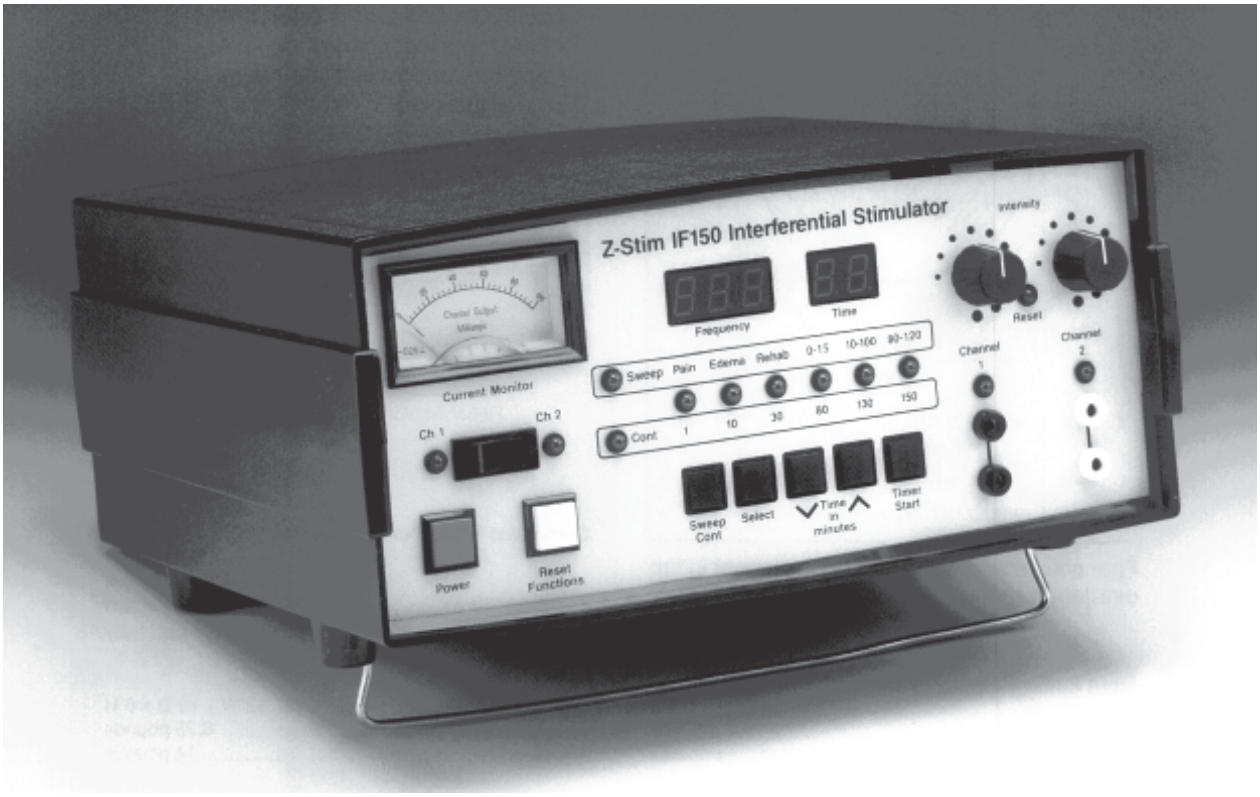
*Z-STIM™ IF150**
Interferential Stimulator



User's Guide

Amrex®
electrotherapy equipment
a division of Amrex-Zetron, Inc.

*Federal law (USA) restricts this device to sale by or on the order of a licensed practitioner licensed by the law of the state in which he practices to use or order the use of this device.

IF150 User's Guide
Interferential Stimulator

Revised February 2014

AMREX® electrotherapy equipment
a division of Amrex-Zetron, Inc.
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Thank you. . .

for selecting the Amrex Z-Stim IF150 Interferential Stimulator. We believe that you will find this instrument to be versatile, dependable and user friendly. The IF150 provides the widely used modality of Quad-Polar True Interferential stimulation.

Your IF150 has been manufactured by a group of dedicated, highly trained employees who exemplify the sixty year Amrex tradition of manufacturing therapeutic equipment of the highest quality while supporting you with prompt, courteous customer service.

Upon receipt of your IF150, verify your accessories against the enclosed check list. Promptly return the postage paid Registration Card to Amrex. Save the original shipping carton and all packing materials.

Please carefully review this User's Guide prior to operating the Amrex Z-Stim IF150 Interferential Stimulator. Should you have questions regarding your new purchase, or need assistance, telephone Amrex Technical Services (800) 221-9069.

Limited Warranty

Amrex-Zetron, Inc. (Manufacturer) warrants each instrument it manufactures to be free from defects in material and workmanship under normal use and service for a period of two (2) years from the date of purchase. This two year warranty extends only to the original purchaser and shall not apply to batteries, fuses, accessories or any instrument which has been subjected to misuse, neglect, accident or abnormal conditions of operation.

The Manufacturer's obligation under this warranty is limited to repairing or replacing, at the Manufacturer's option, any instrument returned to the factory within two (2) years from the date of purchase. If the Manufacturer determines that the product fails to conform to this warranty due to misuse, alteration or abnormal condition of operation, including evidence that nonauthorized personnel have attempted to repair the device, the instrument will be repaired at customers expense. This warranty is exclusive and in lieu of all other warranties, expressed or implied, including but not limited to any other warranty of merchantability or fitness for any particular purpose. Manufacturer shall not be liable for any special, incidental or consequential damages, whether in contract, tort or otherwise.

Service and Shipping Information

Amrex Technical Services has a representative to assist you should your equipment require service or repair. It is necessary to obtain a Return Merchandise Authorization (RMA) number before returning equipment to the factory for warranty repair. Call our representative toll free (800) 221-9069. Damage, resulting from repairs made outside the factory, is not covered under the warranty.

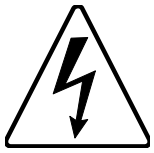
To maintain original design specifications, your Amrex IF150 must be calibrated and safety tested on an annual basis. Amrex strongly recommends that servicing be referred to the factory. Call toll free (800) 221-9069.

Save the original shipping carton and all packing materials to safely return Amrex equipment to the factory for service; repair; annual calibration, electrical and mechanical safety check. All accessories, including the ac line cord, must be included with the returned instrument. The customer is responsible for all freight charges. The Manufacturer shall assume NO responsibility for damage in transit.

Contraindications—Warnings—Precautions

THIS INSTRUMENT OPERATES ON 120 VOLTS AC 60 Hz. (unless otherwise indicated on the unit) AND MUST BE PROPERLY GROUNDED FOR SAFETY. The three wire power cord with "hospital grade" plug should be connected to a GROUNDED AC wall receptacle. It is the personal responsibility and obligation of the user to insure that this instrument is properly connected to the AC POWER source before use.

Warning–Risk of burns and fire. DO NOT use near conductive material such as metal bed parts or innerspring mattresses. Renew electrode cables upon evidence of deterioration. Use of controls, adjustment, or performance of procedures, other than those specified herein, may result in hazardous exposure to electrical energy.



