



# FLEXDOCTOR

## Operations Manual

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# 1

## Introduction

The Accelerated Recovery Performance Personal Recovery System (the *FLEXDOCTOR*) handheld powered muscle stimulator provides a new technique for muscle training to improve fatigue resistance and strengthen healthy muscles to enhance performance.

### WHAT IS THE *FLEXDOCTOR*?

The *FLEXDOCTOR* provides a dynamic application that can be used while the person is in motion. This means that a person can use it while exercising. The benefits of using the *FLEXDOCTOR* include enhanced and improved performance, muscle conditioning, temporarily affecting healthy muscle tissue.

## Indications for Use

The *FLEXDOCTOR* is intended to stimulate healthy muscles in order to improve or facilitate muscle performance.

The *FLEXDOCTOR* is not intended to be used in conjunction with therapy or treatment of medical diseases or medical conditions of any kind. The *FLEXDOCTOR* is not designed for use on injured or ailing muscles and its use on such muscles is contraindicated.

The *FLEXDOCTOR* electrical impulses allow triggering action potential on healthy muscles. Depending on the parameters of the electrical impulses, different types of muscle work can be imposed on the stimulated muscles.

The various types of muscle work that the *FLEXDOCTOR* can impose on the stimulated muscles are able to improve or facilitate muscle performance.

The *FLEXDOCTOR* is considered a technique of muscle training.

## Application of the *FLEXDOCTOR*

The *FLEXDOCTOR* can be used for loosening and conditioning of most muscle groups (see Warnings & Cautions for exceptions). The *FLEXDOCTOR* can be used while exercising or at rest.

- The *FLEXDOCTOR* is intended to affect healthy tissue and muscle conditioning.
- The *FLEXDOCTOR* is intended to affect the stimulated muscle's force output and/or fatigue resistance.
- The *FLEXDOCTOR* is intended only for muscle conditioning and is *not* intended for treatment of any medical or disease condition.

## Training

Application techniques for specific regions of the body are available through wave Technical Support.

Call at Toll-Free: (855) 570-6060 for details.






## Device Classification & Markings

### Classification

- *FLEXDOCTOR* user electrodes are classified in accordance with IEC 60601-1 as Type BF applied parts (see Markings below).
- *FLEXDOCTOR* is classified as ordinary equipment (not protected against ingress of water).
- *FLEXDOCTOR* is not suitable for use in the presence of flammable anesthetics.
- *FLEXDOCTOR* complies with the EMC requirements of IEC 60601-1-2.

## Markings

The following markings are found on the *FLEXDOCTOR*:

Marking	Description	Meaning
	Type BF Equipment	This symbol indicates that the user electrodes are Type BF applied parts (floating from electrical ground), which offers a specific level of safety.
	Refer to Instruction Manual/Booklet	The operator must refer to instruction material for operation of equipment.
	Standby/On	This symbol indicates that the power switch is monitored by the FLEXDOCTOR internally and switches the device ON and OFF when actuated.
	Attention—Consult Accompanying Documents	The operator must read, understand, and follow all instructions in the accompanying documents, including all warnings, cautions, and precautions, before using the device.
	Manufacturer	Name and street address, city, state and zip code of the manufacturer.

## Warnings & Cautions

### Contraindications

The **FLEXDOCTOR** should not be used:

- On users with implanted electrical devices
- Over known cancers
- On pregnant women

### Warnings

Manufacturing makes the following warnings:

- If you are in the care of a physician, consult with your physician before using this device.
- Do not apply stimulation over your neck because this could cause severe muscle spasms resulting closure of the airway, difficulty in breathing, or adverse effects on heart rhythm or blood pressure.
- Do not apply stimulation across the chest because the introduction of electrical current into the chest may cause rhythm disturbances to your heart, with could be lethal.
- Do not apply stimulation over painful areas. If you have painful areas, you should consult your physician before using this device.
- **FLEXDOCTOR** should not be used over swollen, abraded, infected or inflamed areas on skin eruptions, e.g. phlebitis, thrombophlebitis, or varicose veins. It should only be used on areas of intact skin.
- Do not apply stimulation over, or in proximity to, cancerous lesions.
- Do not apply stimulation in the presence of electronic monitoring equipment (e.g., cardiac monitors, ECG alarms), which may not operate properly when the electrical stimulation device is in use.
- Do not apply stimulation when the user is in the bath or shower.
- Do not apply stimulation while sleeping.

