# NEUROPROBE 500 PRO

## Electrotherapy / Infrared Therapy System

## User Manual

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**PART NO. 72266 290NPRB Rev 6**


# *NEUROPROBE 500 PRO*

## *Electrotherapy / Infrared Therapy System*

ACP manufactures a premier line of rehabilitation technologies to assist health care professionals with improved outcomes and quality-of-life for Patients. The ACP product line includes Pain Control Systems, Muscle Stimulators, Interferential Therapy, Therapeutic Ultrasound, Pulsed Shortwave Diathermy devices, and advanced Therapeutic Exercise Systems. Our **MEGAPULSE®**, **NEUROPROBE**, **OMNISTIM®**, **OMNISOUND®**, **OMNICYCLE®, OMNIVR®, OMNISTAND®, OMNIVERSA®, OMNISWD® and SYNCHRONY®** represent the most recent worldwide advances available for therapeutic application of electromedical devices and other rehabilitation technology.

ACP is internationally recognized for its contribution to research in the development of medical applications for therapeutic rehabilitation. The Company sponsors and conducts research at leading health care institutions and major universities throughout the world.

## SYMBOLS ON THE PRODUCT

| Symbol | Used for | Symbol | Used for |
|---|---|---|---|
|  | Serial number |  | Type BF medical device per: IEC 60601 |
|  | Date of manufacture |  | Manufacturer |
|  | Caution, consult accompanying documents |  | Caution, electrical precautions |
|  | Remote Control connection |  | CE mark of confidence compliant to MDD (93/42/EEC) |
|  | Connection Electrode Cable | IP2X | Classification against intrusion of water, dust, accidental contact of a body part. |
|  | Proper disposal required. Do not dispose of with regular household waste. Follow state and/or local regulations. |  | Alternating current device. |
|  | Observe the user manual |  | Consult instructions for use |
|  | Protect the product from humidity |  | ON / OFF push button |

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# ELECTROTHERAPY/INFRARED INDICATIONS & CONTRAINDICATIONS

**CAUTION: Federal law restricts this device for sale or use by or on the order of a Practitioner licensed by the laws of the state in which he/she practices to use or order the use of the device. Please notice that Accelerated Care Plus cannot provide medical advice. If you have specific medical questions, please contact your healthcare professional.**

## Indications

### *Electrotherapy:*

- Symptomatic relief and management of chronic intractable pain and as an adjunctive treatment in the management of acute pain, post-surgical pain and pain associated with post-traumatic injury.

### *Infrared: Super Luminous Diode (SLD) Infrared Therapy*

The SLD Infrared Therapy Pads are indicated for emitting energy in the infrared spectrum to provide topical heating for the purpose of elevating tissue temperature for:

- Temporary relief of minor muscle and joint pains.
- Minor arthritis pain and muscle spasm.
- Relieving stiffness.
- Promoting the relaxation of muscle tissue.
- Temporarily increase of local blood circulation.

## Contraindications

### *Electrotherapy:*

- Transcutaneous electrical stimulation, or powered muscle stimulators should not be used on patients with cardiac demand pacemakers and/or implanted defibrillators.
- Never connect lead wires to the power line or electro-surgery equipment. Use only the lead wires recommended or approved by the manufacturer.

**NOTE:** *There is no contraindication to the application of Transcutaneous Electrical Stimulation over metal implants.*

### *Infrared: Super Luminous Diode (SLD) Infrared Therapy*

- Do not apply SLD Infrared Light pads directly over the eyes. Avoid looking into the SLD Infrared lamp pads.
- Do not apply over sympathetic and stellate ganglion, testes, pregnant uterus, and areas of hemorrhage or active bleeding.
- Do not apply over active cancer (except in terminal / palliative / hospice care).
- Do not apply to patients with photo dermatitis due to a condition (e.g. systemic lupus) or medication.
- Do not apply SLD Infrared Light pads over the carotid sinus nerves (located in the anterior neck triangle) particularly in persons with a known sensitivity to the carotid sinus reflex, as carotid sinus stimulation may alter blood pressure and carotid contractility.
- Do not apply on persons using immune suppressant drugs, or those taking steroid injections.

**NOTE:** *The SLD Infrared Pads may be used on patients with implanted Pacemakers and electronic devices, as the Infrared therapy will not affect their operations. There is no contraindication to the application of SLD Infrared Pads over metal implants.*

# ELECTROTHERAPY/INFRARED WARNINGS & PRECAUTIONS

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## Electrotherapy Warnings

- The long-term effects of electrical stimulation are unknown;
- Do not apply stimulation over the patient's neck because this could cause severe muscle spasms resulting in closure of the airway, difficulty in breathing, or adverse effects on heart rhythm or blood pressure
- Do not apply stimulation across the patient's chest because the introduction of electrical current into the chest may cause rhythm disturbances to the patient's heart, which could be lethal. Stimulation should not be applied transthoracically in the vicinity of the heart, as introduction of electrical current into the heart may cause cardiac arrhythmias.
- Do not apply stimulation when the patient is in the bath or shower
- Do not apply stimulation while the patient is sleeping; and
- Do not apply stimulation while the patient is driving, operating machinery, or during any activity in which electrical stimulation can put the patient at risk of injury.
- Consult with the patient's physician before using this device because the device may cause lethal rhythm disturbances to the heart in susceptible individuals
- Apply stimulation only to normal, intact, clean, healthy skin.
- Do not operate this device until the User Manual, including all Indications for Use, Contraindications, Warnings and Precautions, have been carefully read and understood.
- Operation of this device or placement of lead wires, probes, pads and electrodes in close proximity (less than 5 feet) to an operating shortwave or microwave diathermy unit may produce instability in the device output or burns at the treatment site. Lead wires and device can pick up the magnetic field output of the diathermy and through induction convert it into an electrical field, transmit the energy into the patient increasing the current density at the electrodes of applicators. Since the patient may not feel the 27 MHz frequency, they lack the protective sensation and tissue burns could result. Short-wave field could potentially damage or reset medical devices in close proximity to the drum applicator.
- Treatment should not be applied over the carotid sinus nerves, (located in the anterior neck triangle), including, stellate ganglion, vagus nerve, or laryngeal or pharyngeal muscle. Particular care should be taken for patients with a known sensitivity to the carotid sinus reflex, as carotid sinus stimulation may alter blood pressure and cardiac contractility.
- Do not apply treatment over testes, heart or eyes. Electrical stimulation may affect organ function.
- Do not apply over or in close proximity to active cancer (except in terminal / palliative / hospice care), as therapy may increase blood flow to the tumor.
- Treatment should not be applied when high fever is present over swollen, severe infection (osteomyelitis, sepsis, tuberculosis, etc.) or inflamed areas/skin eruptions (phlebitis, thrombophlebitis, varicose veins, etc.).
- Do not apply over the lumbar or abdominal region, or over the uterus during pregnancy (to prevent uterine contraction), or during menstruation as therapy may temporarily increase menstrual flow.
- Treatment should not be applied transcranially. Since the effects of stimulation of the brain are unknown, stimulation should not be applied across the head, and electrodes should not be placed on opposite sides of the head;
- Stimulation should not be applied to patients connected to patient monitoring equipment, as the stimulation may have an effect on the proper operation of the monitoring equipment.
- Stimulation should not be applied directly over external stimulator systems with lead wires

## Infrared Therapy Warnings

DISCLAIMER: Not intended to diagnose, cure or prevent disease. ACPL makes no claims, representations, or warrantees regarding the ability of this product to cure any physical mental condition. Any information given in this document should not be taken as a substitute for medical advice. A qualified health professional should be consulted with regard to any condition requiring medical attention.

