IF8000

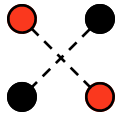
Users Manual
&
Protocols
for
Interferential
Therapy

Contents:

About the IF8000

Interferential stimulation is used for a wide range of applications, generally with the purpose of either pain relief and/or muscle stimulation. Interferential stimulation differs from other types of electrical stimulation by its frequency and the principle of “interference”. A substantially higher frequency (4,000 Hz) than traditional stimulation (1-150 Hz), allows the applied stimulation to penetrate the skin with less resistance. The skin impedance is approximately 100 times less that of traditional TENS and NMES devices. The theory is that the more of the stimulation energy reaches the nerve and muscle fibers and hence becomes more “productive”.

By applying two channels of 4,000 Hz stimulation in a cross pattern allows the center of the cross to beat with the interferential frequency (f1 minus f2). This is felt below the skin as a beating, pulsating feeling, when the interferential frequency is set below 20 Hz. Above 20 Hz the fast beating will just feel like constant stimulation.



“I/F (Interferential) stimulation is a constant stimulation and is indicated for symptomatic relief of chronic intractable pain, post-traumatic and post-surgical pain. A NMES (NeuroMuscular Electrical Stimulation) Mode is available for indications such as muscle re-education, relaxation of muscle spasms, prevention or retardation of disuse atrophy, immediate post-surgical stimulation of calf muscles to prevent venous thrombosis, increasing local blood circulation, and maintaining or increasing range of motion. In the NMES mode the stimulation comes on in six seconds intervals, thus allowing the muscle to rest from the contraction every six seconds.”

Important:
This device must be ordered or prescribed by a licensed physician.

Get started with IF8000

Make sure the electrodes are placed properly on the skin (see "Electrodes and Skin Care" for details) and that the lead wires are properly connected.

Turn on the unit by pressing ON for more than 1 second. A green or blinking light indicates that the leads and electrodes are properly connected and that the unit functions properly.

Keep pressing ↑ until a comfortable level is reached, as indicated by your physician or therapist.

To stop treatment, keep pressing ↓ until display and light goes out after 1 additional seconds mA will go to zero first). Thereafter remove the electrodes and place them on the plastic pad.

Stimulation will continue for 20 minutes and automatically shut off thereafter unless the treatment timer is changed.

During treatment the display will show Remaining Time left on upper line and Stimulation Level on lower line. The green light will be flashing with the set Interferential frequency (f.ex. 1 pulse per second.)

Interferential stimulation at 4000 Hz consumes more energy than regular stimulation at lower frequency. It is therefore recommended to use the optional A/C adaptor for continued use.

Controls and features.

Turn unit ON and OFF: Press ↑ for 1 second to turn the unit on. The display will light up and the right LED will be flashing or constant green. Keep pressing ↓ to turn the unit off. It takes two additional seconds after reaching 0 mA to turn it off. If no controls have been touched for 60 seconds with level at 0 mA or 60 seconds after timeout, the IF8000 will automatically turn off.

Setting Stimulation Level: Use ↑ and ↓ controls to increase or decrease level. Do not use the PRG button. After 20 seconds the stimulation level is electronically locked as a safety feature to prevent the patient from unintentional increase in stimulation. To decrease, just press ↓ to reduce it by

at least 1 mA, which will unlock the safety feature. Thereafter you have 20 seconds to increase to desired level, before the lock is activated again. Any change in level or mode will unlock the level.

Setting Interferential Frequency: Press PRG once and use ↑ or ↓ to increase or decrease the interferential frequency. Between 1 and 15 Hz the frequency can be felt as a beat in the center of the electrode arrangement, but above this the interferential frequency is too fast to be felt as an actual beat.

Setting the Mode: Press PRG twice and use ↑ or ↓ to select the desired mode.

I/F Mode:

- Stimulation is present constantly during the entire treatment time.
- Continuous. The I/F frequency remains as the preset.
- 1/1A. The I/F frequency changes abruptly between –30% below the preset and +60% above with each one second.
- 1/1R. The I/F frequency changes gradually between –30% below the preset and +60% above with each one second.
- 6/6A. The I/F frequency changes abruptly between –30% below the preset and +60% above with each six seconds.
- 6/6R. The I/F frequency changes gradually between –30% below the preset and +60% above with each six seconds.