Important

AMREX Intensity Reset Circuit: The Amrex IF150 incorporates a unique safety reset function as part of the Intensity controls. This is to prevent any sudden or inadvertent stimulation output to the patient in the event that:

- at power on, the Intensity controls are not rotated counterclockwise enabling the audible "clicks".
- the treatment period has ended.
- the Reset Functions control is pressed.
- the ac power is interrupted.

The Intensity Reset indicator light will flash and an audible signal will be emitted from the generator. The Intensity controls must be rotated counterclockwise enabling the audible "clicks ". Select a treatment time and press the Timer Start control before setting the output for Channel 1 and Channel 2.

Note: The generator will default to factory settings unless the treatment period has ended without interruption .

Note: When the treatment period has ended without interruption, all generator settings are maintained except the treatment time which reverts to the factory default setting of fifteen minutes.

Electrical Muscle Stimulation—Contraindications

- Contraindicated for patients with cardiac demand pacemakers.
- Should not be used on cancer patients.

Electrical Muscle Stimulation—Warnings

- Long term effects of chronic electrical stimulation are unknown.
- Safety has not been established for the use of electrical muscle stimulation during pregnancy.
- Adequate precautions should be taken in the case of persons with suspected heart problems.
- Adequate precautions should be taken in the case of persons with suspected or diagnosed epilepsy.
- Do not stimulate over the carotid sinus nerves, especially in patients with a known sensitivity to the carotid sinus reflex.
- Severe spasm of the laryngeal and pharyngeal muscles may occur when the electrodes are positioned over the neck or mouth. The contractions may be strong enough to close the airway or cause difficulty in breathing.
- Electrical muscle stimulators should not be applied transcerebrally.
- Electrical muscle stimulators should not be used over swollen, infected or inflamed areas or skin eruptions.
- Caution should be used in the transthoracic application of electrical muscle stimulators in that the introduction of electrical current into the heart may cause arrhythmias.
- Electrical muscle stimulators should be kept out of the reach of children.

Electrical Muscle Stimulation—Precautions

Precautions should be observed:

- 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 uterus.
- Where sensory nerve damage is present by a loss of normal skin sensation.

  Some patients may experience skin irritation or hypersensitivity due to the electrical stimulation or the conductive medium. The irritation can usually be reduced by use of an alternate conductive medium or alternate electrode placement.

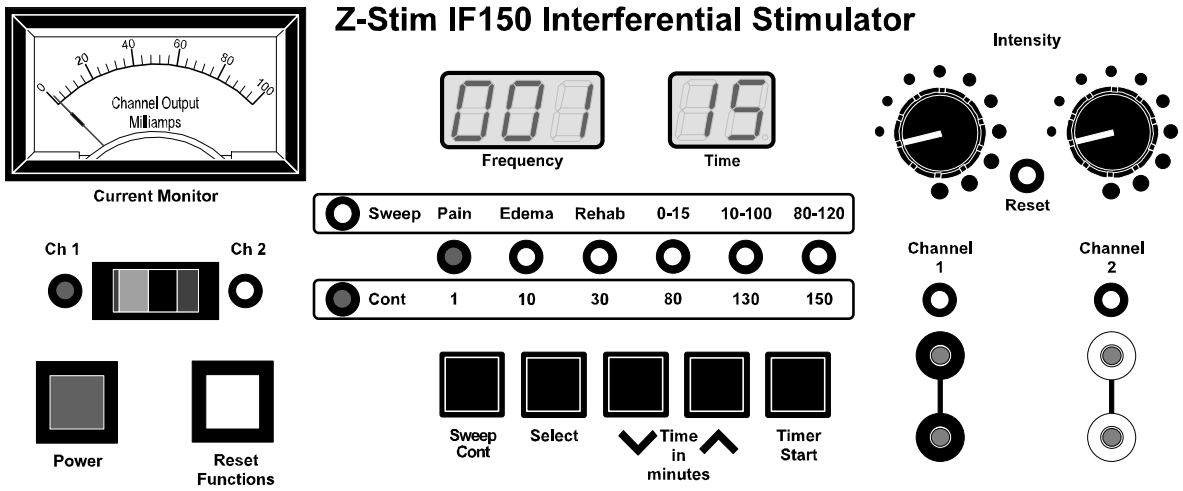
  Skin irritation and burns beneath the electrodes have been reported with the use of electrical muscle stimulators.

Table of Contents

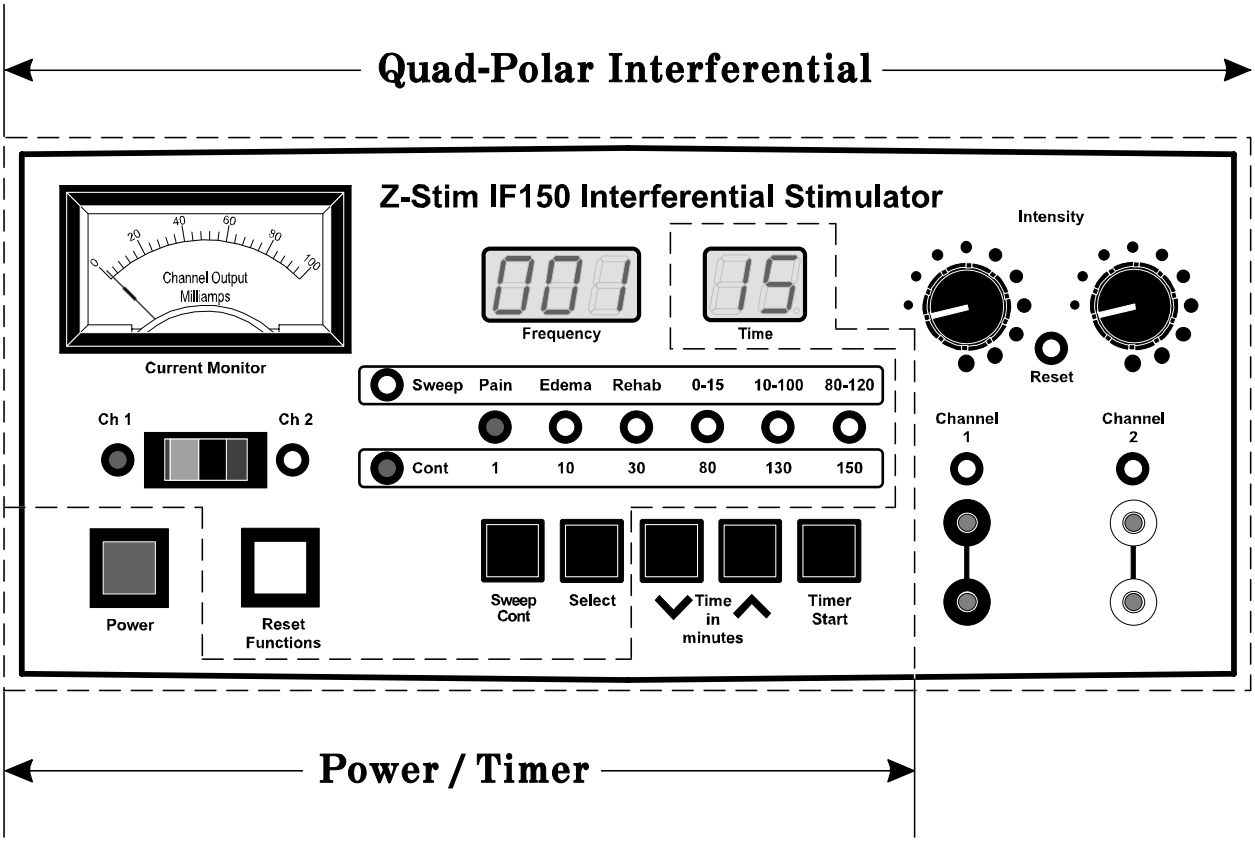
Part 1
AMREX

Overview

The layout of the IF150 panel consists of an analog meter, controls, indicator lights, digital displays and output jacks.



