number of Work / Rest cycles during the test. The test is automatically terminated when the preset number of work / rest cycles has been completed.

Highlighting "More ..." and pressing the right key returns the display to the first EMG set-up page.

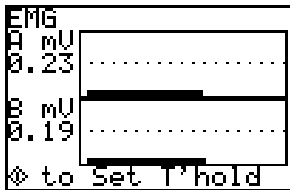
To begin the EMG session press the start action key .



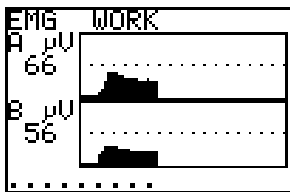
If line graphs have been selected, the EMGs will be displayed as underfilled graphs with numeric values for each channel at the left of the screen. The dotted line shows the threshold level.



If bar graphs have been selected then the numeric value for each channel is shown in large characters. The bar graph at the centre of the display is for channel A EMG with the marker below it showing the threshold level.



The channel A EMG threshold may be set automatically from the EMG display screen. To set the threshold, pressing the left or right key to change the action to "Set T'hold" (set threshold).



Press the start action key. The Bio-Trac Plus will give a half second beep and display WORK at the top of the display. This instructs the patient to contract the muscle. The Bio-Trac Plus will monitor the EMG for at least 8 seconds and look for the maximum

value during the work period. The threshold is set to 50% of the maximum recorded EMG for channel A.

The other options are "Run" and "Run & Save" the test. If work / rest is on then the patient will be guided through the work and rest periods for the number of cycles requested. The Run & Save option saves the EMG data in non-volatile<sup>1</sup> memory and analyses the data on completion of the test, displaying a statistical summary. If the Run & Save option is used the data may also be transferred to a PC via the IrDA interface for additional analysis.

If either option is selected after an initial 2 second rest the test starts with work (prompted by the message at the top of the display and a 0.5 second beep) then rest (0.25 second beep) and continues for the cycles requested in the EMG set-up. The cycle number is shown at the top right of the display.

<sup>1</sup> Non-volatile memory retains its data even when the unit is turned off.

The test is automatically terminated when all cycles are complete. If Run & Save was selected, then a statistical summary is displayed at the end of the test.

Max	A $\mu$ V	B $\mu$ V
Min	86	78
Av Work	4	6
Av Rest	65	57
	7	10
Next Page $\blacktriangleright$		
$\diamond$ to Quit		

On the first page of results, the maximum and minimum recorded EMG value for each channel during the complete test is shown.

Av Work is the average value of the EMG during all of the work periods excluding the first second of each work segment.

Av Rest is the average value of the EMG during all of the rest periods excluding the first second of each rest segment.

Press the right cursor key to view the second page of results.

Onset	A s	B s
Release	0.6	0.5
Above	0.7	0.7
Below	15	14
	16	17
$\blacktriangleleft$ Previous Page		
$\diamond$ to Quit		

Onset is the average time from the work prompt to the EMG reaching the threshold value. Cycles where the EMG does not reach the threshold level or where the EMG was over the threshold at the start of the work segment are ignored.

Release is the average time from the rest prompt to the EMG falling below the threshold value. Cycles where the EMG does not fall below the threshold level or where the EMG was below the threshold at the start of the rest segment are ignored.

Above and Below are the total time the EMG was above and below the threshold level for each channel.

Pressing the start action key returns to the EMG display.

## STIMULATION Mode

When STIMULATION is selected from the main menu the following options are available:-

```

STIMULATION
Rate (Hz) 35
Width(µs) 200
Work (s) 4
Rest (s) 4
Time(m:s) 05:00
↓ menu ↑
⊕ for Treatment
    
```

**Rate** - Sets the number of stimulation pulses per second. The values available are from 2 to 100 Hz.

**Width** - Sets the stimulation pulse width in 50 µs increments from 50 to 450 µs.

**Work** - Sets the on time in seconds of each burst of stimulation pulses.

**Rest** - Sets the off time in seconds of each burst of stimulation pulses.

**Time** - Sets the total treatment time in 30 second increments up to a maximum of 60 minutes.

Highlighting the menu option and pressing the left or right cursor key returns to the main menu.