NMES Mode:

- Stimulation is applied for 6 seconds, then paused for 6 seconds. Commonly known as NeuroMuscular Electrical Stimulation. Up-ramp is 1 second and down-ramp is 0.5 second, fixed.
- NM C. The I/F frequency remains as the preset.
- NM 1/1A. The I/F frequency changes abruptly between –30% below the preset and +60% above with each one second.
- NM 1/1R. The I/F frequency changes gradually between –30% below the preset and +60% above with each one second.
- NM 6/6R. The I/F frequency changes gradually between –30% below the preset and +60% above with each six seconds.

Setting the Treatment Time: Press PRG three times and use ↑ or ↓ to select the desired Treatment Time. Keep pressing ↓ to set a Continuous Treatment Time.

Compliance data: Press PRG four times and use ↓ to display the usage time in minutes and number of times used, when prompted by text in display. Only stimulation levels above 5 mA are recorded as usage time. The compliance meter can be reset by pressing ↑ to show prompt in display and thereafter press ↓ twice to reset both parameters to zero.

Return to factory settings: Press PRG five times and display will prompt the choice to reset all parameters to factory settings. This is particularly useful if the user is unsure if the settings are correct and is a good starting point for variations.

Factory settings are:

Frequency: 1Hz
Mode: Continuous I/F
Electrodes: 4

Change electrode configuration (2 or 4): Press PRG six times and use ↑ when prompted to change between the two configurations.

Electrodes and skincare

Proper skin care will help make the use of this device more comfortable and trouble-free. Prior to treatment, wash the areas where the electrodes will be placed with mild soap and water, rinse and dry the skin thoroughly. If necessary, remove excess body hair.

The IF8000 is intended to be used with re-usable, self-adhesive electrodes. Extended number of uses can be obtained by adding water to the adhesive surface immediately after each use and placing them on the plastic pad. They will regain their conductivity and adhesiveness as compared to leaving them dry.

Sterile electrodes may be required for some post-op applications.

Batteries

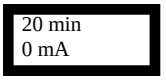
One 9 volt Alkaline battery is used. The battery compartment on the back of the device opens by sliding the cover downwards. Please ensure to dispose the used batteries properly.
Rechargeable batteries are not recommended as they only have a short usage time and are not charged while in the device.

Carpal Tunnel

- Place one electrode from left channel (black) over the lower palm of the hand. This may require some trial and error to find when the stimulation is felt in the area of pain.

Pain Relief

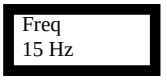
- Press ↑ to turn the unit on.



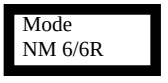
- Use ↑ to set level to a strong, but comfortable strength. (xx mA). The timer will count down and shut off after 20 min.

Increase Circulation

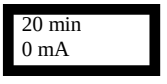
- Press PROGRAM once and use ↑ to set Freq. to 15 Hz.



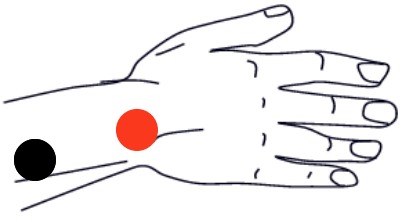
- Press PROGRAM once more and use ↑ to set Mode to NM6/6R.



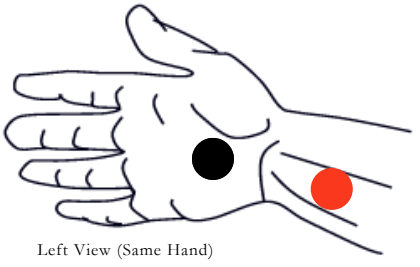
- Press PROGRAM five (5) times more (or leave the controls for 10 seconds).



- Use ↑ to set level to a strong, but comfortable strength. The timer will count down from and shut off after 20 min.



Right View (Same Hand)



Left View (Same Hand)

Knee/ACL Therapy or Post-op.

- Recommended twice a day.
- Place 4 electrodes as shown with the black leads opposite to each other. (Sterile electrodes may be required for post-op protocol)

Pain Relief

20 min
0 mA

- Press ↑ to turn the unit on.
- Use ↑ to set level to a strong, but comfortable strength. (xx mA). The timer will count down and shut off after 20 min.

