



INSTRUCTION MANUAL

CONTENTS: It is recommended that you read this manual thoroughly before using your ***Sterling Impulse HVG***.

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SAFETY INFORMATION Please read the following prescription information carefully before using the ***Sterling Impulse HVG***. If you have any questions about this information, consult with your clinician before proceeding.

Indications: High Voltage Pulsed Galvanic (HVPG) devices should only be used under medical supervision for adjunctive therapy in the treatment of medical diseases and conditions.

HVG Applications

- ***Maintain or increase range of motion***
- ***Prevent or retard disuse atrophy***
- ***Re-educate muscle spasms***
- ***Increase local blood circulation***
- **Prevent venous thrombosis by immediate post-surgical stimulation in selective muscles**

Contraindications:

- ***Cardiac Pacemakers:*** HVG should not be used on patients with demand-type cardiac pacemakers.
- ***Cancer Patients:*** Do not use HVG on cancer patients.

- Heart Patients: Adequate precautionary measures should be taken prior to using HVG on patients suspected of having heart disease.
- *Trans thoracic Stimulation*: Use caution in Trans Thoracic application of HVG as introduction of electrical current may cause arrhythmias.
- *Trans cerebral Stimulation*: do not apply HVG Tran cerebrally.
- *Epilepsy*: Adequate precautions should be taken in the case of persons with suspected or diagnosed epilepsy.
- *Children*: HVG devices should be kept out of reach of children.
- *Carotid Sinus*: Do not use HVG over the carotid sinus nerves, especially in patients with a known sensitivity to the carotid sinus reflex.
- *Neck Stimulation*: Severe spasms of the laryngeal and pharyngeal muscles may occur when the electrodes are placed across the neck or the mouth. This may be strong enough to close off the airway or cause difficulty in breathing.

- *Machinery Operation:* Patients should never operate potentially dangerous machinery such as power saws, automobile, etc. during HVG stimulation.
- *Pregnancy:* The safety of HVG stimulation during pregnancy, labor or delivery has not been established for either mother or fetus.
- *Skin and Vascular Problems:* Do not use HVG over swollen, infected or inflamed areas or skin eruptions, e.g., phlebitis, thrombophlebitis or varicose veins.
- *Skin Irritation:* Some patients may experience skin irritation hypersensitivity due to electrical stimulation or the electrical conductive medium used. Should this occur, remove the electrodes, discontinue stimulation and consult your clinician to determine the cause of irritation. Irritation may be reduced by alternate conductive medium or alternate electrode placement.

The long-term effects of chronic use of HVG are unknown

Precaution should be observed:

- Where there is a tendency to hemorrhage following acute trauma or fracture.
- Following recent surgical procedures when muscle contraction may disrupt the healing process.
- When stimulating over the menstruating uterus. Where sensory nerve damage is present resulting in a loss of normal skin sensation.
- Adverse Effects: Skin irritation or electrodes burns have been reported with the use of electrical muscle stimulator.

Additional Precautions:

- Do not immerse unit in water or other liquids.
- Turn the unit off when applying or removing electrodes.

- Do not use the stimulator on any muscles or for any purpose other than that for which it was prescribed.
- Do not use the device on any individuals other than those for whom the device has been prescribed.
- Stimulation over areas where bone is near the skin can be painful in some patients.
- Be sure to adjust amplitude slowly.
- If HVG treatment is ineffective or unpleasant, discontinue therapy and consult your physician or therapist.
- For external use only.
- Do not use over the eyelids.

PLEASE NOTE: Use only ***Sterling Medical Technologies*** approved accessories. Non-approved accessories may damage your device and or void the warranty.

CAUTION: Improper use of electrodes may cause burns. Care should be exercised to use only electrodes specified by ***Sterling Medical Technologies***.

STERLING IMPULSE HVG CONTROLS

The **Sterling Impulse HVG** was designed with the patient usage in mind. This unit's functions are built with Programs 1, 2, & 3. Program 4 is self-adjustable. Please consult with your clinician or health care equipment provider to determine which program is best suited to meet your needs.