Having set the parameters as required, to start treatment press the start action key.

```

STIM          10:00
┌───┬───┐
│G→A│G→B│
│ 0 mA│ 0 mA│
├───┴───┤
│30Hz, 300µs│
│⊕ to Quit  │
└───┬───┘
    
```

At the top right of the display is the treatment time. The two boxes at the centre of the display show the channel A and channel B output level. The treatment time will not start to count down until either channel A or B output is advanced from zero. To

increase the output level, highlight the channel label using the up and down keys and then use then right cursor key to increase the output and the left cursor key to decrease it.

```

STIM WORK    09:43
┌───┬───┐
│G→A│G→B│
│50 mA│40 mA│
├───┴───┤
│35Hz, 200µs│
│Treatment  │
└───┬───┘
    
```

When either output is greater than zero the treatment timer will begin to count down and the work / rest sequence will start.

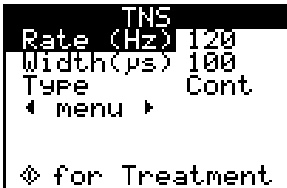
The work and rest segments are indicated by a message on the top line of the display and each work segment starts with a 0.5 second beep and each rest segment with a 0.25 second beep.

It is not possible to return to the stimulation setting display unless both outputs are at zero. During the last 5 seconds of treatment the outputs are reduced to zero automatically.

To return to the stimulation setting display at the end of treatment press the start action key.

### **TENS Mode**

When TENS mode is selected from the main menu the following options are available:-



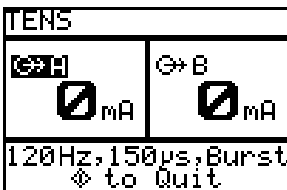
**Rate** - Sets the number of stimulation pulses per second. The values available are from 2 to 100 Hz.

**Width** - Sets the stimulation pulse width in 50 µs increments from 50 to 450 µs.

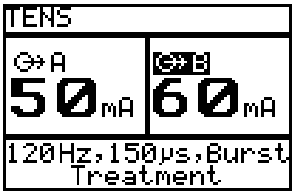
**Type** - Sets the modulation type to continuous, burst, modulated or surged. See technical specification for details.

Highlighting the menu option and pressing the left or right cursor key returns to the main menu.

Having set the parameters as required, to start treatment press the start action key.



The two boxes at the centre of the display show the channel A and channel B output level. To increase the output level, highlight the channel label using the up and down keys and then use then right cursor key to increase the output and the left cursor key to decrease it.

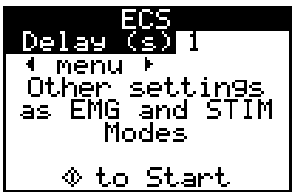


When either output is greater than zero "Treatment" is displayed at the bottom of the screen.

It is not possible to return to the TENS settings display unless both outputs are at zero.

**ECS Mode**

The ECS (EMG Controlled Stimulation) mode uses the stimulator output to assist muscle contraction. The EMG parameters are as set in the EMG mode. The Stimulator pulse width and rate are as set in the STIMULATION mode.

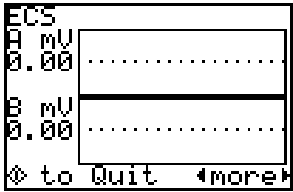


The work and rest periods are those taken from the EMG set-up **not** from the STIMULATION set-up.

The delay parameter is the time the Bio-Trac Plus allows for the system to recover after a stimulation segment before again monitoring the EMG.

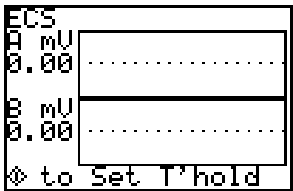
The delay is set in seconds. Normally 1 second is adequate.

To start ECS press the start action key.



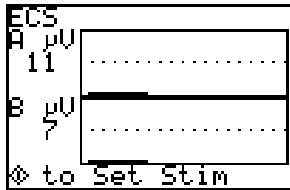
Pressing the start action key again will return to the ECS settings display.

Press the right cursor key for the next step.



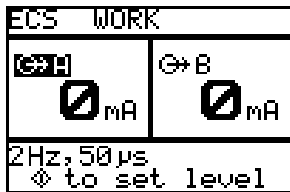
Press the start action key and set the threshold level as in normal EMG mode.

Press the right cursor key for the next step.

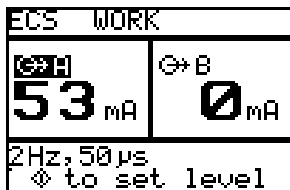


The next step is to set the correct stimulator output to achieve a reasonable muscle contraction.