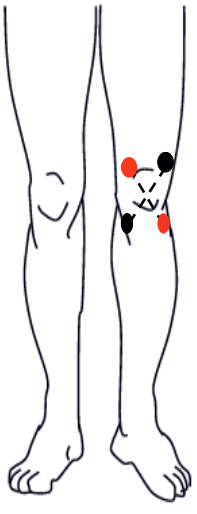
Increase Circulation

Freq
15 Hz

Mode
NM 6/6R

20 min
0 mA

- Press PROGRAM once and use ↑ to set Freq. to 15 Hz.
- Press PROGRAM once more and use ↑ to set Mode to NM6/6R.
- Press PROGRAM five (5) times more (or leave the controls for 10 seconds).
- Use ↑ to set level to a strong, but comfortable strength. The timer will count down from and shut off after 20 min.



Lumbar back

- Place 4 electrodes as shown with the black leads opposite to each other.

Pain Relief

20 min
0 mA

- Press ↑ to turn the unit on.
- Use ↑ to set level to a strong, but comfortable strength. (xx mA). The timer will count down and shut off after 20 min.

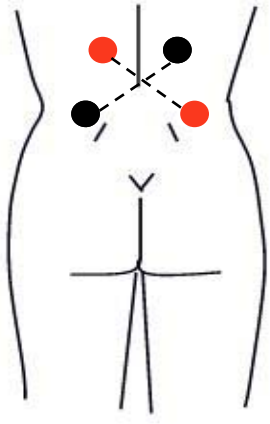
Increase Circulation

Freq
15 Hz

Mode
NM 6/6R

20 min
0 mA

- Press PROGRAM once and use ↑ to set Freq. to 15 Hz.
- Press PROGRAM once more and use ↑ to set Mode to NM6/6R.
- Press PROGRAM five (5) times more (or leave the controls for 10 seconds).
- Use ↑ to set level to a strong, but comfortable strength. The timer will count down from and shut off after 20 min.



Thoracic Back

- Place 4 electrodes as shown with the black leads opposite to each other.

Pain Relief

20 min
0 mA

- Press ↑ to turn the unit on.
- Use ↑ to set level to a strong, but comfortable strength. (xx mA). The timer will count down and shut off after 20 min.

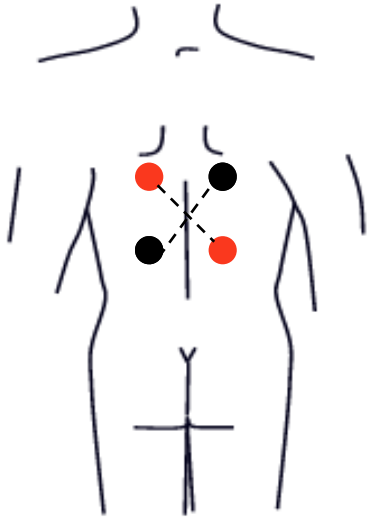
Additional Pain Relief

Freq
100 Hz

- Press PROGRAM once and use ↑ to set Freq. to 100 Hz.

20 min
0 mA

- Press PROGRAM five (5) times more (or leave the controls for 10 seconds).
- Use ↑ to set level to comfortable strength. The timer will count down from and shut off after 20 min.



Hip

- Place 4 electrodes as shown with the black leads opposite to each other.

Pain Relief

20 min
0 mA

- Press ↑ to turn the unit on.
- Use ↑ to set level to a strong, but comfortable strength. (xx mA). The timer will count down and shut off after 20 min.

Increase Circulation

Freq
15 Hz

Mode
NM 6/6R

20 min
0 mA

- Press PROGRAM once and use ↑ to set Freq. to 15 Hz.
- Press PROGRAM once more and use ↑ to set Mode to NM6/6R.
- Press PROGRAM five (5) times more (or leave the controls for 10 seconds).
- Use ↑ to set level to a strong, but comfortable strength. The timer will count down from and shut off after 20 min.

Hamstring/Calf

- Place 4 electrodes as shown with the black leads opposite to each other.