- Do not immerse in water
- Do not operate while standing in water
- Use carefully May Cause Serious Burns
- Do not use over sensitive skin areas or in the presence or poor circulation
- The unattended use of or by children or incapacitated person may be dangerous

## Electrotherapy Precautions

- The safety of electrical stimulation during pregnancy has not been established;
- 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.
- Application site and settings should be based on the guidance of the prescribing practitioner.
- All equipment and accessories should be kept out of the reach of children or unqualified persons.
- Do not connect this device to any wall outlet that has not been properly grounded, or to any electrically non-isolated medical device Powered muscle stimulators should be used only with the leads and electrodes recommended for use by the manufacturer. Use this device only with the leads, electrodes, and accessories recommended by the manufacturer. Use only ACP specified accessories and/or supplies with ACP devices. Do not use any power cords, or power supplies, other than the ones provided or specified for this device. Use of any other power supply could seriously damage the device and will void the warranty.
- The use of conductive mediums other than specifically approved pre-gelled or self-adhering electrodes such as ultrasound gel or lotion, hand or body lotion, electrolyte spray mist, paper towels, non-approved reusable or disposable pre-gelled or self-adhering electrodes—are not advised for use with OmniVersa, Omnistim Systems.
- When cleaning the device, never immerse them or wash them with water. See the infection control section in this manual for cleaning instructions. Devices should not be submerged in water or other liquids.
- Failure to follow the manufacturer's prescribed maintenance for this device may lead to device failure and transient or unreliable performance. State and federal survey and JCAHO require all equipment to be maintained and calibrated according to the manufacturer recommended schedules.
- A potential electric shock hazard exists once the device outer casing has been in part, or fully, removed. Only qualified service personnel should perform Service and repairs. Warranty will be voided if the outer casing has been removed or tampered with.
- Use caution when the patient has a tendency to bleed internally, such as following an injury or fracture. Do not apply over areas of hemorrhage or active bleeding.
- Inspect and cleanse the skin prior to application. Following treatment check the skin for evidence of irritation or burns, and if present, treat as appropriate. If the patient has, or complains of, skin irritation following treatment; shorten the treatment time on the next treatment session, or use an alternative type of therapy or electrode placement.
- Gradually increase the output intensity/power to required dose or patient tolerance while monitoring the device display.
- Caution should be taken with patient exhibiting psychological or physical hypersensitivity to the therapeutic treatment. Several attempts should be made to place them at ease so that their confidence and cooperation can be gained during the treatment.
- The treatment area should be checked from time to time, and if there is evidence of, or if the patient complains of, pain during treatment, adjust the output downward until it is tolerated by the patient. If the patient continues to complain of pain, discontinue the treatment and shorten the treatment time on the next treatment session, or use an alternative type of therapy or electrode placement.

- Do not apply treatment directly over/under hot or cold packs. Caution is recommended when treatment follows the application of hot or cold therapy, which may alter the patient's sensation. Application of thermal agents over areas of impaired circulation should be performed with caution as the circulation may be insufficient to heat or cool the tissue, altering the patient's perception of warmth and pain, and burns or tissue necrosis may result from subsequent treatment.
- Caution is recommended when treatment follows the application of medicated patches, salves, or creams which may alter the patient's sensation. If there is a medical necessity to perform such treatments, these patients should be monitored diligently during application. The effect of electrical stimulation may be altered by the presence of these materials on the patient's skin.
- Caution should be used over areas of body where circulation is impaired, or which lack normal sensation. Absent or diminished sensation should be avoided or, if unavoidable, treated with caution. Establishment of acceptable intensity levels for desensitized areas may be related to the intensity levels tolerated on normal skin in opposite or related body parts.
- Caution should be used in the presence of recent surgical procedures, fractures or healing bone and soft tissue when muscle contraction may disrupt the healing process.
- Caution should be used for patients with suspected or diagnosed epilepsy. Patients with suspected or diagnosed epilepsy should follow precautions recommended by their physicians.
- Electrodes should not be placed in direct contact or in close proximity (one inch or less) of each other during treatment. Electrodes placed in contact or in close proximity can lead to high energy density and skin burns under or between the electrodes.
- Care should be used when removing electrodes after treatment, in order to minimize the potential for skin tearing. Skin should be inspected after removal of electrodes for any signs of tearing or irritation.
- Do not connect the stimulator to any electrical equipment for combination therapy except the Omnisound® family of ultrasounds.

## Infrared Precautions

- Precautions should be used for persons with suspected or diagnosed heart problems.
- All equipment should be kept out of the reach of children or unqualified persons.
- Check the skin from time to time (typically every 5 to 10 minutes) under the SLD infrared light pads. If the patient complains of pain or overheating discontinue the treatment and shorten the treatment time on the next treatment session or use any alternative type of therapy or SLD Pad placement.
- Do not apply SLD Infrared Pads to the body if wet. Dry the area thoroughly. The electronics in the pad may be short circuited if wet.
- Do not connect the Neuroprobe 500 Pro to any wall outlet that has not been grounded properly.
- Do not use any power cords or power supplies, other than the ones provided or specified for the Neuroprobe 500 Pro. Use of any other power supply could seriously damage the device ad will void the warranty.
- Do not share any wall outlet with any high frequency device e.g. shortwave or microwave diathermy or motorized equipment e.g. whirlpool or traction machines.
- Operation of the Neuroprobe 500 Pro in close proximity (i.e. less than 5 feet) to an operating shortwave or microwave diathermy unit may produce instability in the infrared light output or burns at the sight of the Neuroprobe 500 Pro application.
- When cleaning the SLD Infrared pads, never immerse them or wash them with water. See the infection control section in this manual for cleaning instructions.
- Service and repair should be performed only by qualified service personnel. Warranty will be voided if the Neuroprobe 500 Probe has been opened and tampered with by unauthorized personnel.
- Lay the SLD Infrared Pads flat whenever possible. Avoid excessive or unnecessary bending.
- Failure to follow the manufacturer's prescribed maintenance for this device may lead to device failure and transient or unreliable performance.

# THE NEUROPROBE 500 PRO

## Delivery of the Neuroprobe 500 Pro

Upon receipt of your Neuroprobe 500 Pro inspect the shipping container and contents for any obvious or concealed damage. All ACP products are packaged carefully for rapid, safe delivery. We guarantee delivery in perfect condition to the postal or delivery services; however, any damage or loss incurred during transportation or delivery is the postal or Delivery Company's responsibility. If damage or loss to the product and/or container is obvious or suspected, appropriate notation must be made on the signed freight bill at the time of delivery. All damage claims should be promptly filed with the delivering carrier and must be initiated by the addressee where the package was to be delivered. Retain the original shipping container and inserts for validation of damage claim or use at a later date.

Unpack and check all accessories. A list of enclosed accessories is provided with each unit to assist you in identifying the type and number of accessories.

> **NOTE:** *The purpose of this manual is to acquaint you with the Neuroprobe 500 Pro's operating features and functionality. Please read the manual carefully before attempting to operate the Neuroprobe 500 Pro. If questions remain unanswered, contact your local ACP representative, or call 1-800-350-1100. Outside the USA, call 1-775-685-4000.*

## Introduction

The Neuroprobe 500 Pro gives the clinician the option of using any combination of an Estim probe, Interferential Current in bipolar or quadripolar modes, or Monochromatic Infrared Therapy to reduce pain and increase circulation.

Flexible neoprene pads deliver heat and Infrared therapy through multiple clusters of infrared and red visible super luminous diodes (SLD). The SLD cluster pads are contoured and designed for fast set-up over key nerves, arteries and acu/trigger points.