In the illustration below, dashed lines surround each of the IF150's sections. A brief description of each section follows the illustration, and Parts 2 and 3 of this manual contain detailed descriptions.



Power /Timer Section

Use Power / Timer Section to activate the main ac power, set the treatment duration and activate the timer. When the treatment is complete, the generator will emit an audible signal and the Intensity Reset indicator light will flash.

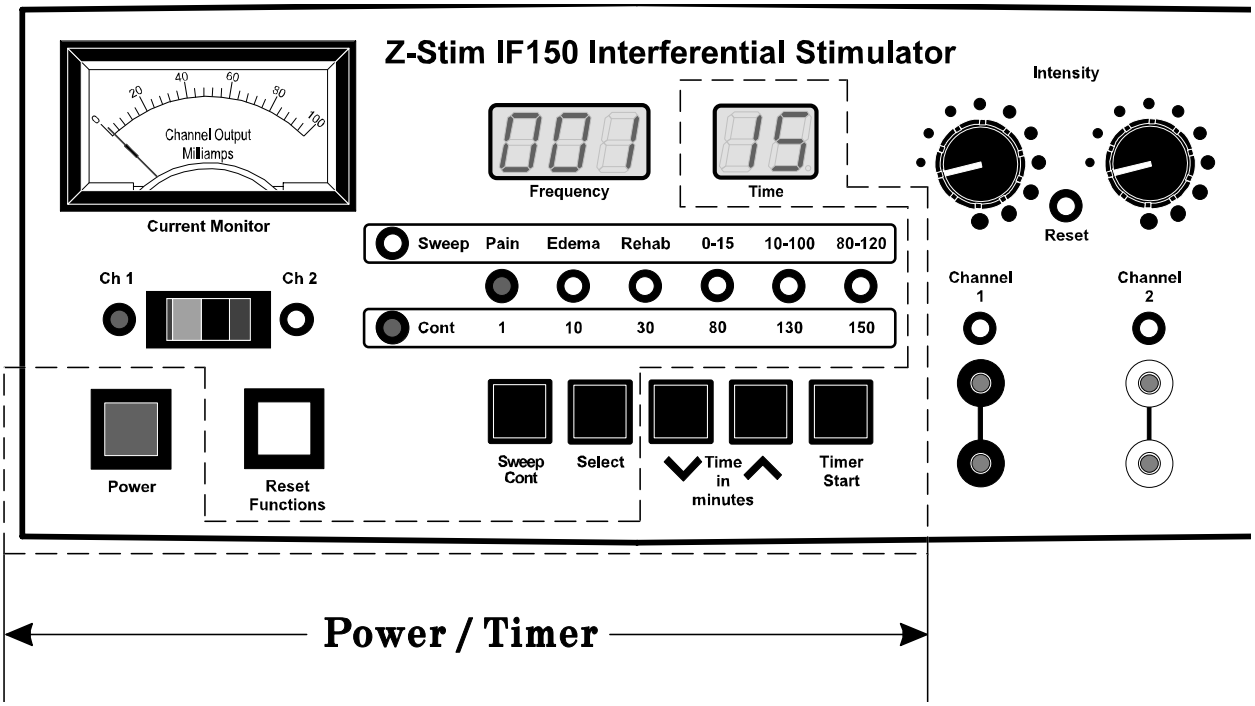
Quad-Polar Interferential Modality Section

Select the beat frequency, set the intensities and monitor the output of the Quad- Polar Interferential mode with the controls, digital displays and analog meter.