Pain Relief

20 min
0 mA

- Press ↑ to turn the unit on.
- Use ↑ to set level to a strong, but comfortable strength. (xx mA). The timer will count down and shut off after 20 min.

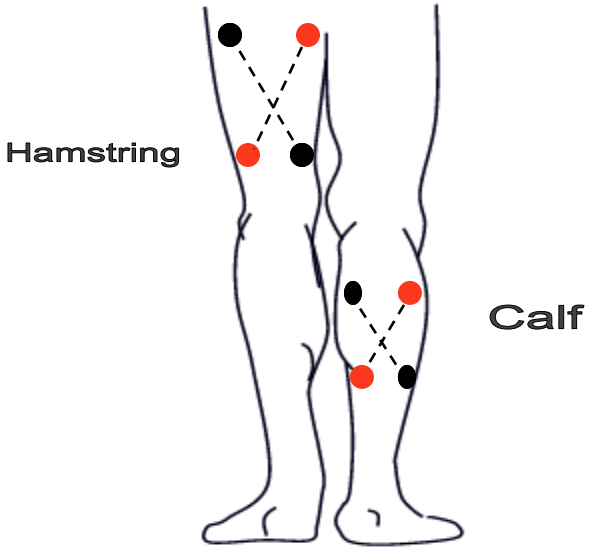
Increase Circulation

Freq
15 Hz

Mode
NM 6/6R

20 min
0 mA

- Press PROGRAM once and use ↑ to set Freq. to 15 Hz.
- Press PROGRAM once more and use ↑ to set Mode to NM6/6R.
- Press PROGRAM five (5) times more (or leave the controls for 10 seconds).
- Use ↑ to set level to a strong, but comfortable strength. The timer will count down from and shut off after 20 min.



Achilles Tendon

- Place the 2 electrodes as shown with the black leads opposite to each other. Place the 2 electrodes with the gray leads as shown (red).

Pain Relief

20 min
0 mA

- Press ↑ to turn the unit on.
- Use ↑ to set level to a strong, but comfortable strength. (xx mA). The timer will count down and shut off after 20 min.

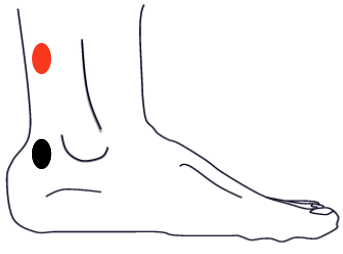
Increase Circulation

Freq
15 Hz

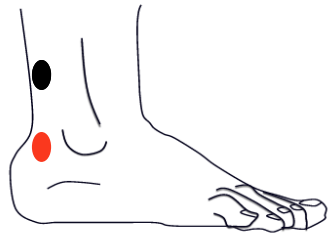
Mode
NM 6/6R

20 min
0 mA

- Press PROGRAM once and use ↑ to set Freq. to 15 Hz.
- Press PROGRAM once more and use ↑ to set Mode to NM6/6R.
- Press PROGRAM five (5) times more (or leave the controls for 10 seconds).
- Use ↑ to set level to a strong, but comfortable strength. The timer will count down from and shut off after 20 min.



Right View (Same Foot)



Left View (Same Foot)

Ankle Therapy or Post-op.

- Place 4 electrodes as shown with the black leads opposite to each other. Place the 2 electrodes with the gray leads as shown (red).

Pain Relief

20 min
0 mA

- Press ↑ to turn the unit on.
- Use ↑ to set level to a strong, but comfortable strength. (xx mA). The timer will count down and shut off after 20 min.

Increase Circulation

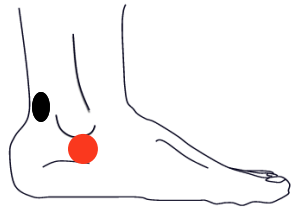
Freq
15 Hz

Mode
NM 6/6R

20 min
0 mA

- Press PROGRAM once and use ↑ to set Freq. to 15 Hz.
- Press PROGRAM once more and use ↑ to set Mode to NM6/6R.
- Press PROGRAM five (5) times more (or leave the controls for 10 seconds).
- Use ↑ to set level to a strong, but comfortable strength. The timer will count down from and shut off after 20 min.