- Do not apply stimulation while the user is driving, operating machinery, or during any activity in which electrical stimulation can put the user at risk of injury.
- **FLEXDOCTOR** should not be used on children, if it has not been evaluated for pediatric use.
- Do not use **FLEXDOCTOR** with an external power source during storms.
- If **FLEXDOCTOR** is used on persons who have communicable diseases, the sponges should not be used by, or shared with, other users.

### Precautions

Manufacturing further states that precautions should be observed in the presence of the following:

- Long term effects of chronic electrical stimulations are unknown.
- **FLEXDOCTOR** should not be applied transcranially (across the head) since the effects of stimulation of the brain are unknown. Electrodes should not be placed on opposite sides of the head.
- The safety of electrical stimulation during pregnancy has not been established.
- You may experience skin irritation or hypersensitivity due to the electrical stimulation or electrical conductive medium.
- Adequate precautions should be taken in the case of persons with suspected or diagnosed heart problems.
- Adequate precautions should be taken in the case of persons with suspected or diagnosed epilepsy.
- Use caution if there is a tendency to bleed internally following acute trauma or fracture.
- After recent surgical procedures muscle contractions may disrupt the healing process.
- Use caution when applying over a menstruating uterus.

- Use caution when sensory nerve damage is present by a loss of normal skin sensation.
- Keep this device out of reach of children.
- Use this device only with the leads, electrodes, and accessories recommended by the manufacturer.

### Caution

**Manufacturing further states that caution should be observed in the presence of the following:**

Because of the vasodilation effects of electrical stimulation, people with unknown conditions (epileptic, cardiac, cerebral, and vascular conditions, etc.) may experience untoward effects such as dizziness, nausea, profuse perspiration, or fainting. If this occurs, cease application immediately and seek a physician to ascertain the underlying cause(s) of said untoward effects.

### Adverse Reactions

**Manufacturing makes known the following adverse reactions:**

- Users may experience skin irritation and burns beneath the stimulation electrodes applied to the skin.
- Users may experience headache and other painful sensations during or following the application of electrical stimulation near the eyes and to the head and face.
- Users should stop using the device and should consult with their physicians if they experience adverse reactions from the device.

## ***FLEXDOCTOR* Specifications**

### Electrical

Main Pulse frequency — 245 pulses per second (PPS) fixed.

Main Pulse duration — 375  $\mu$ s.

Background Pulse frequency — 10 kHz carrier signal.

Background Pulse duration — 25  $\mu$ s.

Output Power — Between 0 and 0.61 watts into 500  $\Omega$ .

Battery — Lithium-Ion Battery.

Battery Charger — 100 - 240 Vac, 50 - 60 Hz input; 8.4

Vdc output.

When power is delivered to the user during an application, the power output of the *FLEXDOCTOR* will be reduced from its no-load levels in direct proportion to the load impedance presented by the body of the user (refer to the following table).

Maximum Output Voltage vs. Load Resistance

Load Resistance	Output Voltage
500 $\Omega$	18 Vrms
2 k $\Omega$	34 Vrms
10 k $\Omega$	39 Vrms

### Environmental

Storage Temperature 0° F (-18° C) – 110° F (43° C)

Charge Temperature 45° F (7° C) – 113° F (45° C)

Operational Conditions

Temperature 32° F (0° C) – 100° F (38° C)

Relative Humidity 30% – 75%

Atmospheric Pressure 700 hPa – 1060 hPa

This device should not be used at extreme temperatures outside the range given above, and *especially* not near fire. If exposed to extreme temperatures, the device will need to warm up or cool off for approximately one hour before it is used again. Storage or transport at temperatures outside the specified storage temperature range will void the warranty.

The *FLEXDOCTOR* is normally used indoors. It can be used outdoors but should not be exposed directly to rain or snow, and should not be subjected to long-term exposure to direct sunlight.

If prolonged use occurs, the device will be warm to the touch. This is normal and due to the dissipation of heat generated by the electronic components. The warming of the device is not due to the battery, but rather normal operation of electronic circuitry dissipating heat.