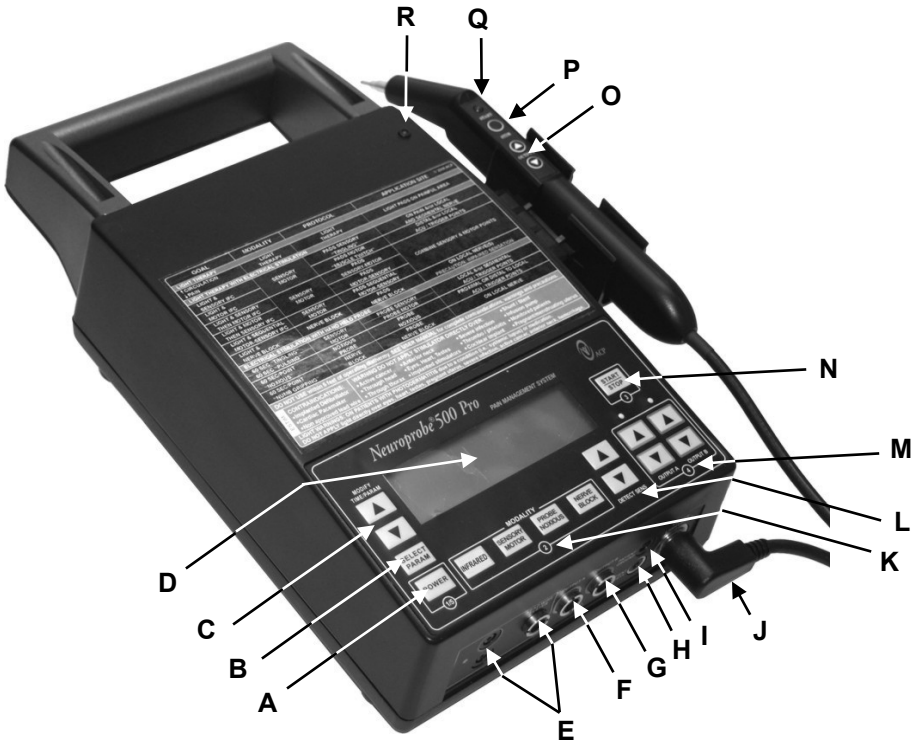
The Neuroprobe 500 Pro offers audio and visual detection of acu/trigger points and is designed to provide Infrared therapy, sensory, motor, noxious, and nerve block stimulation techniques for advanced pain management. Its two separate generators produce medium frequency 5000 Hz alternating currents in continuous or modulated modes. Two isolated output circuits with independent intensity controls are provided. The output of each circuit is easily determined in milliamps or micro amps through the display screen. A probe mode and point locator is built into the system to detect areas of low skin resistance and trigger points. The digital timer allows the operator to select the length of the total treatment time and to monitor the time remaining in minutes.

The Neuroprobe 500 Pro offers Full Field (FF) Interferential Current (IFC) therapy. An interferential vector scanning mode can be turned off or on for stationary or continuous movement of the interferential field.

The Neuroprobe 500 Pro's optional probe with fully adjustable parameters provides a wide variety of uses for pain management with trigger point stimulation for pain control.

The Neuroprobe 500 Pro provides a nerve block mode through treatment pads with high output capable of sensory nerve block, or through the optional probe to produce local trigger point anesthesia.

## Controls and Functions




A. POWER button. Press for power ON; press again for power OFF. The display initial default screen reads: SELECT MODALITY / PROGRAM / TREATMENT OFF.

B. SELECT PARAMETERS button. Pressing this button enters the SET mode, and displays the following parameters: battery voltage, screen contrast, button speed A-B, button speed beat etc, button delay, audio, and select laser type. Most stimulation parameters may be adjusted at any time during treatment.

C. MODIFY TIME/PARAMETER button. Use to increase/decrease the treatment time or to change parameters in SET mode.

D. LCD graphics screen for all functions and parameters. The graphics screen displays:

- Modality selected
- Program selected
- Time remaining
- Carrier Frequency
- Bar graph for Vector and detection modes
- Button speeds and delay
- Vector selection
- Output current
- Display contrast
- Sweep rate and modulation selection

E. LEAD WIRE TESTER connection and indicator LED. Plug the distal (patient end) of the lead wire into the test connectors while observing polarity (red / black). Plug the device end of the lead wire into the receptacle labeled LEAD WIRE TESTER. When the POWER is on, green LED will turn on if the lead wire passes the test. LED will be red if the lead wires are faulty and need to be replaced.

F. OUTPUT CHANNEL A in SENSORY, MOTOR, and NERVE BLOCK PADS programs.

G. OUTPUT CHANNEL B in SENSORY, MOTOR, and NERVE BLOCK PADS programs.

H. PATIENT SAFETY switch. This is a remote duplicate of the START/STOP button. This is used by patients for treatment interruption.

I. PATIENT GROUND connection. Patient ground pads for use in conjunction with the Point Stimulation Probe.

J. INFRARED PAD OR ESTIM PROBE connection. Output connector for the Point Stimulation Probe or SLD Infrared Therapy Pads.

K. MODALITY SELECTION buttons. Buttons select modalities as follows:

   a. Selects INFRARED THERAPY mode when pressed.

   b. Selects SENSORY MOTOR protocols when pressed.

   c. Selects PROBE NOXIOUS protocols when pressed.

   d. Selects NERVE BLOCK protocols when pressed.

L. DETECT SENS button. Press the up arrow (▲) button to increase detection sensitivity for measurement of dry skin. Press the down arrow (▼) to decrease the detection sensitivity for measurement of wet or damp skin.

M. OUTPUT A/B buttons. Press the up arrow (▲) button to increase output current. Press the down arrow (▼) to decrease output current. Select channel by color code displayed. Channels are color coded (output buttons, lead wire receptacles, and lead wires are all coded green or blue) for convenient identification.

N. START/STOP button. Having selected the type of treatment and program, press to start the output or stop the treatment. START/STOP also cancels the SET mode.

O. OUTPUT button. Use to increase/decrease the stimulation output in Point Stimulation Probe mode.

P. START/STOP button. Having selected the type of point stimulation treatment and program, press to start the output or stop the treatment. START/STOP also cancels the SET mode.

Q. LED for Point Stimulation Probe output indicator**.**

R. LED indicating unit is connected to line power.

## Factory Settings

The Neuroprobe 500 Pro comes with the following factory settings:

| | |
|---|---|
| **Screen Contrast** | 5 |
| **Button Speed, A & B Output** | 90 |
| **Button Speed, Beat etc.** | 90 |
| **Button Delay** | 20 |
| **Audio** | ON |
| **LASER** | OFF |

These are generally suitable for most clinicians. To adjust these default factory settings proceed as follows:

1. When the main screen states “SELECT MODALITY/PROGRAM,” push the SELECT/PARAMETER button until the setting to be changed is displayed. The factory settings can then be adjusted by pressing the MODIFY TIME/PARAMETER button.

2. The Screen Contrast sets the appropriate viewing angle for easy screen legibility. Range is 0 to 30, with 30 being the darkest display.

3. The Button Speed for Output A & B sets the speed at which output will increase and decrease when the buttons are pressed. The range is 0 to 99 with 99 being the fastest.

4. The Button Speed, BEAT etc. controls the scrolling speed of all of the remaining buttons on the system. A speed of 90 to 95 is typical if the operator has good coordination and hand control. The range is 0 to 99 with 99 being the fastest.

5. The Button Delay represents the amount of time a button has to be pushed and held down before they will begin to automatically increment or decrement at the button speed. The smaller the number, the faster the response time. Range is 0 to 99.

6. Audio ON or OFF disables or enables the audio system which beeps at the end of the treatment.

7. LASER ON or OFF activates the additional LASER parameter selections and dosage options. This mode should be used only with the Neuroprobe500 Pro optional LASER probes and is covered in the LASER probe operator manual supplement.