Left View (Same Foot)



Right View (Same Foot)

Lateral/Medial Epicondylitis Tennis/Golfers Elbow

- Place 4 electrodes as shown with the black leads opposite to each other.

Pain Relief

- Press ↑ to turn the unit on.

20 min
0 mA

- Use ↑ to set level to a strong, but comfortable strength. (xx mA). The timer will count down and shut off after 20 min.

Increase Circulation

- Press PROGRAM once and use ↑ to set Freq. to 15 Hz.

Freq
15 Hz

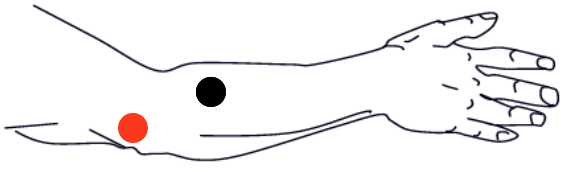
- Press PROGRAM once more and use ↑ to set Mode to NM6/6R.

Mode
NM 6/6R

- Press PROGRAM five (5) times more (or leave the controls for 10 seconds).

20 min
0 mA

- Use ↑ to set level to a strong, but comfortable strength. The timer will count down from and shut off after 20 min.



Right View (Same Arm)

Left View (Same Arm)

Iliotibial band

- Place 4 electrodes as shown with the black leads opposite to each other.

Pain Relief

- Press ↑ to turn the unit on.

20 min
0 mA

- Use ↑ to set level to a strong, but comfortable strength. (xx mA). The timer will count down and shut off after 20 min.

Increase Circulation

- Press PROGRAM once and use ↑ to set Freq. to 15 Hz.

Freq
15 Hz

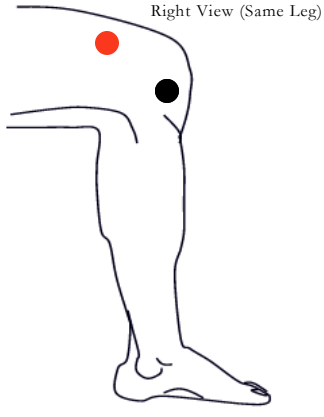
- Press PROGRAM once more and use ↑ to set Mode to NM6/6R.

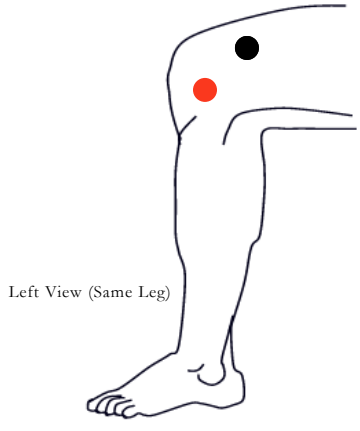
Mode
NM 6/6R

- Press PROGRAM five (5) times more (or leave the controls for 10 seconds).

20 min
0 mA

- Use ↑ to set level to a strong, but comfortable strength. The timer will count down from and shut off after 20 min.





Shoulder Rotator Cuff, AC joint, Bicep Tendonitis

- Place 4 electrodes as shown with the black leads opposite to each other.

Pain Relief

- Press ↑ to turn the unit on.

20 min
0 mA

- Use ↑ to set level to a strong, but comfortable strength. (xx mA). The timer will count down and shut off after 20 min.

Increase Circulation

- Press PROGRAM once and use ↑ to set Freq. to 15 Hz.

Freq
15 Hz

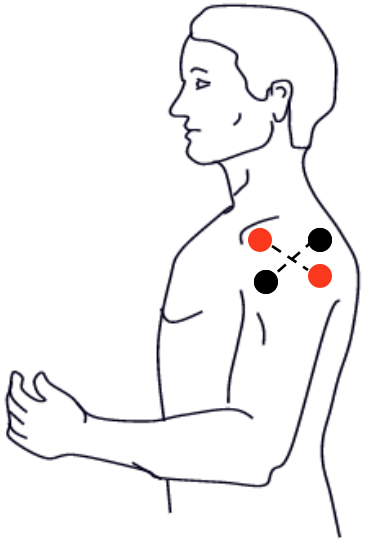
- Press PROGRAM once more and use ↑ to set Mode to NM6/6R.