# 2

## Operation

- Terminology
- Description of Operator Controls
- Description of Indicators
- Operation
- Battery / Charger Instructions
- Pad Placement Instructions
- Care & Maintenance
- Service & Parts
- Troubleshooting Guide
- Warranty Information



## Terminology

All special terms or terms with more than one common usage used in this manual are defined below.

- **Background Only mode** — Background pulse stimulation is present, *without Main pulses*, when the Main Pulse Suspend button is actuated.
- **Main Pulse mode** — Main pulse stimulation plus background pulses are present when the Main Pulse Suspend button is NOT actuated.
- **Electrode pads** — Pliable, conducting pads used to deliver electrical energy to the body areas being stimulated.
- **Power** — Effective stimulation intensity.

## Description of Operator Controls



### 1. Power Switch

The **Power** ON/OFF switch is a membrane switch which brings the unit from OFF to ON (or Active) when the switch is actuated. You must press and hold the button (about 3 to 4 seconds) to turn the unit ON or OFF. Note that a self test completes and then a two-tone beep is heard to indicate the FLEXDOCTOR is on. The self test includes the 'Main Pulse Suspend' LED momentarily lighting and then the main power Max/Min Sequence LED lights will light momentarily from maximum to minimum. When FLEXDOCTOR is powered on, the green LED light above the on/off switch will remain illuminated. All user-adjustable parameters are set to default when the unit turns ON.

### 2. Power Adjust Buttons

The **Power Adjust** buttons are used to adjust the output level of the Main and Background pulses in small steps or one momentary push of the button (each step is approximately 1% of full power). Press "+" to raise output power and press "-" to lower output power. Pressing and holding the "+" or "-" buttons will cause the power to continuously rise or fall.

### 3. Main Pulse Suspend Button

The **Main Pulse Suspend** button shuts off Main pulses while Background pulses continue to be output. This button is intended to interrupt an active stimulation session without ending it. It should be noted that the background pulse is still present. Do not remove pads in this mode. Press the button again to turn Main pulses on.

### 4. Pause Button

The **Pause** button shuts off all power to the output jack. This button is intended to end a stimulation session without losing parameter settings (as would happen if the device were turned off). Press the **Pause** button again to continue with previous settings for the session.

## Description of Indicators

### A. Power ON Indication

The **Power** LED indicates whether the *FLEXDOCTOR* is OFF or ON (or Active). The unit is ON when the LED is illuminated.

When the *FLEXDOCTOR* is turned on it emits a pair of tones rising in pitch. When it is turned off it emits a falling pair of tones.

### B. Output Power Indication (*Min* – *Max* LEDs)

The array of ten LEDs between the *Min* and *Max* legends indicates the power output level. Each LED represents 10% of the maximum output power. Within each 10% LED indicator, each push of the “+” or “-” button increments the power by only 1%. For instance, press the “+” or “-” button 10 times to move to the next LED level.

### C. Main Pulse Suspend Indication

When you press the **Main Pulse Suspend** button to enter Background-only mode, you will hear a key-click sound. The **Main Pulse Suspend** LED indicates that Main pulses have been turned off and the *FLEXDOCTOR* is putting out Background pulses only. There is no change in the power level indication.

When you press the **Main Pulse Suspend** button again to exit Background-only mode, you will hear another key-click sound. When the *FLEXDOCTOR* exits background-only mode, it drops the output power level to zero, then ramps the power back up to the previous power level setting with both Main and Background pulses present.