   **NOTE:** *The factory settings cannot be accessed during operation and are only available following the start up screen.*

## Power Supply Operation

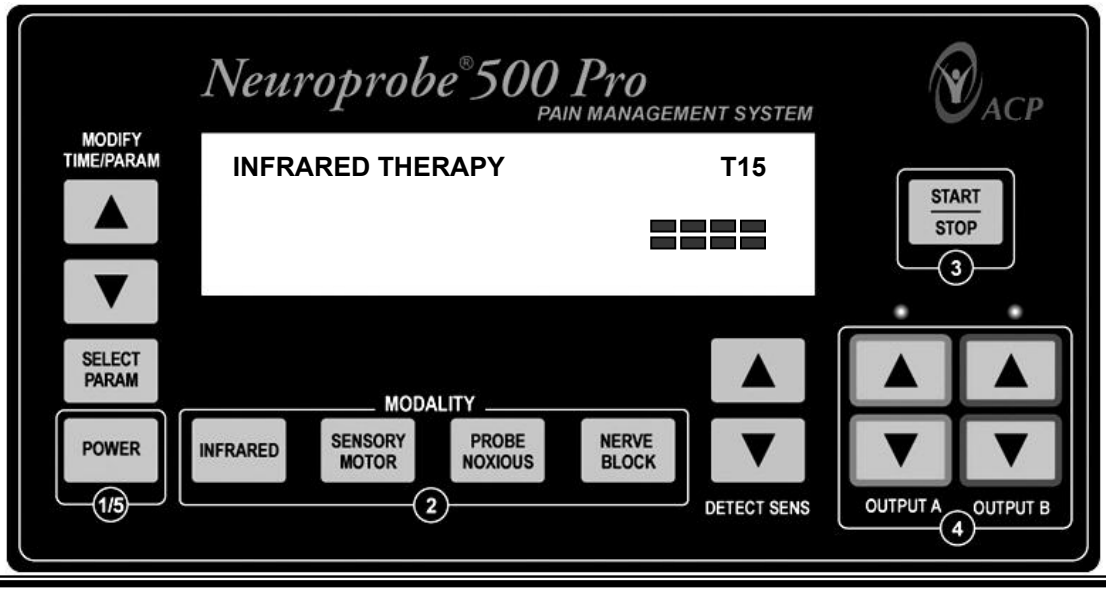
Neuroprobe 500 Pro is a line power only device. It is not intended for use with batteries.

When the Power Supply is plugged into the unit, the LED on top right of the Neuroprobe 500 Pro illuminates and stays on as long as the Power Supply is plugged into the unit and connected to the AC power.

# OPERATIONAL SEQUENCE

## Infrared Therapy with SLD Pads

- Select the dual rectangular, knee, elbow, neck, back or lower extremity SLD Infrared Pad. Plug it into the probe output socket.
- Apply the SLD Infrared Pad to the treatment area. Use an infection control cover over the SLD Infrared Pad and proper infection control procedures. Use the Velcro® straps supplied on the pad or use separate straps to gently place the SLD Infrared Pad (s) over the treatment area. Position the pad (s) so that the RED SLD are placed over the key nerves, arteries and acu/trigger points for treatment of the knee, back or lower extremity based on the pad used.
- Press the POWER button (1/5) to turn on the Neuroprobe 500 Pro. The display screen will illuminate, and the unit will be in the SELECT MODALITY/PROGRAM mode.
- Select the Infrared Therapy treatment program by using the MODALITY button (2). Note that although the SLD PADS will function in probe modes, the detection and electro-stimulation feature of the probe will not be available as the SLD INFRARED PADS plug into the same output socket as the probe.
- To start the treatment, push the START/STOP button (3) once. The following screen will be displayed.



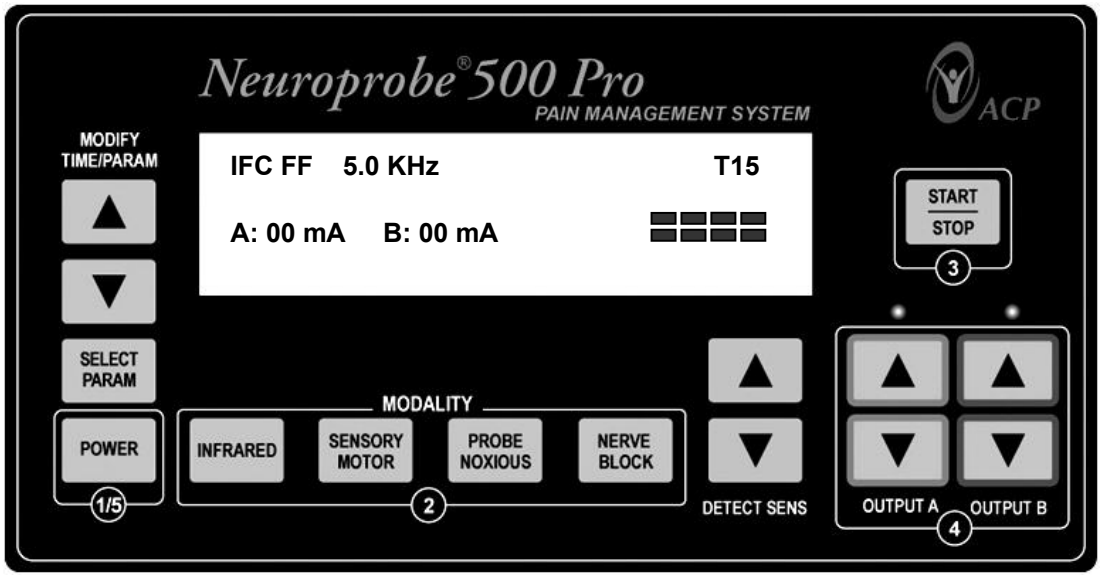
- Press the MODIFY TIME / PARAMETER button to set the desired treatment time if you wish to change from the default settings of 15 minutes. Press the up or down button to increase or decrease the duration from a minimum of one minute to a maximum of 99 minutes. The timer will count down to zero during treatment.

  **NOTE:** *The SLD Infrared Pads always operate for the indicated treatment time for the selected protocol with the same output regardless of the electrotherapy protocol chosen. The SLD Infrared Pads pulse at sequential frequencies of 45.4, 62.5, 83.3, KHz at a 50% duty factor. Each frequency is active for 1 minute. The frequency sequence is repeated until the timer terminates the treatment. This sequencing is not discernable to the user.*

- To stop the treatment, push the START/STOP button (3) once.
- When the treatment time is down to zero, the treatment current is switched off and INFRARED THERAPY is displayed.
- Turn off the unit by pressing the POWER button (1/5).

## IFC Therapy with Pad Electrodes

- Press the POWER button (1/5) to turn on the Neuroprobe 500 Pro. The display screen will illuminate, and the unit will be in the SELECT MODALITY/PROGRAM mode.
- Select the treatment modality desired and the appropriate treatment program by using the modality buttons (2) to select Sensory Motor, or Nerve Block pad programs.
- Press the SELECT PARAMETERS button to select any settings to be modified. Press the MODIFY TIME/PARAMETER button to adjust the desired treatment time, or other settings, if you wish to change from the default settings. Time is preset to 15 or 30 minutes (dependent on the protocol selected). Press the up or down buttons to increase or decrease the duration from a minimum of one minute to a maximum of 99 minutes.
- Position the electrodes on the patient, connect the electrode lead wires and press the START/STOP button (3). The treatment timer will begin, and the screen will provide basic treatment parameters, and will read as follows (i.e. if Pads Nerve Block was selected):



The bar graph on the lower right of the display shows the relative outputs of the two channels with respect to Vector operation. The numeric displays on the lower left show the output intensities into a 500 ohm load in the output A/B modes. Each time a treatment is commenced, the output current level is reset to zero to ensure that a patient cannot receive an initial shock due to a current output that was inadvertently left at a high setting from a previous treatment. The PATIENT SAFETY switch, when pressed, also resets the outputs to zero. Adjust the outputs to the appropriate level based on the protocol selected: sensory (pleasant buzzing), motor (muscle twitch) or nerve block (numb gripping sensation).