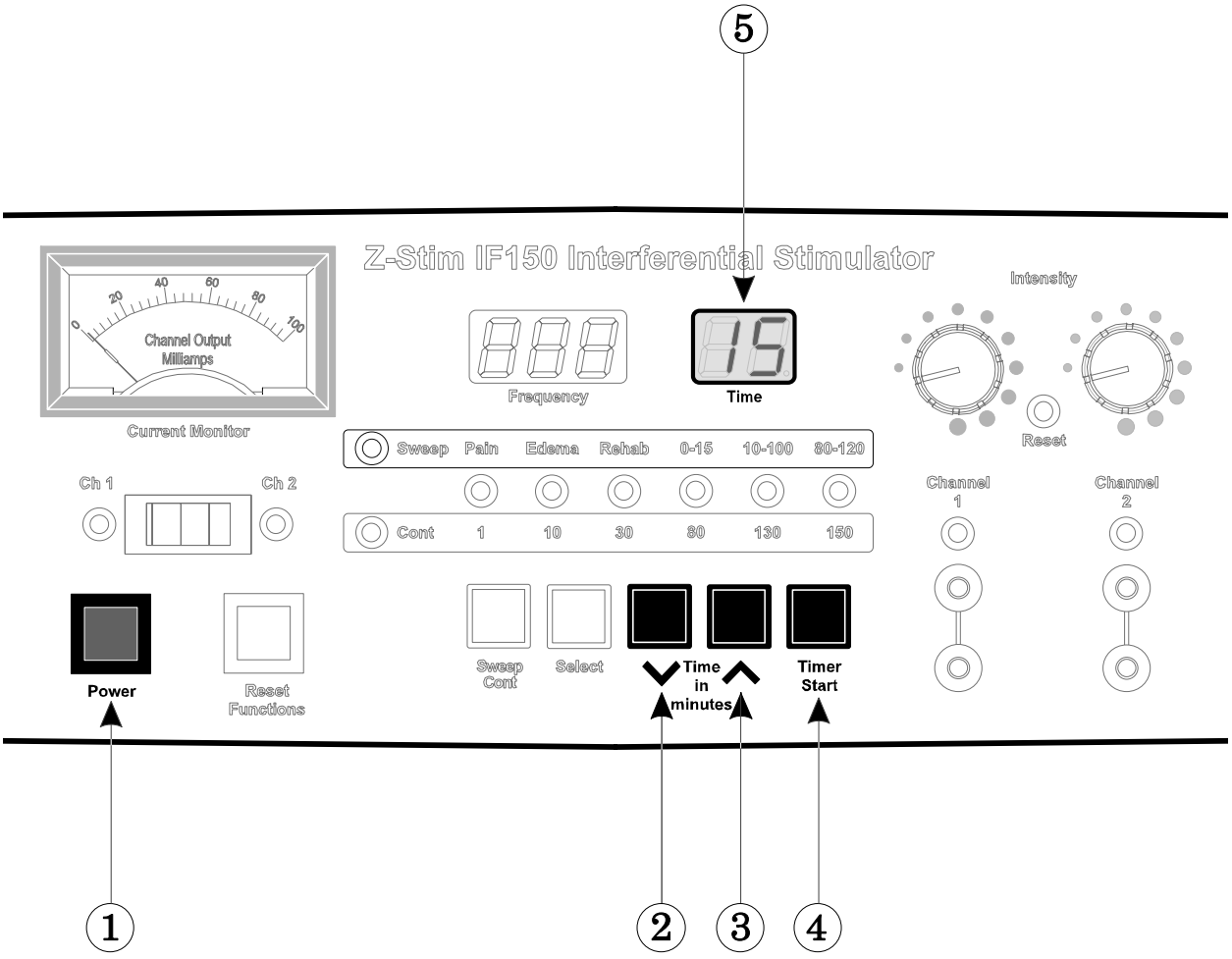
Part 2
AMREX

Power/Timer Section

In the illustration below, dashed lines surround the IF150's power / timer section.



The power/timer section of the IF150 panel is depicted below. Items referenced with circled numbers (1 – 5) are explained on the following page.



1. **POWER CONTROL:** Controls the main ac power. When the power is turned on, an audible signal will be emitted and the generator will default to factory settings. If the *Intensity* controls are not rotated counterclockwise enabling the audible "clicks", the generator will emit a series of audible signals and the *Intensity Reset* indicator light will flash. The *Intensity* controls for *Channel 1* and *Channel 2* must be rotated counterclockwise enabling the audible "clicks", which will turn off the *Intensity Reset* indicator light, *Intensity* control indicator lights, and the audible signal. The generator will default to factory settings.

2. **TIME IN MINUTES CONTROL (downward arrow):** Ranges from 99 minutes to 1 minute. The default setting is 15 minutes. To adjust in one minute increments, press and release. *Time in Minutes* setting may be reduced during the treatment period.

3. **TIME IN MINUTES CONTROL (upward arrow)**: Ranges from 1 minute to 99 minutes. The default setting is 15 minutes. To adjust in one minute increments, press and release. *Time in Minutes* setting may be increased during the treatment period.

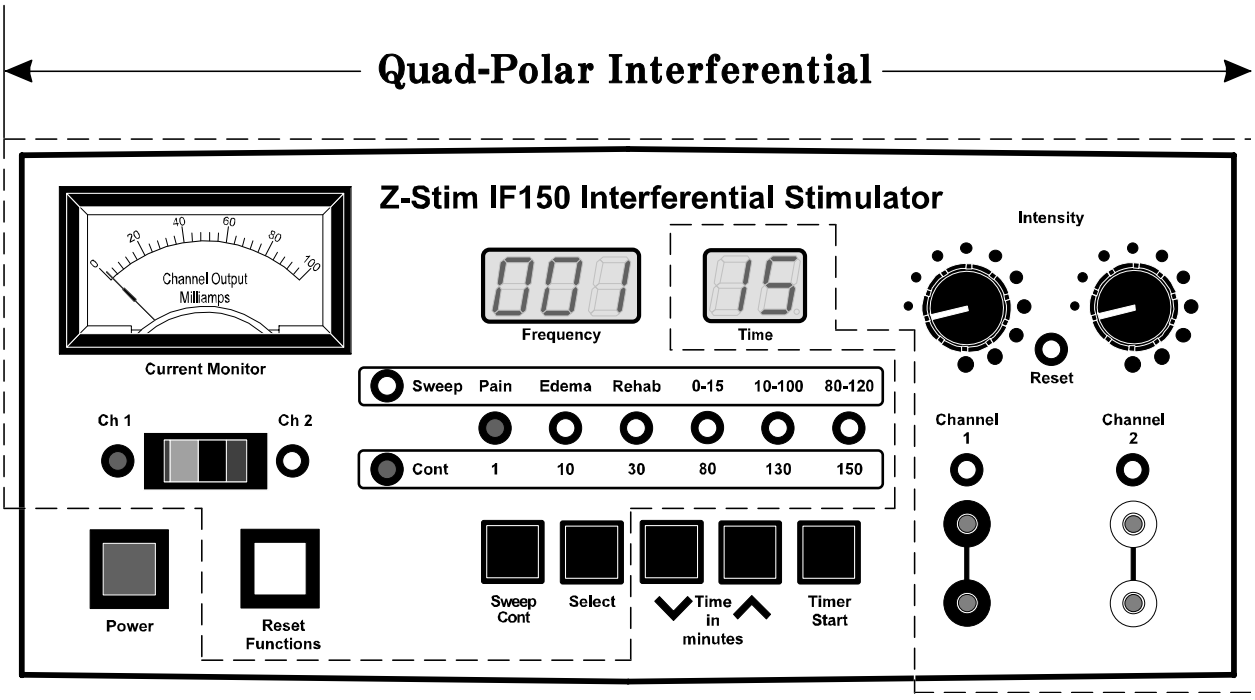
4. **TIMER START CONTROL:** Activates treatment timer when pressed. A flashing decimal point on the *Time* display indicates timer countdown.

5. **TIME DISPLAY:** Digital display of treatment duration. Ranges from 1 to 99 minutes. A flashing decimal point indicates timer countdown in 1 minute increments.