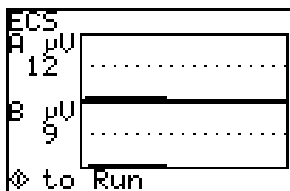
Press the start action key. The display will show the stimulation screen.



Use the cursor keys in the same way as with the normal STIMULATION mode to set a suitable output level for each channel.



When the output levels are as required press the start action key. The stimulator output will be terminated and the screen will return to the EMG monitoring display.



To start ECS press the start action key when the bottom line of the display shows "to Run".

The Bio-Trac Plus will start up as in EMG mode with a short rest period.

During the following work segment, if the EMG of channel A exceeds the threshold value for more than 1 second then the stimulator output will be enabled at the level set, to assist the muscle contraction. The EMG display will "overload" as the stimulation signal will be detected by the EMG channel. At the end of the EMG work segment the stimulator output will be terminated, the display will show WAIT on the top line for the preset delay, and then the REST period minus the delay will begin.

When all preset work / rest cycles have been completed the test will be terminated.

### Automatic Backlight Switch-off

If no buttons are pressed for more than ten seconds the LCD backlight switches off to conserve battery power. Any subsequent keypad presses will re-activate the backlight.

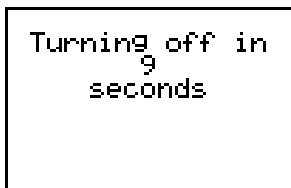
### Low Battery Detection

When the Bio-Trac Plus detects that the battery is not capable of reliably powering the unit, the bottom line of the LCD will show "Low Battery" once a second for approximately half a second.

### Automatic switch-off

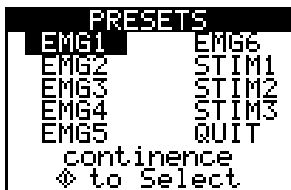
When the Bio-Trac Plus has not been used for 5 minutes and is left at the menu screen, it will give a short beep and display a message that it is about to turn itself off. If a key is pressed before 10 seconds has elapsed, the Bio-Trac Plus will return to the main menu.

To turn off the power manually, press the on / off key.



### PRESETS

When PRESETS is selected from the main menu a list of 6 EMG and 3 STIMULATION set-ups is displayed. To use one the preset programs, highlight the required program using the up and down cursor keys and press the start action key to run the program. As each item is highlighted a short description of the preset program is displayed at the bottom of the list.



<b>Preset</b>	<b>Description</b>	<b>Channel</b>	<b>Threshold</b>	<b>Other</b>
EMG1	Continenence	A+B	20 $\mu$ V	Work/Rest 5/5
EMG2	Weak muscles	A+B	50 $\mu$ V	Feedback proportional
EMG3	Medium sized muscles	A+B	100 $\mu$ V	Feedback proportional
EMG4	Large muscles	A+B	500 $\mu$ V	Feedback proportional
EMG5	Single muscle relaxation	A only	100 $\mu$ V	Feedback above
EMG6	Muscle balance	A+A/B	100 $\mu$ V	Feedback off
	<b>Rate</b>	<b>Width</b>	<b>Time</b>	<b>Work/Rest</b>
STIM1	10Hz	200 $\mu$ s	15:00	2/2 s
STIM2	20Hz	200 $\mu$ s	15:00	2/2 s
STIM3	35Hz	200 $\mu$ s	15:00	4/4 s

## *Electrodes*

It is recommended that only electrodes supplied by EMS Physio Ltd are used with the Bio-Trac Plus. A range of single patient use, self-adhesive electrodes and internal probes are available.

Inspect the area to be treated to ensure there are no open wounds, areas of infection, abrasions etc. Wash the skin in warm soapy water to minimise skin impedance and remove any creams or gels that may have been used.

Explain to the patient what is being done and what is going to happen.