- Adjust intensity to desired level by pressing the up/down buttons for channels Output A and Output B (4).
- During operation the parameters may be altered within the program at will by pressing the SELECT PARAMETER button to select the parameter to be modified, then pressing the up/down buttons of the MODIFY TIME/PARAMETER to modify the parameter as appropriate.
- To stop the treatment push the START / STOP button (3) once.

  **NOTE:** *When zero is reached, a warning tone is emitted from the unit; the treatment current is then switched off and TREATMENT OFF is displayed. Press the START / STOP button to shut off the warning tone. If the unit is left unattended, a warning tone emits before the power automatically switches off. Note that, for all IFC or INFRARED PAD protocols, the treatment time is preset but may be adjusted at will during the treatment.*

- Once the treatment is completed, remove the electrodes from the patient and disconnect the lead wires from the electrodes.
- Turn off the unit by pressing the POWER button (1/5).

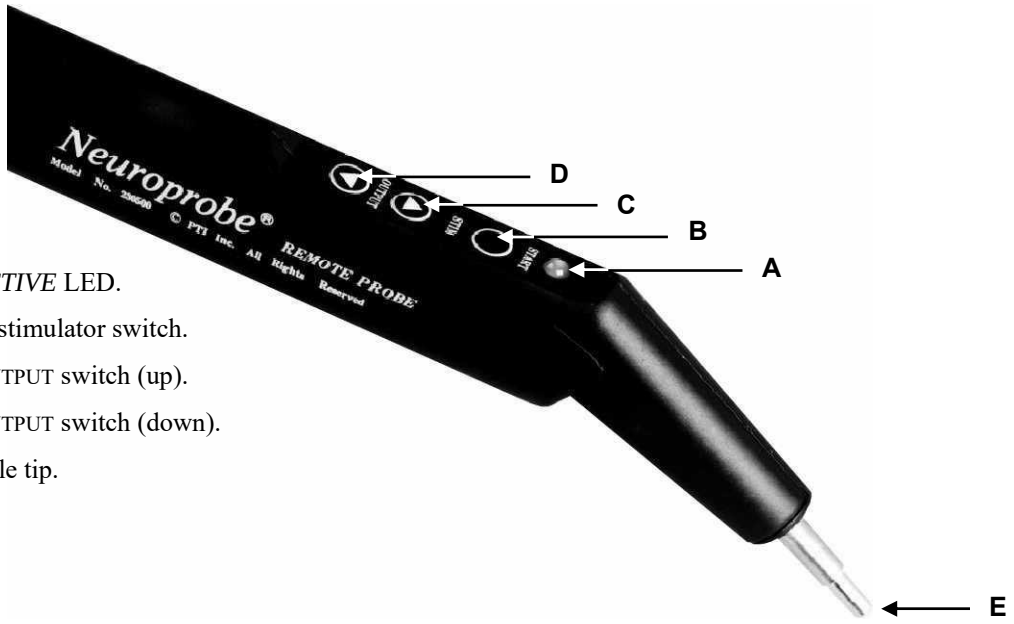
## Combination Therapy with IFC and SLD Infrared Pads

The SLD Infrared Pads may be used simultaneously with any of the Sensory Motor or Nerve Block pad therapy protocols.

- Press the POWER button (1/5) to turn-on the Neuroprobe 500 Pro.
- Plug in the SLD Infrared Pad into the output socket for the hand held treatment probe or SLD pad.
- Apply the SLD Infrared Pad to the desired treatment areas.
- Apply the stimulation electrodes to the treatment area.
- Select the treatment modality desired and the appropriate treatment program by using the modality buttons (2) to select Infrared Therapy in combination with Sensory / Motor, or Nerve Block programs.
- Connect the electrodes to the lead wires and plug into the Neuroprobe 500 Pro.
- Push the START/STOP button (3) and start the treatments according to the instructions for IFC therapy with pad electrodes.
- Adjust intensity to desired level by pressing the up/down buttons for channels Output A and Output B (4).
- To stop the treatment, push the START/STOP button (3) once.

  **NOTE:** *When zero is reached, a warning tone is emitted from the unit; the treatment current is then switched off and TREATMENT OFF is displayed. Press the START/STOP button to shut off the warning tone. If the unit is left unattended, a warning tone emits before the power automatically switches off. Note that, for all IFC or INFRARED PAD protocols, the treatment time is preset but may be adjusted at will during the treatment.*

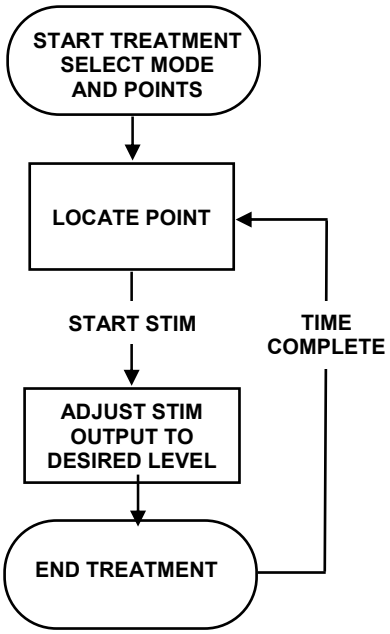
## Probe Mode POINT STIMULATION (Optional)




A. Stimulator *ACTIVE* LED.
B. START / STOP stimulator switch.
C. Stimulator OUTPUT switch (up).
D. Stimulator OUTPUT switch (down).
E. Interchangeable tip.

### *Detection Mode*

The point detector-conduction measurement system measures the electrical resistance of the tissue from a range of 10k ohms to 5 Meg ohms. The system displays a bar graph to show relative resistance; it also sounds a variable frequency tone, which changes with skin resistance. Lowering the detection sensitivity will allow the user to measure skin resistance on damper skin. The sensitivity is increased for measurement of dry skin conditions. The numeric display shows the conductivity in micro amps using a 5-volt constant voltage source.




### *Stimulation Mode*

Following the location of an area of low resistance, which may correspond to the trigger point, the operator may initiate stimulation by pressing the stimulator button on the probe (or front panel). This will start the timing of stimulation. Stimulation intensity is adjustable using the up and down arrows on the treatment probe (or from the **output A:** control on the panel). The *stim* light on the probe turns on when the unit is in stimulation mode and shuts off during detection mode. The treatment is complete when all of the points selected have been treated.

When using the stimulation one should be aware that on dry skin the patient sensation may increase due to a drop in electrical resistance of the skin during treatment. This is known as *breakthrough effect*. If breakthrough occurs rapidly, adjust the stimulation to a lower level. The probe may be lifted off the skin to break electrical contact if the effect is very fast. This effect will occur more with the monopolar modes, particularly with the noxious program in + or – polarity. Following breakthrough the intensity may be re-adjusted to the desired level of stimulation.

Caution should be used with noxious, point stimulation. Patients may be intolerant or loss of sensitivity may mask stimulation levels that could result in skin breakdown or burns.