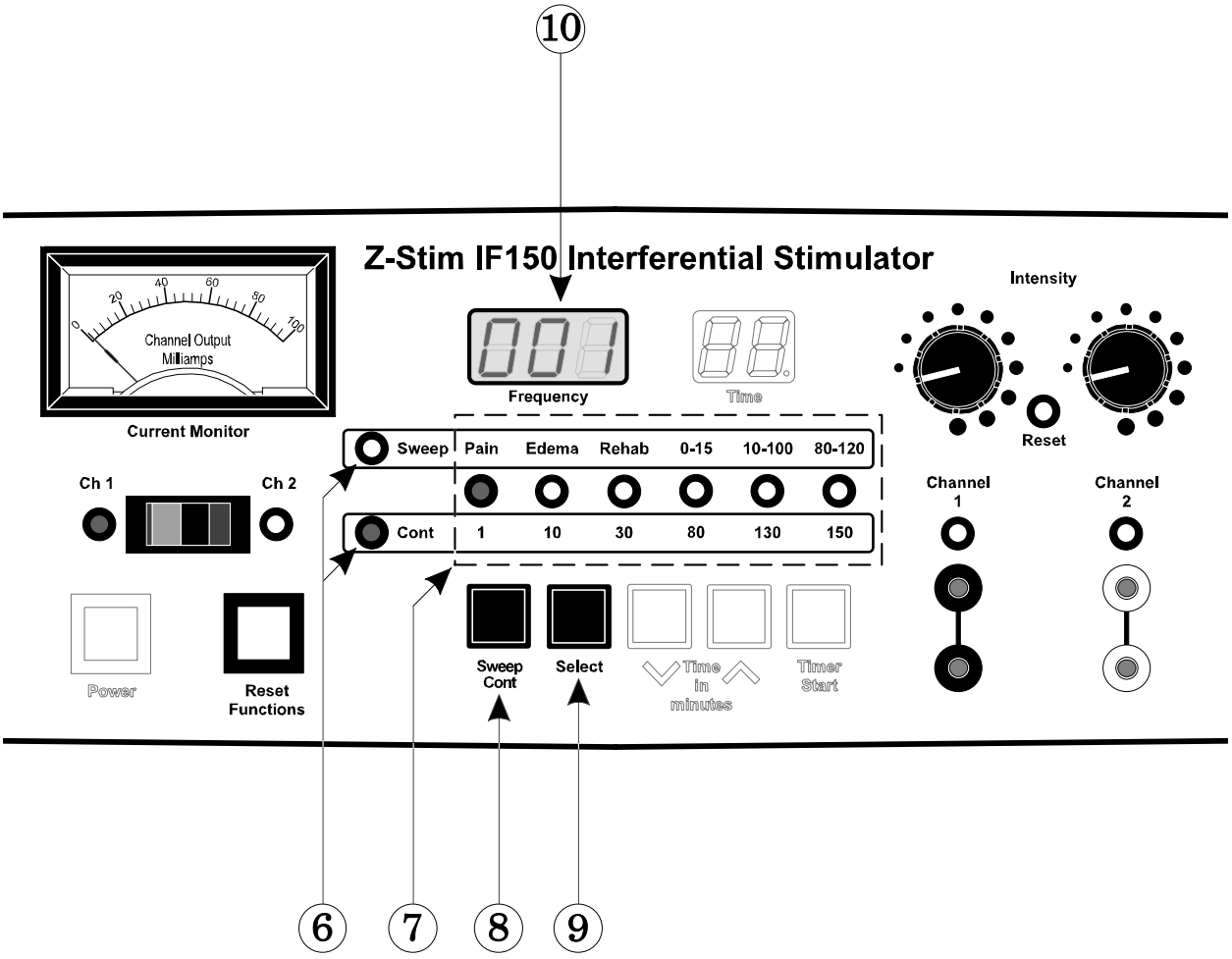
Part 3
AMREX

Quad-Polar Interferential Modality

In the illustration below, dashed lines surround the IF150's Quad-Polar Interferential section.



The Quad-Polar Interferential section of the IF150 panel is depicted below. Items referenced with circled numbers (6 – 10) are explained on the following page.



6. **SWEEP MODE AND CONTINUOUS MODE INDICATOR LIGHTS**

7. **SWEEP CONTINUOUS CONTROL:** Selects a Sweep or Continuous mode. The Sweep mode provides a preset beat frequency range and the Continuous mode provides a preset beat frequency. The indicator light for the selected mode will illuminate. The Sweep or Continuous mode can be changed during the treatment period.

   Note: Before changing the Sweep or Continuous mode during the treatment period, rotate the *Intensity* control for *Channel 1* and *Channel 2* counterclockwise enabling the audible "clicks".

8. **SELECT CONTROL:** Selects a Sweep beat frequency range or a Continuous beat frequency. The indicator light for the selected beat frequency will illuminate. The output frequency of *Channel 2* is 4000 Hz less the selected Sweep mode beat frequency range or Continuous mode beat frequency. The output frequency of *Channel 1* is 4000 Hz.

   - Sweep Mode – Selects a preset beat frequency range of:
     (80-150 Hz) Pain, (1-10 Hz) Edema, (1-150 Hz) Rehab, 0-15 Hz, 10-100 Hz, or 80-120 Hz.

   - Continuous Mode – Selects a preset beat frequency of:
     1, 10, 30, 80, 130 or 150 Hz.

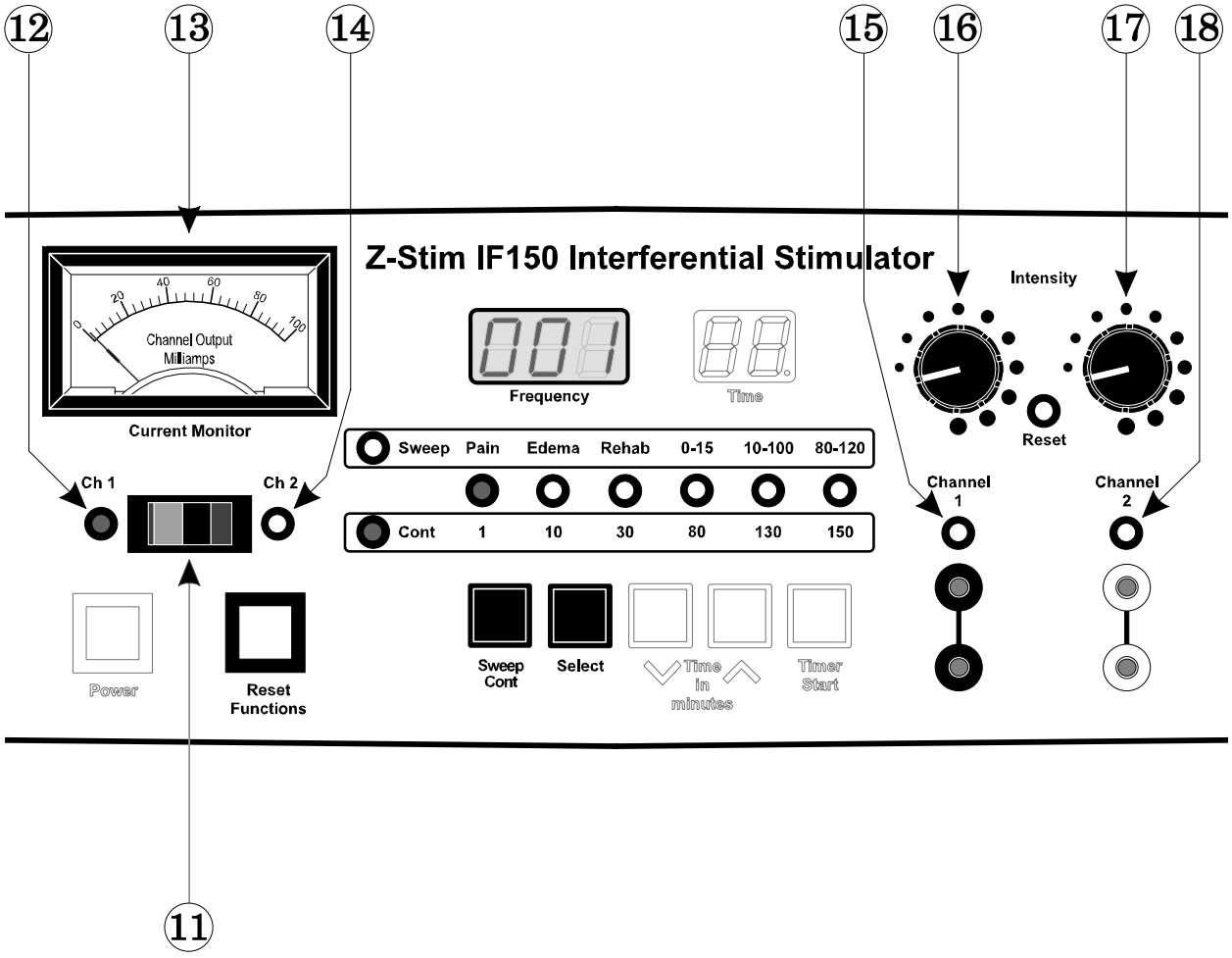
   The Sweep mode beat frequency range or the Continuous mode beat frequency can be changed during the treatment period.