Mode
NM 6/6R

- Press PROGRAM five (5) times more (or leave the controls for 10 seconds).

20 min
0 mA

- Use ↑ to set level to a strong, but comfortable strength. The timer will count down from and shut off after 20 min.



Cervical/Neck

- Place 4 electrodes as shown with the black leads opposite to each other.

Pain Relief

- Press ↑ to turn the unit on.

20 min
0 mA

- Use ↑ to set level to a strong, but comfortable strength. (xx mA). The timer will count down and shut off after 20 min.

Additional Pain Relief

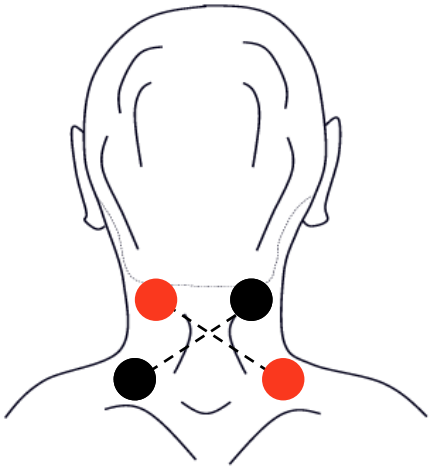
- Press PROGRAM once and use ↑ to set Freq. to 100 Hz.

Freq
100 Hz

- Press PROGRAM five (5) times more (or leave the controls for 10 seconds).

20 min
0 mA

- Use ↑ to set level to comfortable strength. The timer will count down from and shut off after 20 min.

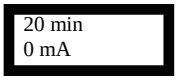


Plantar Fascitis

- Place 4 electrodes as shown with the black leads opposite to each other.

Pain Relief

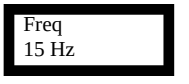
- Press ↑ to turn the unit on.



- Use ↑ to set level to a strong, but comfortable strength. (xx mA). The timer will count down and shut off after 20 min.

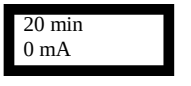
Increase Circulation

- Press PROGRAM once and use ↑ to set Freq. to 15 Hz.



- Press PROGRAM once more and use ↑ to set Mode toNM6/6R.

- Press PROGRAM five (5) times more (or leave the controls for 10 seconds).



- Use ↑ to set level to a strong, but comfortable strength. The timer will count down from and shut off after 20 min.

Indications, contraindications, precautions, safety and warnings.

Safety References
Zynex Medical (Zynex) is only responsible for the safety, reliability and function of the device when repairs, adjustments and changes have been carried out by persons authorized by Zynex for such work and the device is used according to the user manual. Repairs and technical safety tests shall only be carried out by trained personnel.

Indications

This Zynex device has been designed for muscle re-education, prevention of retardation of disuse atrophy, increase local blood circulation, maintain or increase range of motion, relaxation of muscle spasms, edema reduction.

Symptomatic relief of chronic intractable pain, post-traumatic and post-surgical pain. (IF Mode)

Relaxation of muscle spasms.
Prevention of retardation of disuse atrophy.
Increasing local blood circulation.
Muscle re-education.
Immediate post-surgical stimulation of calf muscles to prevent venous thrombosis.
Maintaining or increasing range of motion.

This stimulator should only be used under supervision for adjunctive therapy for the treatment of medical diseases and conditions.

Contraindications

- The device must not be used on patients with cardiac pacemaker.
- The device must not be used with stimulation over carotid sinus nerves.
- The stimulation must not be applied transcerebrally.
- The device must not be applied with undiagnosed pain syndromes until etiology is established.
- This stimulator should not be used on patients with cardiac demand pacemakers.
- Electrodes should not be placed so that current will be applied to the carotid sinus (neck) region or transcerebally (through the head).
- This stimulator should not be used whenever pain syndromes are undiagnosed, until etiology is established. (In I/F Mode)

Warnings

In I/F Mode

- The safety of tens devices for use during pregnancy or birth has not been established.
- This device is not effective for pain or central origin. (This includes headache)
- This device should only be used under the continued supervision of a physician.
- This device does not have curative value.
- This device offers symptomatic treatment such as suppresses the sensation of pain which would otherwise serve as a protective mechanism.
- The user must keep the device out of the reach of children.
- Electronic monitoring equipment (such as ECG monitors and ECG alarms) may not operate properly when this device is in use.