# TREATMENT GUIDELINES

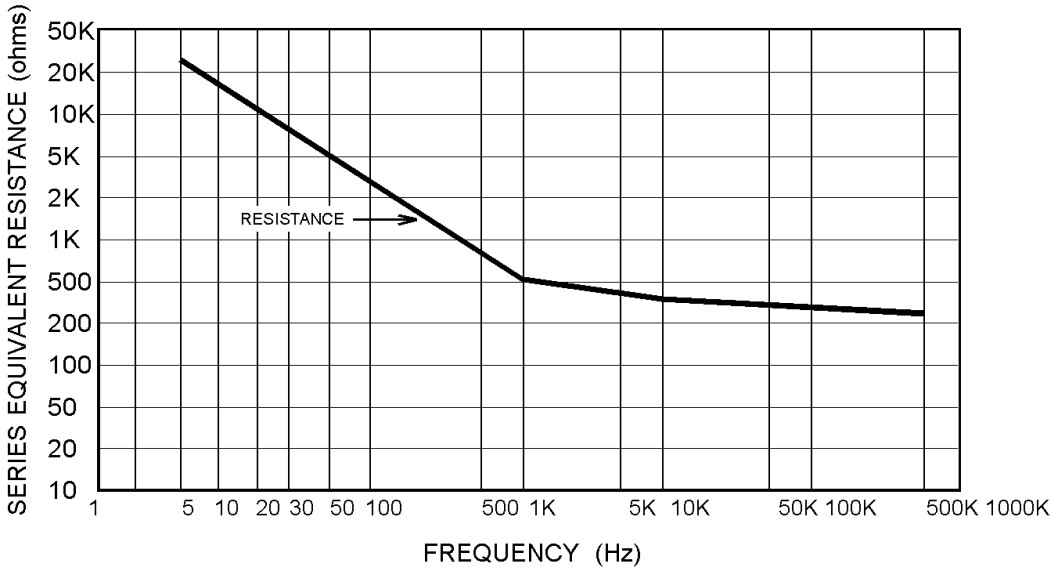
## Introduction to Medium Frequency Currents

Medium frequency (MF) currents may be described as electrical currents applied to the body for therapeutic purposes, which fall in the range of 1000 to 10,000 cycles per second (Hz). This is in contrast to low frequency currents (0.1 to 1000 Hz) such as LVPC and HVPC, and high frequency currents (1 million Hz and beyond), which include ultrasound, shortwave and microwave diathermy. Medium frequency currents are very advantageous for clinical use due to their ease of skin penetration at lower intensities.

Normal human skin reacts differently to different frequencies of current. Specifically, there is an inverse relationship between the frequency of the applied current and the skin's resistance to it. Medium frequency alternating currents in the range of 1000 or 5000 Hz provide markedly lower resistance to penetration than low frequency electrical stimulation commonly used in TENS, LVPC, and HVPC stimulation. Medium frequency currents can be used in Bipolar or in Quadripolar Interferential mode for patient treatment.

With medium frequency currents, the energy of each individual pulse is low, providing for stimulation of only one or two neurons. Since the pulses are coming in very rapid succession, stimulation of surrounding neurons occurs prior to completion of the previous neurons' refractory period. This allows for asynchronous activation of individual sensory neurons, mimicking the natural physiologic process of the intact nervous system. This is not the case with low frequency stimulators (0.1 to 1000 Hz), which are capable of only stimulus synchronous neural activation.

Medium frequency currents provide rapid analgesic effects. This occurs due to rapid depolarization of non-myelinated pain-transmitting fibers, which block pain transmission, further contributing to high muscle contraction capabilities. Additionally, medium frequency currents have been shown to alter the vascular dynamics affecting local and possibly systemic blood flow to the muscle(s) being stimulated. The unique characteristics of medium frequency currents (higher percent duty cycle, higher average current intensity, and wider pulse widths) can significantly increase blood flow by altering the metabolic activity of muscles.



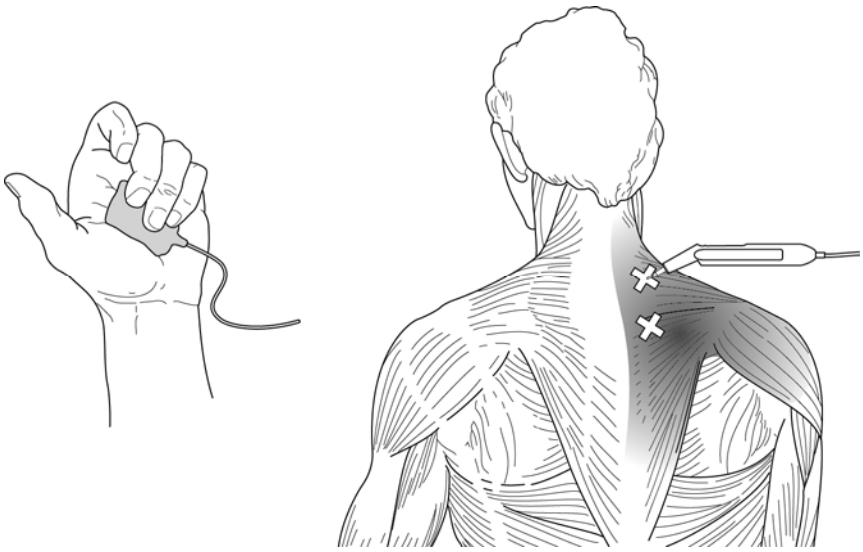

**PLOT OF IMPEDANCE AS A FUNCTION OF FREQUENCY USING EPIDUCTIVE SYSTEMS**

## Electrode Application Techniques

The following electrode placement diagrams are theoretical representations of treatment set-ups using the Neuroprobe 500 Pro. Monopolar, bipolar and quadripolar techniques are illustrated for various areas of the body. Electrode placement is dependent on the etiology of the condition.

### *Monopolar (Mono-Polar) Technique*

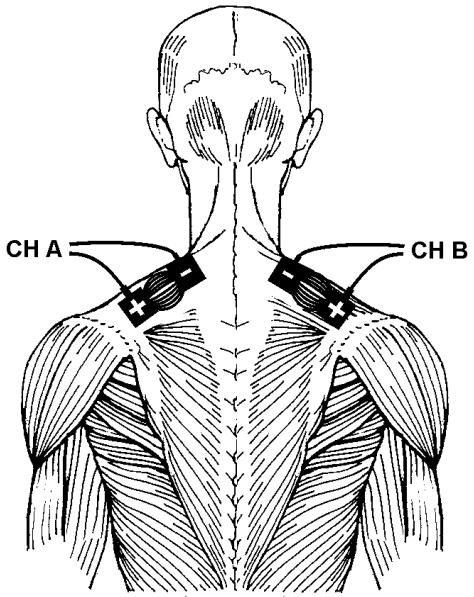
This technique may use two electrodes of different sizes, however one is in the active treatment site and one is a ground return generally located away from the treatment site. The "active" electrode can be positioned over the Acu or trigger point with the ground electrode being placed in the hand or over the segmental innervation or peripheral nerve path of the involved tissue.



**MONOPOLAR PLACEMENT OF ELECTRODES USING HAND HELD PROBE**

## *Bipolar (Bi-Polar) TENS Technique*

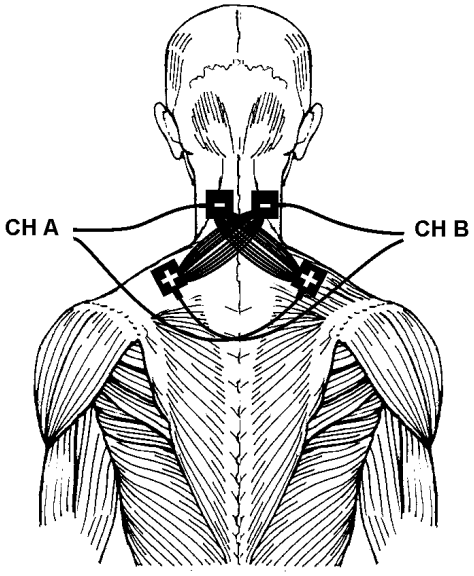
This is the most commonly used technique for pad stimulation of Acu and trigger points. This technique utilizes two electrodes, usually but not exclusively of the same size. The electrodes are placed over the local area or distal and local points; however the channels do not cross each other.




**CERVICAL BIPOLAR PLACEMENT OF ELECTRODES**

## *IFC Quadripolar (Quadri-Polar) Technique*

This technique requires the use of two output channels and four electrodes usually - but not exclusively - of the same size. The two electrodes from one channel are usually placed diagonally across the tissue area or joint to be treated with the second channel electrodes placed on the opposite diagonal. This ensures that the current will intersect and thus provide an interferential pattern. The technique produces an interference field and is known as Interferential Current therapy of IFC.