### Pause Indication

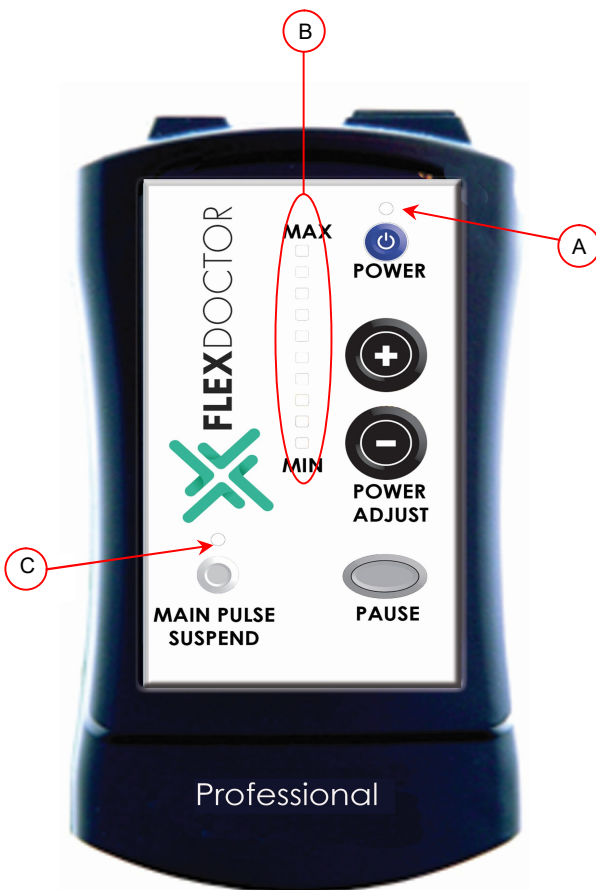
When you press the **Pause** button to turn off all output pulses, you will hear a key-click sound. The output power drops to zero when the *FLEXDOCTOR* enters Pause mode, then the power level indication flashes at the most recent power setting as long as the *FLEXDOCTOR* remains in Pause mode.

When you press the **Pause** button to exit Pause mode and turn output pulses back on, you will hear a key-click sound. The output power ramps back up to the most recent power setting and you can resume stimulation.