In NMES Mode:

- The long-term effects of chronic electrical stimulation are unknown.
- Stimulation should not be applied over the carotid sinus nerves, particularly in patients with known sensitivity to the carotid sinus reflex.
- Stimulation should not be applied over the neck or mouth. Severe spasm of the laryngeal and pharyngeal muscles may occur and the contractions may be strong enough to close the airway or cause difficulty in breathing.
- Stimulation should not be applied transthoracically in that the introduction of electrical current into the heart may cause cardiac arrhythmias.
- Stimulation should not be applied transcerebrally.
- Stimulation should not be applied over swollen, infected, or inflamed areas of skin eruptions, e.g. phlebitis, thrombophlebitis, varicose veins, etc.
- Stimulation should not be applied over, or in proximity to, cancerous lesions.

Precautions

For the I/F Mode:

1. Isolated cases of skin irritation may occur at the site of the electrode placement following long-term application.
2. Effectiveness is highly dependent upon patient selection by a person qualified in management of pain patients.

For the NMES Mode:

1. Safety of powered muscle stimulators for use during pregnancy has not been established.
2. Caution should be used for patients with suspected or diagnosed heart problems.
3. Caution should be used for patients with suspected or diagnosed epilepsy.
4. Caution should be used in the presence of the following:
    - When there is a tendency to hemorrhage following acute trauma or fracture;
    - Following recent surgical procedures when muscle contraction may disrupt the healing process:
    - Over the menstruating or pregnant uterus; and
    - Over the areas of the skin which lack normal sensation.

1. Some patients may experience skin irritation or hypersensitivity due to the electrical stimulation or electrical conductive medium. The irritation can usually be reduced by using an alternate conductive medium, or alternate electrode placement.
2. Electrode placement and stimulation settings should be based on the guidance of the prescribing practitioner.
3. This device should be kept out of reach of children.
4. This device should be used only with the leads and electrodes recommended for use by the manufacturer.
5. This device should not be used while driving, operating machinery, or during any activity in which voluntary muscle contractions may put the user at undue risk of injury.

Adverse Reactions:

Skin irritation and burns beneath the electrodes are potential adverse reactions.

Trouble-shooting.

Problem	
Unit stays on – even after treatment ends.	Hold Off button down for 2 seconds to shut unit off – else unit will shut off automatically after 5 minutes of no stimulation. Alternatively you can start a new treatment session now, without having to start from scratch.
Can not increase level from its current setting.	Turn level down 1 mA to unlock this safety feature – then turn it up to the desired level/intensity. Intensity level is always locked after 20 seconds of no change of settings.
Do not feel the traditional I/F beat in the center of the four electrodes.	Check that the lead wires are connected correctly to the electrodes (red opposite to each other, black opposite to each other)
Display shows electrode alarm.	Check your electrodes, they must be fresh and stick well. Then check your electrodes again, possibly change to new electrodes. Then check that all four electrodes are connected to lead wires and that both lead wires are connected to the unit. Eventually put all four metal pins together to short-circuit the outputs – that should make the electrode alarm go away – and thereby prove that the problem IS the electrode quality.

Technical specifications:

Carrier frequency:	4000 Hz nominal
Modulation frequency:	Continuous 4001-4150 Hz, freq. Shift modes 4001-4240 Hz Factory settings is 1 Hz.
I/F Modes:	Continuous, 1/1A, 1/1R, 6/6A, 6/6R
NMES Modes:	Continuous, 1/1A, 1/1R, 6/6R
NMES parameters:	I/F modes functional. On-time is 6 seconds, off-time is 6 seconds. Up-ramp is 1.0 sec. And down-ramp is 0.5 sec.
Treatment timer:	Continuous, 10-100 minutes, in 10 minutes steps. Factory setting is 20 minutes.
Compliance meter:	Records total usage time in minutes and number of times used. Can be reset.
Dimensions:	4.5 x 2.5 x 0.9 in.
Weight:	5 oz. Incl. Battery.
Warranty:	3 Years manufacturers warranty on materials and workmanship. Accessories excluded.

ZYNEX MEDICAL™

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