**CERVICAL QUADRIPOLAR PLACEMENT OF ELECTRODES**

## SLD Infrared Pad Application Techniques

The following SLD Infrared Pad placement diagrams are theoretical representations of treatment set-ups using the Neuroprobe 500 Pro with SLD Infrared Pads. Neuroprobe provides flexible neoprene Super Luminous Diode (SLD) cluster pads that provide both infrared 875 nm and visible red 630 nm light.

Neuroprobe 500 Pro offers two types of SLD pads:

- 15 x 630 nm and 24 x 875 nm on each 4.5" x 7.5" Pad in a dual pad configuration; bifurcated cable is available to allow use of two sets of pads (4 pads) simultaneously.
- 110 x 630 nm and 48x 875 nm on a 29" x 14" Lower Extremity.

Pad placement is dependent on the etiology of the condition.

### *Dual Rectangular SLD Infrared Pad Placement*

This technique utilizes two pads of the same size. The tissue to be treated may be placed between the pads or the pads may be placed on two separate locations or patients. Straps should be used to hold the pad (s) in place with a gentle pressure. Check periodically to make sure the pad is in place and is comfortable.

**DUAL RECTANGULAR SLD INFRARED PADS**
**NOTE: LIGHT FACES PERSON'S SKIN**

## Treatment Preparation

### *Skin Inspection*

Thoroughly cleanse the treated area with soap and water to remove oils, creams, dirt, and sweat; this will ensure uniform current conduction across the skin. After cleansing, inspect and evaluate the skin's integrity and sensation prior to treatment. Avoid absent or diminished sensation; if unavoidable, treat with caution. Establishment of acceptable intensity levels for desensitized areas may be related to the intensity levels tolerated on normal skin in opposite or related body parts. Frequently monitor the intensity level and skin response during all treatments.

Stinging, burning or other painful sensation under the electrodes on normal or desensitized areas is an indication of increased current density under part of, or the entire electrode surface. In this case, immediately start to reduce the current intensity to zero; remove the electrodes to inspect the surface skin. Recheck your application techniques. (Note that when using the probe, the patient may experience sharp or hot needle-like sensation in Noxious Probe Mode. This is a normal response. Adjust output to tolerance and continue the treatment.)

Immediately after treatment, clean and thoroughly inspect the skin under the electrode or Infrared Pad. Peripheral vasodilatation along with systemic vasomotor responses can lead to redness (hyperemia) directly under the Infrared Pad, electrode or the probe. Inform the patient of this normal aftereffect and that the redness will disappear within an hour or two. Apply topical agents to the reddened area if needed to decrease post-treatment irritation. Persistent skin irritation could be due to repeated stimulation of the same electrode site or a possible allergic reaction to the conductive mediums, tapes, elastic wraps, and/or cleaning and disinfectant solutions. In these cases change the electrode or Infrared Pad stimulation sites to decrease or eliminate skin irritation on electrically or light-sensitive patients. If skin irritation persists with alternate site applications, decrease the treatment times and lower the intensities; if necessary, discontinue treatment. If an allergic reaction is suspected, attempt to identify and change the allergic substance(s). If skin irritation persists, discontinue treatment until the source of irritation is determined.

By far the most common causes which lead to machines being incorrectly reported as faulty are inadequate or improper conductive medium interface or lead wire breakage. Because of the increased current density available with pulsed or continuous medium frequency currents, a proportionally greater degree of conductive medium interface problems exists and should be monitored by the clinician.

## *ACP Electrodes*

Remove the electrodes from their packaging. Apply the electrodes over the treatment sites points according to the electrode placement techniques described in this manual. Various sizes of electrodes are available dependent upon the size of the area to be treated. Follow the enclosed infection control procedures. Review the warnings and application directions on the electrode packaging.

> **NOTE:** *The use of conductive mediums (other than specifically approved pre-gelled or self adhering electrodes) such as ultrasound gel or lotion, hand or body lotion, electrolyte spray mist, paper towels, non-approved reusable or disposable pre-gelled or self-adhering electrodes, all increase the risk of irritation or burns and are contraindicated for use with Neuroprobe Systems.*

## *Lead Wires*

Inspect the full length of the lead wires for signs of frayed or cut wires and loose connections. Insert the stereo plug completely into the device. Allow the lead wires to hang freely with no excessive strain on the stereo plug insulator. Ensure that the electrodes are securely attached to the lead wires.

## *Lead Wire Testing*

Periodically check the lead wires by using the LEAD WIRE TESTER on the front panel of the Neuroprobe 500 Pro. Insert the device-end of the lead wire into the connector labeled LEAD WIRE TESTER. Insert the patient-end of the lead wires into the connectors within the white box and to the left of the device-end plug-in, matching the color coding. When all wires are plugged in, the LED will turn green. If the LED is red, the cables are not inserted properly, or are faulty.

# INFECTION CONTROL EQUIPMENT AND PRINCIPLES OF USE

## Definitions

- **Barrier Film** – One-time use, disposable plastic film for use over touch/operator surfaces of equipment or SLD Infrared Pads to reduce risks of cross-contamination and need for high level disinfection of equipment between patients.
- **Germicidal Disposable Wipe –** Low level and/or intermediate level disinfectant germicidal disposable wipe for use on electrotherapeutic devices and accessories.
- **Plastic Lead Wire Sleeve** – Barrier to be used on Estim lead wires, covering the junction of lead wire and electrode wire.
- **Plastic SLD Infrared Pad Barrier Film** – Barrier to be used on SLD Infrared Pads, covering the Pad through the junction of lead wire.

## Universal Precautions - Body Substance Isolation

Universal Precautions (UP) must be implemented in the care of all patients to protect employees from occupational exposure to blood borne pathogens. Personal protective equipment (gloves, masks, gowns) should be available and worn by staff when occupational exposure to blood, body fluids containing blood, semen and vaginal secretions is likely to occur. Health care workers with exudating lesions or weeping dermatitis should refrain from all direct patient care and from handling patient care equipment until the condition resolves. Equipment must be cleaned/disinfected and protective barriers used when appropriate.

## Cleaning / Disinfecting of the Neuroprobe 500 Pro

Modality equipment shall be cleaned / disinfected per facility infection control policy. ACP recommends the following guidelines:

## Cleaning and Low Level Disinfection

This is a recommended daily housekeeping practice to keep the equipment clean and free of contaminants which could contribute to transmission of infection. The following practices are recommended for use when treating intact skin without the presence of physiologic fluids such as blood and urine.

- Clean equipment daily with ACP germicidal wipes. At the end of the day, wipe common contact surfaces, such as control panel and lead wires, with germicidal disposable wipe and allow to air dry. This technique will inactivate M. tuberculosis as well as most bacteria and viruses. This will also facilitate removal of organic material contaminants from equipment.
- Disposable /reusable electrodes are for individual patient use only and should not be used on multiple patients.

## Intermediate Level Disinfection

This method is recommended to keep the equipment clean and free of contaminants when used between patients for treatment of non-intact skin or incontinence management, where there is an increased risk of patient cross-contamination. The following are the recommended practices.

- After each use, clean common contact surfaces, such as control panel and lead wires with ACP germicidal wipes.
- With a second ACP germicidal cloth, wipe again leaving surfaces wet for at least 5 minutes. Allow the surface to air dry before patient use.
- Barriers should also be used on the equipment for treatment of non-intact skin or incontinence management. This technique will inactivate *M. tuberculosis* as well as most bacteria and viruses.