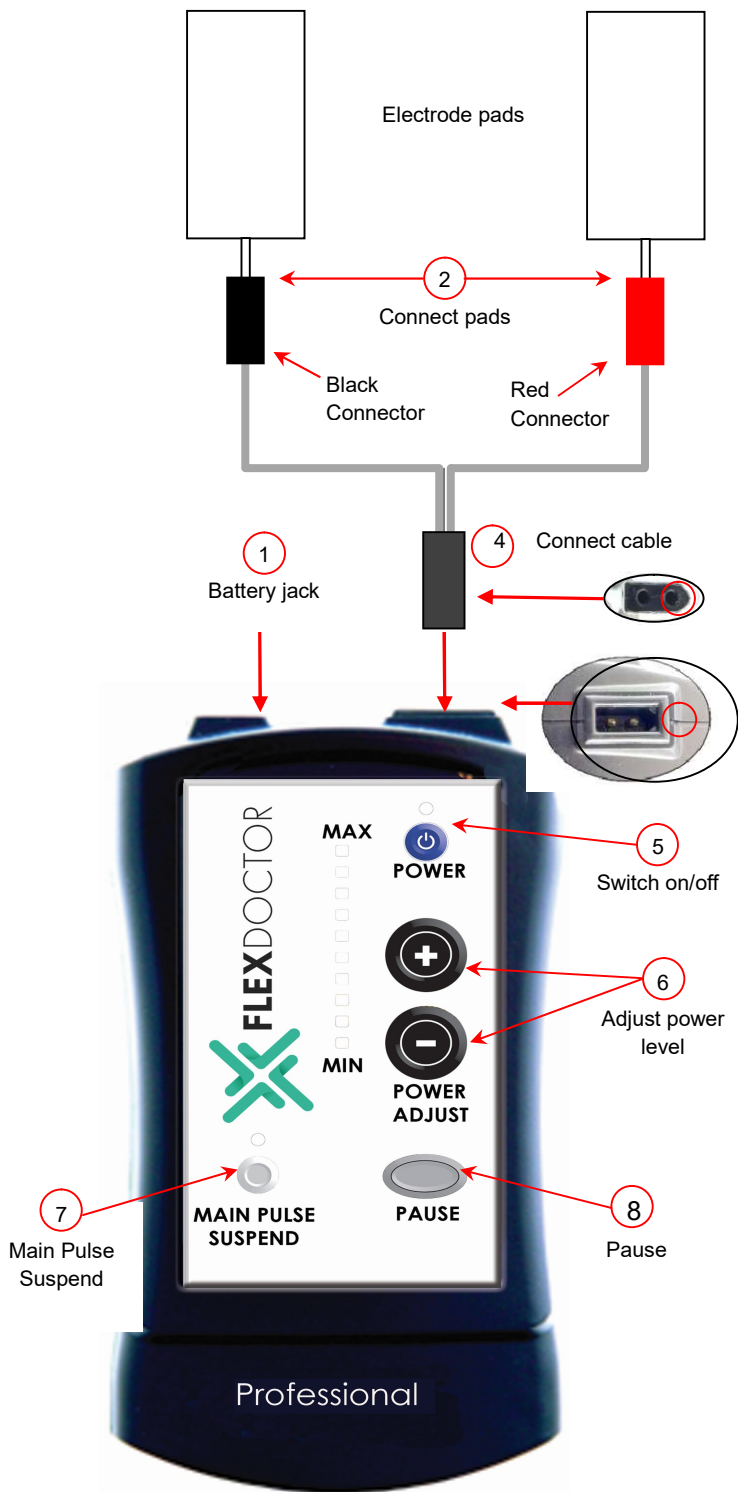
### Low Battery Indication

The *FLEXDOCTOR* will emit two short audible tones once every ten seconds to indicate low-battery condition. If you continue to use the device and the battery voltage drops below minimum operational voltage, the *FLEXDOCTOR* will shut off.

If the *FLEXDOCTOR* is already in low-battery condition when it is turned on, it will power on normally, but will emit the low-battery alert (two short tones) and if below minimum voltage, will immediately shut off.



## Operation



**Follow these steps to complete a stimulation session:**

### 1. Charge the battery

The battery must be charged before you use the FLEXDOCTOR for the first time (see battery charging instructions on page 11). Once the battery has been charged, it should be recharged when the low battery warning sounds or when not in use (see Low Battery Indication on page 9). Disconnect the charger when charging is complete. **NOTE: The FLEXDOCTOR is not operational while charging.**

### 2. Connect the pads

Connect the electrode cable to the electrode pads. Note that current will flow from the black connector to the red connector when connected according to step 4.

### 3. Place the pads

Refer to the **Applications Guidelines** for general information on pad placement.

### 4. Connect the electrode cable

Connect the cable to the FLEXDOCTOR. Match the plug and receptacle to correct orientation and apply pressure until completely seated. (Refer to accompanying pictures). **NOTE:** If you want to reverse the direction of current flow in the body, decrease power down to zero and then swap the electrode pad connectors.

### 5. Turn on the FLEXDOCTOR

To turn the FLEXDOCTOR on, press and hold the power button at least 3 to 4 seconds until self test completes and a two-tone beep is heard. (The turn-on delay prevents switching the unit on accidentally, which could discharge the battery.) See Power Switch on page 8 for additional details.

### 6. Adjust power level

**Adjust the power level slowly to the desired level (see Power Adjust Buttons on page 8).**

### 7. Main Pulse Suspend

The **Main Pulse Suspend** button shuts off Main pulses while Background pulses continue to be output. This button is intended to interrupt an active stimulation session without ending it. This mode can be used for cool-down or for muscle loosening. Background electrical stimulation is still present. Press the button again to turn Main pulses on.

### 8. Pause

The **Pause** button shuts off all power to the output jack. This button is intended to end a stimulation session without losing parameter settings (as would happen if the device were turned off). Press the Pause button again to continue with previous settings for the session.

### 9. End of session

If ending a session and planning another shortly, press the Pause button. If you are stopping and not resuming within 1 hour, press the Power button to turn off the FLEXDOCTOR.

**Note:** If you want to use the FLEXDOCTOR while exercising, walking or otherwise moving, clip it onto your belt or other convenient location.

## Battery / Charger Instructions

### Low Battery Condition

The FLEXDOCTOR will emit two short audible tones once every ten seconds to indicate low-battery condition. If you continue to use the device and the battery voltage drops below the minimum operational voltage, the FLEXDOCTOR will shut off. You can probably finish the current session before the FLEXDOCTOR shuts off, but you should charge the battery as soon as possible after you hear the low battery alert.

If the FLEXDOCTOR is already in low-battery condition when it is turned on, it will power on normally, but will emit the low-battery alert (two short tones) and if below minimum voltage will immediately shut off.