ON/OFF button: allows a patient to turn on or turn off the **Sterling Impulse HVG**.

UP ARROW and **DOWN ARROW** buttons:

These buttons allow patient to increase or decrease intensity level. *Note by pressing and holding the UP / DOWN ARROW buttons the intensity will increase or decrease rapidly.*

P button: **Program button**. This button allows changing between pre-set Programs. Please consult with your clinician or health care equipment provider.

S button: **Select button** confirms your selection regarding program changes.

- Note if you make a change and do not press the select button within ten seconds, the ***Sterling Impulse HVG*** will revert to the previous settings.
- Note the arrow buttons are also used when changing options in *Program 4*.

LCD SCREEN: allows a patient to view on screen pre-program selections and ensure unit is operating properly. If a patient is using the nighttime program the LCD will read ***idle*** between treatments. If your unit indicated an error reading, please consult with the trouble shoot section (pg. 15).

BATTERY COMPARTMENT: If the unit's LCD reads **LO b**, please turn unit off, remove battery cover and replace with a new 9 Volt Battery.

LEAD WIRE CONNECTIONS: With the unit turned off, take hold of the three-hole plug, and place into the keyed jack receptacle on top of the unit. Push plug firmly into unit. Note: Forcing plug into receptacle may cause plug to bend improperly and damage the wire. Also, when removing plug, first shut unit off, grab wire plug end and remove.

Electrodes should be stored according to the instructions on the electrode package.

TWO LEAD WIRES: Black lead wire is plugged into the Dispersive electrode outlet. Red lead wire is plugged into active electrode outlet.

THREE LEAD WIRES: Black lead wire is plugged into the Dispersive Electrode outlet. The Two Red lead wires are plugged into active electrode outlets.

Program 1 is a *Nighttime protocol* at 100 PPS continuous negative polarity for 15 minutes and then 20 PPS continuous negative polarity for 15 minutes for a total of 30 minutes on. Then 30 minutes off (*idle* mode), then repeats five more times for a total of 360 total minutes or six hours of treatment time.

Program 2 is a *PRN Chronic* protocol at 100 PPS continuous negative polarity for 15 minutes and then 20 PPS continuous negative polarity for 15 minutes for a total of 30 minutes on. Then the *Sterling Impulse HVG* turns itself OFF.

Program 3 is a ***PRN Acute*** protocol at 100 PPS continuous positive polarity for 15 minutes and then 20 PPS continuous positive polarity for 15 minutes for a total of 30 minutes on. Then the ***Sterling Impulse HVG*** turns itself OFF.

Program 4 is Adjustable.

To view the total compliance time on the **LCD**, turn the ***Sterling Impulse HVG*** off by pushing the **ON/OFF** button. Depress and hold down the **UP Arrow** button and the **ON/OFF** button at the same time. Release the **ON/OFF** button then release the **UP Arrow** button as soon as you see the **LCD** display 8888.

To reset compliance time to zero {when displayed} push **S** button once.

Functional Operation

All Programs P1, P2, P3, and P4 are selected by the practitioner or health care equipment provider. Once a program is selected, and the treatment is finished, the ***Sterling Impulse HVG*** will automatically shut it self off. The ***Sterling***

Impulse HVG will remember the selected program including **Program P4** even if manually turned off or when the battery is replaced.