   Note: Before changing the Sweep mode beat frequency range or the Continuous mode beat frequency during the treatment period, rotate the *Intensity* control for *Channel 1* and *Channel 2* counterclockwise enabling the audible "clicks".

9. **FREQUENCY INDICATOR LIGHT ARRAY:** Indicates the selected Sweep mode beat frequency range or the Continuous mode beat frequency.

10. **FREQUENCY DISPLAY:** Digital display of the selected Sweep mode beat frequency range or Continous mode beat frequency. Digital display ranges from 0 to 150 hertz in one hertz increments.

The Quad-Polar Interferential section of the IF150 panel is depicted below. Items referenced with circled numbers (11 – 18) are explained on the following page.



11. **CURRENT MONITOR CHANNEL SELECTION CONTROL:** Selects the display of output current for *Channel 1* or *Channel 2.*

12. **CURRENT MONITOR INDICATOR LIGHT - CHANNEL 1:** Indicates *Channel 1* is selected for the *Current Monitor.*

13. **CURRENT MONITOR - CHANNEL 1 and CHANNEL 2:** Analog display of output current for *Channel 1* or *Channel 2.* Ranges from 0 to 100 milliamperes.

14. **CURRENT MONITOR INDICATOR LIGHT - CHANNEL 2:** Indicates *Channel 2* is selected for the *Current Monitor.*

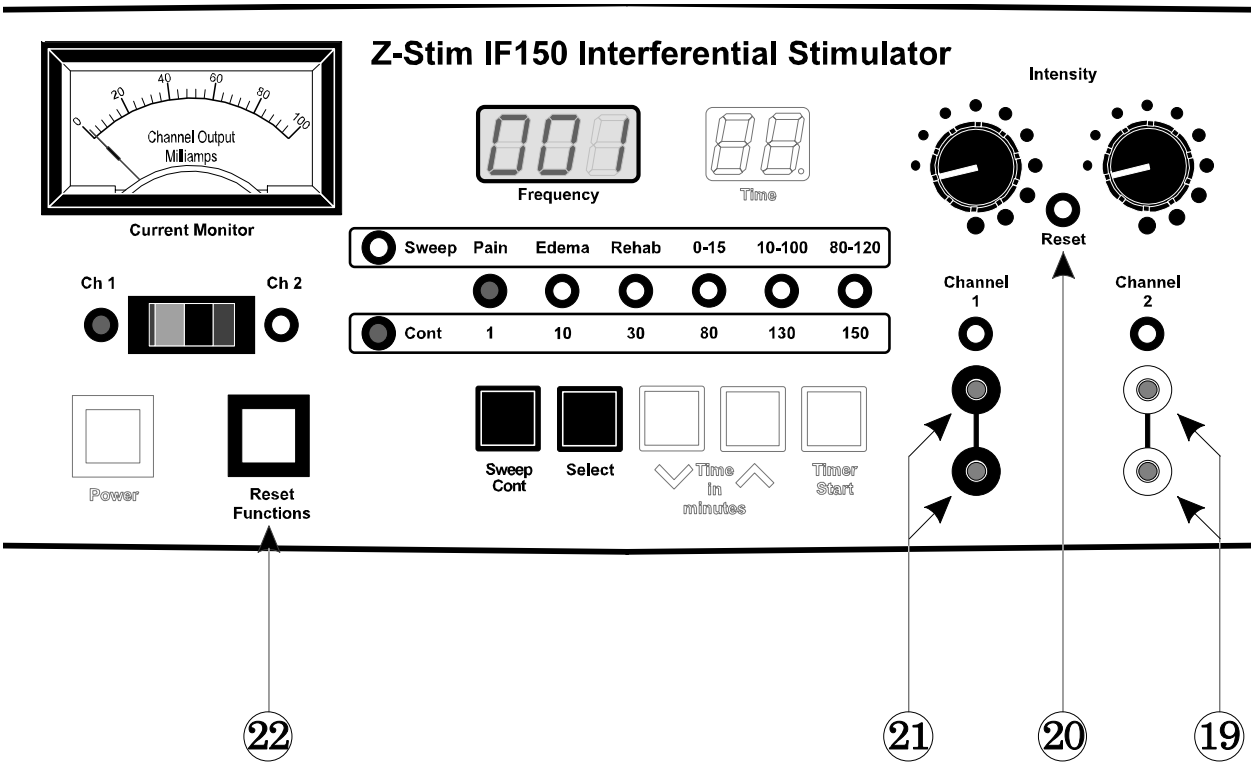
15. **INTENSITY CONTROL INDICATOR LIGHT - CHANNEL 1:** Indicates *Channel 1* is enabled.

16. **INTENSITY CONTROL - CHANNEL 1:** Regulates output for *Channel 1.* Rotate the *Intensity* control clockwise to increase output and counterclockwise to decrease output. The Current Monitor for *Channel 1* and *Channel 2* will indicate the output intensity selected. The output setting for *Channel 1* must not vary more than ±20% of the output setting for *Channel 2.*

17. **INTENSITY CONTROL - CHANNEL 2**: Regulates output for *Channel 2.* Rotate the *Intensity* control clockwise to increase output and counterclockwise to decrease output. The Current Monitor for *Channel 1* and *Channel 2* will indicate the output intensity selected. The output setting for *Channel 2* must not vary more than ±20% of the output setting for *Channel 1.*

18. **INTENSITY CONTROL INDICATOR LIGHT - CHANNEL 2:** Indicates *Channel 2* is enabled.

The Quad-Polar Interferential section of the IF150 panel is depicted below. Items referenced with circled numbers (19 – 22) are explained on the following page.



19. **STIMULATOR OUTPUT JACKS - CHANNEL 2:** The stimulator output jacks for *Channel 2* are white.

20. **INTENSITY RESET INDICATOR LIGHT:** The *Intensity Reset* indicator light will flash and an audible signal will be emitted from the generator in the event that:

    - at power on, the *Intensity* controls are not rotated counterclockwise enabling the audible "clicks".
    - the treatment period has ended.
    - the *Reset Functions* control is pressed.
    - the ac power is interrupted.

    To turn off the *Intensity Reset* indicator light and the audible signal, the *Intensity* controls for *Channel 1* and *Channel 2* must be rotated counterclockwise enabling the audible "clicks". Select a treatment time and press the *Timer Start* control before setting the output for *Channel 1* and *Channel 2*.

    Note: The generator will default to factory settings unless the treatment period has ended without interruption.

    Note: When the treatment period has ended without interruption, all generator settings are maintained except the treatment time which reverts to the factory default setting of fifteen minutes.

21. **STIMULATOR OUTPUT JACKS - CHANNEL 1:** The stimulator output jacks for *Channel 1* are black.