### To Recharge Battery:

Connect the *FLEXDOCTOR* battery charger (part number 003041, supplied by FLEXDOCTOR) to the battery charger jack at the top of the unit. Do not attempt to use any other charger to charge the battery. Doing so will void the warranty.

The *FLEXDOCTOR* battery charger is designed to charge the battery completely in about 1½ to 2 hours. The green charger light will blink on and off while charging the battery. When charging is complete the green light will stay on continuously.

**While charging, the FLEXDOCTOR unit will not be operational and the output to the user is disconnected.**

DO NOT charge the battery below 45° F (7° C) or above 100° F (38° C).

The FLEXDOCTOR unit has a Lithium Ion battery that is not user-serviceable, so return to wave for battery replacement/repair or unit must be disposed of properly according to local codes.

## Pad Placement Instructions

### Connecting the Cables

There is a right way and a wrong way to connect the output cable to the FLEXDOCTOR. Make sure to observe the proper polarity of the 2-pin output plug that connects to the power output jack. If the plug does not seem to fit, do not force it; remove the plug, re-confirm the plug orientation, and try again. Refer to page 10, Step 4. Connect an electrode pad to each of the pins on the other end of the cable.

### Placing the Pads

The *FLEXDOCTOR* is supplied with single use adhesive conductive pads. The pad should be placed with the conducting (adhesive) side directly on the skin.

- Wash skin thoroughly and dry before applying electrode pads.
- Place the pads at the desired locations (for pad locations, refer to the Application Guidelines provided with the FLEXDOCTOR).
- Conductive pads are recommended and intended for single user, single use.

### NOTES:

1. The conductive pads provided by FLEXDOCTOR can be safely used over the full output power range of the *FLEXDOCTOR*.
2. In case of skin redness under an electrode pad after stimulation, do not start a new session in the same location if skin redness is still evident.
3. If an electrode pad does not stick properly, discard it and use a new pad.
4. See page 13 for information about ordering additional electrode pads and other accessories.
5. Call FLEXDOCTOR at Toll-Free: (855) 570-6060 if you need assistance with electrode pad placement.

## Care & Maintenance

### Preventive Maintenance

Maintenance of *FLEXDOCTOR* is simple, but important. The *FLEXDOCTOR* should at all times be free of dust and other foreign material and fluids. It should be stored in a dry environment. As with all electronic devices, observe caution when operating the *FLEXDOCTOR* around fluids.

**NOTE:** There are no user-serviceable parts inside the *FLEXDOCTOR*. Any attempt to repair or replace any parts inside the *FLEXDOCTOR* will void the warranty. See Warranty Information, page 16.

### Cleaning the *FLEXDOCTOR*

It is good practice to periodically clean all exterior surfaces (including display) of the *FLEXDOCTOR* unit with a water moistened clean soft cloth. Do not immerse the unit.

### Cleaning the Protective Sleeve

The protective sleeve may be cleaned with mild soap and water.

**NOTE:** Remove the protective sleeve from the *FLEXDOCTOR* before cleaning it.

### Cleaning the Electrode Cable

- The electrode cable may be cleaned with alcohol and a soft clean cloth.
- The pins that connect to the conducting pads may be cleaned with steel wool.
- Replace the user cable if it becomes damaged or is non-operational.

## Service & Parts

### Technical Support

If you have any questions regarding the operation of **FLEXDOCTOR** or need advice on application techniques, please contact FLEXDOCTOR Toll-Free at: (855) 570-6060 . We are always glad to hear from you and will try our best to assist in any way we can.

### Ordering Parts

To order parts and accessories for your unit, call FLEXDOCTOR Toll-Free at: (855) 570-6060, or visit us at [flexdoctor.com](http://flexdoctor.com) to order online.