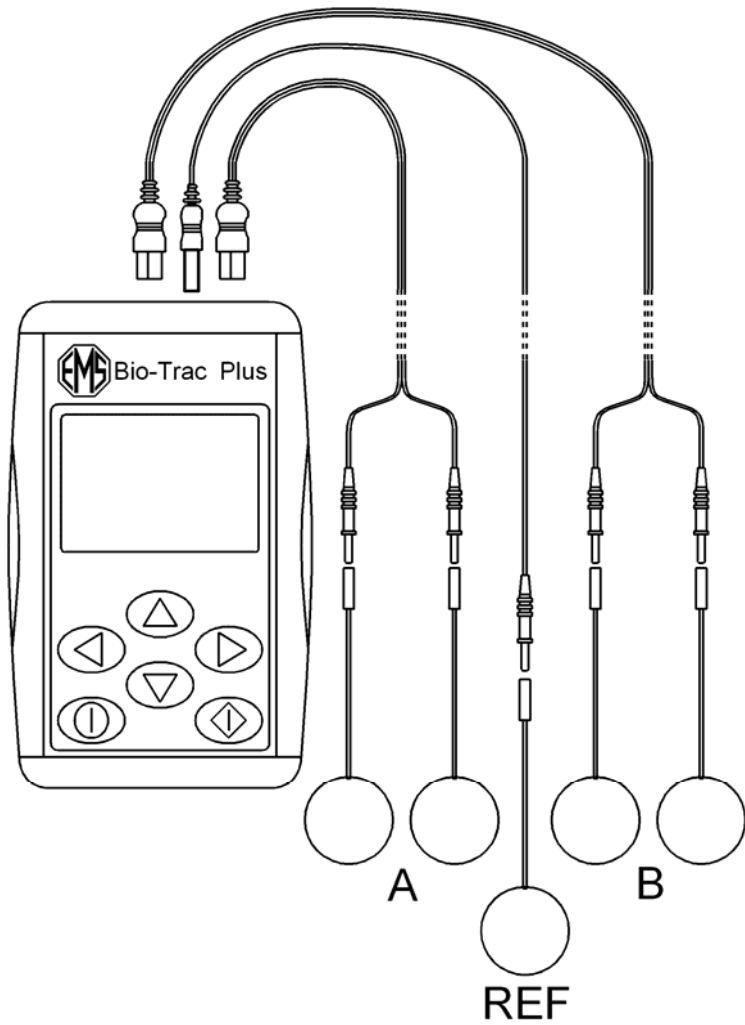
**Self-Adhesive electrodes:** Remove the electrode from the release liner and press firmly in place on the skin. Adhesion improves as the electrodes reach skin temperature. These are supplied with the Bio-Trac Plus for speed of application and to enable precise positioning of the electrodes. These electrodes are for single patient use only.

Connect the electrodes to the Bio-Trac Plus outputs with the cable provided. The A and B cables are a different colour for easy identification.

It is important to ensure that the patient feels the expected sensation in the required area during treatment, otherwise the electrodes should be relocated.

**The electrodes must never be placed so that the stimulation current crosses the chest, passes near the heart or directly across the brain.**

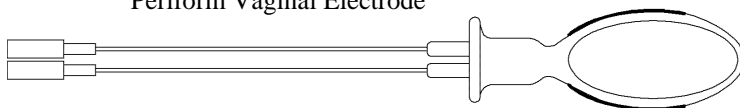
**Internal Probes:** A range of probes with integral connecting cables is available for vaginal and rectal use. See the current EMS catalogue / price list for the full range of accessories and electrodes.



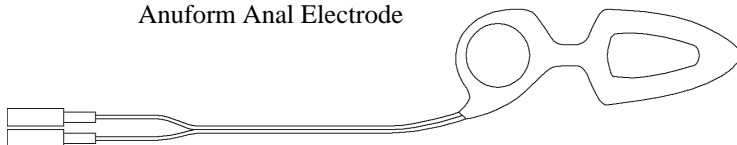
Note: The reference electrode is only required for EMG and ECS modes.

When using the internal probes for EMG and STIMULATION, connect the probe to channel A. The reference electrode should be placed on the abdomen.

Periform Vaginal Electrode



Anuform Anal Electrode



## ***Maintenance***

The Bio-Trac Plus may be cleaned by wiping over with a clean damp cloth. The use of abrasive materials and cleaning solvents should be avoided.

Periodically inspect the battery for any leakage. Old batteries must be removed from the battery compartment promptly. If the unit is not to be used for an extended period, remove the battery and store separately.

Regularly inspect the electrode cables and connectors for signs of damage, especially cable insulation. The electrode cables should be handled carefully. When connecting and disconnecting the cables always handle and pull on the body of the connector. Never pull on the wire or stretch the cable.

**THERE ARE NO USER-SERVICEABLE PARTS INSIDE THE UNIT AND THE UNIT MUST NOT BE OPENED**

Servicing must only be carried out by EMS Physio Ltd. or their approved agent.

Full service instructions are available on request.