22. **RESET FUNCTIONS CONTROL:** When the *Reset Functions* control is activated, stimulator output will be discontinued.

    - The output intensities reduce to 0 as indicated on the *Current Monitor* for *Channel 1* and *Channel 2*.
    - The treatment time reduces to 00 as indicated on the *Time* display.
    - The frequency reduces to 000 as indicated on the *Frequency* display.
    - The *Intensity Reset* indicator light flashes and the generator emits an audible signal.

    The *Intensity* controls for *Channel 1* and *Channel 2* must be rotated counterclockwise enabling the audible "clicks", which will turn off the *Intensity Reset* indicator light, *Intensity* control indicator lights, and the audible signal. The generator will default to factory settings.

Part 4
AMREX

IF150 General Operation and Application Procedures

General Operation of Quad-Polar Interferential Modality

1. Connect the IF150's ac power cord to the IF150's ac receptacle and plug the "Hospital Grade" connector to a properly grounded 120Vac, 60Hz receptacle.

2. Rotate the *Intensity* controls for *Channel 1* and *Channel 2* counterclockwise enabling the audible "clicks".

3. Depress the *Power* control. An audible signal will be emitted and the generator will default to factory settings of:

    - *Time* display 15 minutes
    - *Frequency* display 001 Hz
    - Preset Continuous frequency for 1 Hz
    - *Channel 1* and *Channel 2 Current Monitor* indicates 0

    Note: If the *Intensity* controls are not rotated counterclockwise enabeling the audble "clicks", the generator will emit a series of audible signals and the *Intensity Reset* indicator light will flash. *Channel 1* and *Channel 2 Intensity* controls must be rotated counterclockwise enabling the audible "clicks" to return to factory default settings.

4. Press the *Sweep Continuous* control to select Sweep mode or Continuous mode. The Sweep or Continuous mode indicator light will illuminate.

    Note: The *Sweep Continuous* control selection can be changed anytime during treatment. However, to avoid possible patient discomfort, before changing the *Sweep Continuous* control selection, rotate the *Intensity* controls for *Channel 1* and *Channel 2* counterclockwise enabling the audible "clicks".

5. Press the *Select* control to the desired Sweep beat frequency range or Continuous beat frequency. The selected beat frequency indicator light will illuminate and the *Frequency* display will indicate the selection.

   Note: The Sweep beat frequency range or the Continuous beat frequency can be changed anytime during treatment. However, to avoid possible patient discomfort, before changing the Sweep beat frequency range or Continuous beat frequency, rotate the *Intensity* controls for *Channel 1* and *Channel 2* counterclockwise enabling the audible "clicks".

6. Verify that the *Intensity* controls for *Channel 1* and *Channel 2* are rotated counterclockwise enabling the audible "clicks".

7. Prepare the four pad electrodes and apply them to the patient. They may be held in place by means of retention straps or weight bags.

   Note: Quad-Polar Interferential treatment requires the use of 4 electrodes.

8. Set the treatment duration using the *Time in Minutes* controls. To adjust in one minute increments, press and release. The treatment duration will be indicated on the *Time* display. Treatment duration may be reduced or increased during the treatment period.

9. Press the *Timer Start* control to activate the treatment timer. A flashing decimal point on the *Time* display indicates timer countdown in 1 minute increments.

10. Press the left side of the *Current Monitor Channel Selection* control. The *Current Monitor* indicator light for *Channel 1* will illuminate. The *Current Monitor* will display the output for *Channel 1.*

11. Slowly increase the *Intensity* control for *Channel 1* to the desired output level. The *Current Monitor* will indicate the output intensity selected for *Channel 1.* The output level for *Channel 2* must not vary more than ± 20% from the output level of *Channel 1.*

    Note: Quad-Polar Interferential treatment requires the use of 4 electrodes.

12. Press the right side of the *Current Monitor Channel Selection* control. The *Current Monitor* indicator light for *Channel 2* will illuminate. The *Current Monitor* will display the output for *Channel 2.*

13. Slowly increase the *Intensity* control for *Channel 2* to the desired output level. The *Current Monitor* will indicate the output intensity selected for *Channel 2.* The output level for *Channel 2* must not vary more than ± 20% from the output level of *Channel 1.*

    Note: Quad-Polar Interferential treatment requires the use of 4 electrodes.

14. When treatment is completed, stimulator output will be discontinued immediately.

    - The output intensities reduce to 0 as indicated on the *Current Monitor* for *Channel 1* and *Channel 2*.
    - The treatment time reduces to 00 as indicated on the *Time* display.
    - The frequency reduces to 000 as indicated on the *Frequency* display.
    - The *Intensity Reset* indicator light flashes and the generator emits an audible signal.

    The *Intensity* controls for *Channel 1* and *Channel 2* must be rotated counterclockwise enabling the audible "clicks", which will turn off the *Intensity Reset* indicator light, *Intensity* control indicator lights, and the audible signal. The treatment time will default to the factory setting and the *Frequency* display will return to the treatment setting.

Application of Electrical Muscle Stimulation Quad-Polar

Quad-Polar Interferential electrical muscle stimulation is usually applied through carbon type pad electrodes with sponge covers, or sponge type pad electrodes. The *Flextrode System* has been designed for the application of electrical stimulation with the use of carbon type electrodes.

The *Flextrode* pad electrode must be used with the *Flextrode* sponge cover. The sponge cover provides increased conductance to the patient. To obtain maximum conductivity, it is important to properly prepare the *Flextrode* pad electrode and sponge cover before application of electrical muscle stimulation.

The *Flextrode* pad electrode and sponge cover must be completely and thoroughly moistened by immersion in water. Apply a generous amount of Flextrode Conductive Spray to the moistened sponge cover. If the Flextrode Conductive Spray is not desired, apply a generous amount of Amrex Conductance and Coupling Gel to the thoroughly moistened *Flextrode* sponge cover. A generous amount of Flextrode Conductive Spray or Amrex Conductance and Coupling Gel is required to insure good conductivity. Thoroughly clean pads and sponge covers with warm water after each treatment.

Important

It is the personal responsibility and obligation of the user to verify that patient cords and electrode pads show no evidence of deterioration prior to patient application. When such evidence exists, replace the cords or electrodes. Never sharply bend or twist the cords. Loose connections or broken cords can cause poor conductance and possible discomfort to the patient.

Should the patient complain of low stimulation output, no output or sudden irregular increases in output, immediately discontinue treatment. Check for the following: secure cord connections; proper electrode contact with the patient; electrode wear or lack of cleanliness. Replace patient cords and / or pad electrodes that show any evidence of deterioration.

Interferential Burns

With the use of interferential current, there has been a growing awareness of so called interferential “burns”. Interferential current is symmetrically biphasic; it does not produce a chemical build up in tissue. Therefore, the so called interferential “burns” cannot be of a chemical nature; they cannot be an acid or alkaline burn. Also, interferential current, under normal circumstances, is of insufficient intensity to produce significant amounts of heat in tissue. Therefore, the so called interferential “burns” are not likely to be a thermal burn.