### Accessory Part Numbers

Part Number	Description
005100	Electrode pads (1 set of four)
003042	Battery charger
003030	Electrode cable
003038	Protective sleeve
003034	Belt Clip
001136	FLEXDOCTOR Quick Start Guide

## Troubleshooting Guide

Problem	Cause	Action
No sensation in pad(s).	FLEXDOCTOR is off.	Turn power switch on.
	Battery is not charged and FLEXDOCTOR shuts off.	Charge battery.
	Electrode cable is disconnected from one of the pads.	Reset Output Power to zero, reconnect the cable to pad(s), and raise Output Power slowly.
	Pad may be damaged from re-use.	Discard pad.
	Cable may be damaged.	Test by using another cable and replace if needed.
	Output Power is at zero.	Make sure Output Power is turned up for the application.
	Cable disconnected.	Check cable connections at unit and at pads. Make sure electrode cable plug is firmly seated.
	Electrode Pads are touching each other.	Separate the pads.
	Main pulses are off (Main Pulse Suspend LED is lit).	Press the Main Pulse Suspend button to turn the main pulses on (Main Pulse Suspend LED turns off).
	Pause button has been pressed.	Press the Pause button again to turn Output Power on.
Sensation in pad(s) is intermittent.	Loose connection at FLEXDOCTOR or electrode pads.	Make sure connections are secure.
The FLEXDOCTOR won't power on.	The battery is discharged.	Charge the battery.
The FLEXDOCTOR powers off (Power LED is not lit) during a session.	The battery is discharged.	Charge the battery.
Unit stops working.	Internal error.	Press Power switch and hold until the FLEXDOCTOR reacts (about 3 seconds). Then resume use.

This Section for Operator to note issues:

Problem	Cause	Action

## Warranty Information

### **FLEXDOCTOR and Manufacturing warrant that the *FLEXDOCTOR* is free from defects in material and workmanship.**

The FLEXDOCTOR device is warranted against defects in materials and workmanship for a period of one year from date of purchase so long as the defect does not arise out of misuse or negligence on the part of the End User. During the applicable warranty period FLEXDOCTOR will, at its discretion, either repair or replace the FLEXDOCTOR without charge for defects in materials and workmanship so long as the defect does not arise out of misuse or negligence on the part of the End User. Alteration, misuse, or neglect of the FLEXDOCTOR voids the warranty.

For service under this warranty, the FLEXDOCTOR must be returned by the End User within the applicable warranty period to wave. Shipping charges to FLEXDOCTOR under this warranty must be paid by the End User. The End User must also include a copy of the sales receipt or other proof of the date of purchase. If the FLEXDOCTOR is returned without proof of the date of purchase, it will be serviced out of warranty at FLEXDOCTOR's prevailing service rates. FLEXDOCTOR will make best efforts to repair and deliver the repaired FLEXDOCTOR back to the End User within sixty (60) days or as soon as practicable.

EXCEPT FOR THIS EXPRESS WARRANTY MADE TO THE END USER, FLEXDOCTOR MAKES NO OTHER WARRANTIES RELATING TO THE FLEXDOCTOR, EXPRESS OR IMPLIED. FLEXDOCTOR DISCLAIMS AND EXCLUDES ANY AND ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR USE AND NON-INFRINGEMENT. NO PERSON IS AUTHORIZED TO MAKE ANY OTHER WARRANTY OR REPRESENTATION CONCERNING THE FLEXDOCTOR.

If any implied warranties apply as a matter of law, they are limited in duration to one year. FLEXDOCTOR shall not be liable for any indirect, special, consequential or incidental damages resulting from any defect in or use of the FLEXDOCTOR.

Any legal action brought by the End User relating to this warranty must be commenced within one year from the date any claim arises and must be brought only in the state or federal courts located in Hennepin County, Minnesota.

**Note:** Battery is covered under same warranty as machine for one year. It is important to complete online product registration or your FLEXDOCTOR will not be covered under warranty.

Storage or transport at temperatures outside the specified storage temperature range (see page 6) will void the warranty.

### ***To file a claim under this warranty, the owner must:***

Provide the nature of the complaint in writing and submit to FLEXDOCTOR by mail to 5700 Highlands Parkway SE, Smyrna, GA 30082 USA

FLEXDOCTOR and Manufacturing does not authorize any person, agent, or representative to create any additional or other obligation or liability in connection with the sale or use of *FLEXDOCTOR*. Any such representation, granting, or agreement shall be null and void and shall have no effect whatsoever.

#### **FlexDoctor**

5700 Highlands Parkway SE  
Smyrna, GA 30082 USA  
Toll-Free: (855) 570-6060  
Phone: (470) 893-1100