1. Push the **ON/OFF** button to turn the **Sterling Impulse HVG** on, then push the **Up Arrow** button to increase the intensity to begin in all of the selected programs.
Note: by holding down the up or down button the intensity will increase or decrease rapidly.
2. To select other programs press the **P** button until the desired program P1, P2, P3, or P4 {the **Sterling Impulse HVG** will reset the output intensity to zero}, then press the **S** button to use the selected program. Push the **Up Arrow** button to increase the intensity to desired level and the selected program will begin.
3. **Program P4** The adjustable program when selected allows for specific settings of the frequency from **0 - 125 PPS**, the on time from **0 - 60 minutes** of treatment time and the **polarity: continuous negative Cn**,

*continuous positive **CP**, alternating positive **AP**, or alternating negative **An** Stimulation.*

- A.** Use the Up/Down Arrow buttons to change the **frequency from 0-125 Hz** **then** push the select button to hold the selection.
- B.** Use the Up/Down buttons to change, **on time from 0- 60 minutes** then push the select button to hold the selection.
- C.** Use the Up/Down buttons to change alternating positive **AP**, alternating negative **AN**, continuous positive **CP**, continuous negative **CN** then push the select button to hold the selection and write program to memory.
- D.** Push the Up button to increase intensity to desired level for treatment.

STERLING IMPULSE HVG SPECIFICATIONS

Channels

Option 1: One active (red) and one dispersive (black)

Option 2: Two active (red) and one dispersive (black)

On-Time

5 seconds; fixed in alternating mode and Continuous in continuous mode

Waveform

Pulsed galvanic Monophasic exponential spikes, delivered in pairs with a fixed interpulse interval of 100 Microseconds.

Pulse Width

5 microseconds at 50% of peak Voltage

Pulse Rate

1-125 pulse pairs/ seconds, Adjustable

Output Volt

0-330 Volts, adjustable into 500 ohm load

Polarity

Negative and Positive Pre-set in P1, P2, P3

P4 Selectable: Consult your Clinician

Power Source: 9-Volt Battery

Dimensions: 4.5" x 2.75" x 0.80"

Weight: 6.3 oz. including battery

TROUBLE SHOOTING...SERVICE

If your **Sterling Impulse HVG** seems to be malfunctioning, use the information below to determine what may be wrong. If none of these measures corrects the problem, the unit should be serviced. Contact your health care equipment provider.

“**On**” **button** is pushed and unit turns on, but unit does not function properly. *Check LEAD WIRES*
Make sure all connectors are firmly seated. If faulty LEAD WIRES, replace with approved Sterling Medical Technologies Lead wires.

Low Battery **LO b** Indicator is shown on LCD Screen
Replace with a new 9 Volt battery. Make sure to put Battery cover back on and then presses **ON / OFF** button. Unit should return to program settings. Press **UP arrow** to increase intensity level to achieve desired level. If new 9-volt battery does not work, contact your healthcare equipment provider to find out where the device was obtained.

You may need to send in your complete **Sterling Impulse HVG** (*stimulator and lead wires*) with a letter describing the problem.

Send Postage-paid and insured to:
Sterling Medical Technologies
1871 Harroun St, Ste 200
McKinney, TX 75069

If outside the USA, please contact your distributor.

STERLING IMPULSE HVG LIMITED **THREE-YEAR WARRANTY**

Sterling Medical Technologies Promises to the original consumer-purchaser to repair or, at the option of Sterling Medical Technologies replace any electrical stimulator which malfunctions or proves defective in materials or workmanship under normal use for a period of three years from the date of purchase. During the three years, Sterling Medical Technologies will provide all labor and parts necessary to correct such defects or malfunctions free of charge. It is the duty of the consumer-purchaser to deliver the unit to a service facility of the factory as described under service.

EXCLUSIONS This warranty shall not apply to damage resulting from failure to follow the operating instructions in the user manual, accident, abuse, alterations, or disassembled by unauthorized personnel. This warranty does not extend to

accessory items such as batteries, electrodes, electrodes lead, and conductive gel, which are not an integral part of the stimulator. Your service representative can provide these items, but costs for repair or replacement will be the responsibility of the consumer-purchaser. Sterling Medical Technologies Shall not be liable for incidental or consequential damages resulting from the sales or use of the item. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

NO OTHER WARRANTY

This limited warranty is the only express warranty given by Sterling Medical Technologies Implied warranties, including, but not limited to, warranties of merchantability and for a particular purpose are limited to the warranty period set forth above. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights, and may also have rights, which vary state to state.