It seems most likely that interferential “burns” are, in fact, an adverse skin reaction produced by too high a current density in the pad area. Old, worn, cracked or dried out pads will cause the interferential current to concentrate in small areas rather than be evenly distributed throughout the entire pad surface area. Deteriorated pads have the effect of increasing the current density since the current is being delivered through a smaller area. It is the personal responsibility and obligation of the user to verify that patient cords and electrode pads show no evidence of deterioration prior to patient application. When such evidence exists, replace the cords or electrodes.

Some patients have sensitive skin and may react to any type of electrical stimulation. Electrotherapy causes increased blood flow, especially underneath the pads. In some patients, this may cause an accumulation of fluids just under the skin which may result in a rash, burn or blister. When this type of reaction does occur, ice massage to the area may be helpful and can be performed two or three times a day. If the area has broken down into a blister, then ice massage may be given to the surrounding tissue. If necessary, a clean dry dressing may be applied. Medical advice should be sought if the problem does not resolve quickly.

It should also be kept in mind that creams, liniments or other preparations on the patients skin may cause an unusual reaction.

Adverse Effects - Shortwave Diathermy Interference

It is extremely important for the physiotherapist to have a clear understanding of the potential danger involved in the use of an interferential device in close proximity to an active shortwave diathermy unit.

A medical shortwave diathermy unit is a very powerful transmitter of radio energy, the larger ones having an output of 500 watts. Any interferential device with external leads, in close proximity to a shortwave unit, is likely to be affected by interference. This interference may be in the form of sparking between electrodes or between the leads and the device casing. The leads connecting the interferential device to the patient can act as an aerial and collect the radio frequency energy from the shortwave unit. This could interfere with the operation of the interferential unit or affect internal functions of the device. Or, it could result in the patient experiencing some unusual "surges" of current. There is no significant electrical radiation from an interferential device.

The increasing electronic sophistication of physiotherapeutic equipment is likely to mean that this problem is going to become more obvious. The minimum safe operating distance is difficult to determine since local factors must be considered. At least two or three meters is needed between the nearest parts of either instrument, including the cables and electrodes. The interferential device does not need to be plugged into a power supply to be affected by interference from a shortwave unit. Some very old types of shortwave generators seem to produce more interference than others which compounds the problem even further. With some shortwave units, the distance between devices of at least three meters may still be inadequate.

In practice, shortwave diathermy units and interferential units should be placed and operated as far away from each other as possible. It may be necessary to screen off all shortwave units from other equipment or to have fully screened rooms in which shortwave diathermy equipment can be operated without risk of interfering with other sensitive equipment. This is often difficult in a small practice where space is at a premium. In such cases, the units may have to be operated at different times, not simultaneously. In all cases, it would be very dangerous to give shortwave diathermy and interferential therapy treatment to a patient simultaneously.

Any patient who reports a sudden, unexplainable "surge" in output may be experiencing the effects of shortwave interference.

Electrical Muscle Stimulation—Indications

- Relaxation of muscle spasms
- Prevention or retardation of disuse atrophy
- Increased local blood circulation
- Muscle reeducation
- Maintenance of or increase in range of motion
- Immediate postsurgical stimulation of calf muscles to prevent venous thrombosis

Electrical Muscle Stimulators should only be used under medical supervision for adjunctive therapy for the treatment of medical diseases and conditions.

Electrical Muscle Stimulation—Contraindications

- Contraindicated for patients with cardiac demand pacemakers.
- Should not be used on cancer patients.

Electrical Muscle Stimulation—Warnings

- Long term effects of chronic electrical stimulation are unknown.
- Safety has not been established for the use of electrical muscle stimulation during pregnancy.
- Adequate precautions should be taken in the case of persons with suspected heart problems.
- Adequate precautions should be taken in the case of persons with suspected or diagnosed epilepsy.
- Do not stimulate over the carotid sinus nerves, especially in patients with a known sensitivity to the carotid sinus reflex.
- Severe spasm of the laryngeal and pharyngeal muscles may occur when the electrodes are positioned over the neck or mouth. The contractions may be strong enough to close the airway or cause difficulty in breathing.
- Electrical muscle stimulators should not be applied transcerebrally.
- Electrical muscle stimulators should not be used over swollen, infected or inflamed areas or skin eruptions.
- Caution should be used in the transthoracic application of electrical muscle stimulators in that the introduction of electrical current into the heart may cause arrhythmias.
- Electrical muscle stimulators should be kept out of the reach of children.

Electrical Muscle Stimulation—Precautions

Precautions should be observed:

- 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 uterus.
- Where sensory nerve damage is present by a loss of normal skin sensation.

Some patients may experience skin irritation or hypersensitivity due to the electrical stimulation or the conductive medium. The irritation can usually be reduced by use of an alternate conductive medium or alternate electrode placement.

Skin irritation and burns beneath the electrodes have been reported with the use of electrical muscle stimulators.

Appendix A

Specifications

Input Power Requirements

Line Voltage ..... 120 Vac, 60 Hz
(Special voltages available on request)

Current ..... 1.0 A

Line Leakage ..... < 50 µA

General

Output Voltage ..... 47 V peak into 510 S load

Timer ..... 1 to 99 min

Quad-Polar Modality

Output Intensity ..... 92 mA rms

Waveform:
Channel 1 ..... symmetrical sine wave
Channel 2 ..... symmetrical sine wave

Frequency:
Channel 1 ..... 4000 Hz
Channel 2 ..... range: 4000 Hz to 3850 Hz
(depending on the selected beat frequency)

Frequency - Beat
Constant ..... 6 selectable:
1 ..... 1 Hz
10 ..... 10 Hz
30 ..... 30 Hz
80 ..... 80 Hz
130 ..... 130 Hz
150 ..... 150 Hz
Sweep ..... 6 selectable:
Pain ..... 80 - 150 Hz
Edema ..... 1 - 10 Hz
Rehab ..... 1 - 150 Hz
0-15 ..... 0 - 15 Hz
10-100 ..... 10 - 100 Hz
80-120 ..... 80 - 120 Hz

Instrument

Overall Dimensions ..... 12" W x 11¾" D x 6" H

Overall Dimensions with tilt- up bar extended ..... 12" W x 11¾" D x 7½" H

Weight ..... 8.5 Lbs

Shipping Weight ..... 14 Lbs

Cleaning Instructions

1. Disconnect the power supply.
2. Use mild soap with a lightly moistened cloth.
3. Air dry before using.

Service and Shipping Information

Amrex Technical Services has a representative to assist you should your equipment require service or repair. It is necessary to obtain a Return Merchandise Authorization (RMA) number before returning equipment to the factory for warranty repair. Call our representative toll free (800) 221-9069. Damage, resulting from repairs made outside the factory, is not covered under the warranty.

To maintain original design specifications, your Amrex stimulator must be calibrated and safety tested on an annual basis. Amrex strongly recommends that servicing be referred to the factory. Call toll free (800) 221-9069.

Save the original shipping carton and all packing materials to safely return Amrex equipment to the factory for service; repair; annual calibration, electrical and mechanical safety check. All accessories, including the ac line cord, must be included with the returned instrument. The customer is responsible for all freight charges. The Manufacturer shall assume NO responsibility for damage in transit.

Appendix B

References

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