## Use of Barriers - Intermediate Level Disinfection

The use of an all-purpose barrier film provides surface protection from cross-contamination resulting from a variety of applications. This precaution should be used whenever dealing with non-intact skin or the chance of coming in contact with bodily fluids. Barrier film is designed to cover any surface that may be touched during a patient treatment, in order to help prevent cross-contamination. Barrier film is for single-use only. The film is discarded after each patient treatment. The procedure for use is as follows:

1. Wash hands.
2. Apply Intermediate Level Disinfection prior to barrier application.
3. Select, tear or cut with clean scissors a length of barrier film to fit over the operator surfaces of the Neuroprobe 500 Pro unit.
4. Select and cut with clean scissors a 2-foot length of plastic sleeve and fit over the lead wire and the electrode cabling.
5. Select the appropriate SLD Infrared Pad cover or barrier film and apply over the pad and the pad-wire junction (a shower cap may be used on the 4 x 7 inch SLD pad).
6. Prepare any items which may become in contact with the therapist during treatment, such as ultrasound gel, pens, assessment tools, cart handles, etc.
7. Set up the patient per guidelines for the procedure.
8. Provide treatment as appropriate.
9. Discard all disposables.
10. With clean gloves, remove the plastic film from the unit and discard.
11. Remove the plastic sleeve from the lead wire by sliding it toward the electrode. Remove the electrode and discard with the sleeve.
12. For the SLD Infrared Pad, remove the cover by pulling it away from the wire. Discard the shower cap cover then remove the cover or the barrier film.
13. Intermediate disinfect the Neuroprobe 500 Pro unit prior to the next treatment application.

### *Transmission of Various Barrier Materials*

If non-ACP barriers are used, the dose will vary based on the transmission of the material as follows:

| MEDIUM | TRANSMISSION | FACTOR | 15 MIN TREATMENT | 5 MIN TREATMENT |
|---|---|---|---|---|
| | | | ADJUSTED RX TIME | ADJUSTED RX TIME |
| ACP Barrier film or Saran® Wrap | 95% | 1.0 | 15 | 5 |
| ACP Infection control covers or Plastic Bag | 92% | 1.1 | 17 | 6 |
| Glad® Wrap | 93% | 1.1 | 17 | 6 |
| Tegaderm® | 90% | 1.1 | 17 | 6 |
| Acetate | 90% | 1.1 | 17 | 6 |
| Gauze (per layer) | 75% | 1.3 | 20 | 7 |
| Opsite® | 73% | 1.4 | 21 | 7 |
| Nylon Stocking | 60% | 1.7 | 26 | 9 |
| Duoderm® | 56% | 1.8 | 27 | 9 |
| Comfeel® | 26% | 3.8 | 57 | 19 |

**NOTE:** *The interface properties will determine the adjustment to treatment time required to achieve a therapeutic dose with SLD Infrared Therapy. With a typical treatment time of 15 minutes, the time would be increased by the Factor based on the interface medium used. I.e. for use through a Tegaderm® dressing, the treatment time would be increased from 15 minutes to 17 minutes to maintain the same dose.*

# MODES OF OPERATION: Protocol reference sheet

PROTOCOL APPLICATION
Reference Sheet

| PROTOCOL / CLINICAL INDICATION | STIMULATION PARAMETERS | MECHANISM OF ACTION | APPLICATION TECHNIQUE |
|---|---|---|---|
| INFRARED THERAPY<br>Temporary relief of pain, muscle spasm, stiffness and increase local blood circulation. | • 45.4KHz, 62.5KHz, and 83.3KHz<br>• 50% DF 1 min per frequency<br>• Cycles through all frequencies continuously during the treatment | Mild to moderate heat from the IR Therapy pad, and photo stimulation effects on tissue increase circulation and reduce pain and muscle spasm. | Target tissue - superficial and deep. Apply over or through the painful area or over the involved spinal segments. Apply over the incision for post op pain management. Set treatment time to 15 minutes for sub-acute to chronic, 7 minutes for acute. |
| PADS SENSORY<br>Symptomatic relief of pain from localized dermatome or segmental origin. | • 5000Hz – 80/120 BPS Continuous<br>• Vector OFF<br>• Treatment time of 15 minutes | Sensory stimulation activates A-beta fibers causing the release of spinal Enkephalin and Dynorphin to block pain at the segmental level (Gate Control). Duration of relief is typically from 30 min to 2 hrs. Fast onset of relief usually within 20 minutes. | Target tissue - superficial and deep. Bilateral bipolar or quadripolar through the painful area or over the involved spinal segments. Apply parallel to incision line for post op pain management. Set intensity to elicit a pleasant tingling sensation, just below muscle contraction. |
| PADS MOTOR<br>Symptomatic relief of pain with inflammation, and pain of generalized or multisegmental nature. | • 2500Hz – 2/6 BPS continuous<br>• Vector OFF<br>• Treatment time of 15 minutes | Motor level stimulation activates motor and A-delta fibers causing the release of Bendorphin systemically. Duration of relief is typically from 2-6 hours. Slow Onset of relief usually within 30 minutes to 1 hour. | Target tissue - superficial and deep. Bipolar placement over local and distal acu / trigger points; quadripolar placement over area of local pain; or quadripolar placement at spinal segment. Set intensity to elicit a moderate motor twitch. |
| PADS SENSORY-MOTOR<br>Symptomatic relief of pain with inflammation, pain of local, generalized single or multi-segmental nature. | • 5000Hz – 100/2 BPS continuous<br>• Treatment time of 30 minutes | Combines sensory and motor stimulation. Starts with sensory and ends with motor. Less aggressive protocol. Duration of relief is typically from 2-6 hours. Faster onset of relief usually within 20 minutes. | Target tissue - superficial and deep. Bipolar placement over local and distal acu / trigger points; quadripolar placement over area of local pain; or quadripolar placement at spinal segment. Set intensity to elicit a strong tingling sensation just below muscle contraction. |
| PADS MOTOR-SENSORY<br>Symptomatic relief of pain with inflammation, and pain of local generalized, single or multi segmental nature. | • 5000Hz – 15/2/100 BPS continuous<br>• Treatment time of 30 minutes | Combines motor and sensory stimulation. Starts with motor and ends with sensory. More aggressive protocol. Duration of relief is typically from 2-6 hours. Slower onset of relief usually within 30 minutes. | Target tissue - superficial and deep. Bipolar placement over local and distal acu / trigger points; quadripolar placement over area of local pain; or quadripolar placement at spinal segment. Set intensity to elicit a moderate motor twitch. |
| PADS SEQ MOTOR-SENSORY<br>Symptomatic relief of pain with inflammation, pain of local, generalized single or multisegmental nature. | • 5000Hz – 2/15/100 BPS continuous<br>• Treatment time of 30 minutes | Combines motor and sensory stimulation. Starts at 2 Hz for 15 sec, 15 Hz for 15 sec then 100Hz for 15 sec. The cycle repeats continuously during operation. Duration of relief is typically from 2-6 hours. Faster onset of relief usually within 20 minutes. | Target tissue - superficial and deep. Bipolar placement over local and distal acu / trigger points; quadripolar placement over area of local pain; or quadripolar placement at spinal segment. Set intensity to elicit a moderate muscle twitch. |
| PADS NERVE BLOCK<br>Symptomatic relief of pain from localized dermal or segmental origin. | • 5000Hz Continuous<br>• Treatment time of 15 minutes | Block pain by causing temporary nerve block via reactive depolarization (Conduction block) of the pain signal to the spinal input. Also known as Wedensky Inhibition. Duration of relief is typically from 1-2 hours. Fast onset of relief during treatment. | Target tissue - superficial and deep. Bipolar placement over local nerve. Quadripolar placement over area of local pain. Quadripolar placement at spinal segment. Set intensity to elicit a numb gripping sensation, just below muscle contraction. |
| PROBE SENSORY<br>Symptomatic relief of pain from localized dermatome or segmental origin. | • 5000Hz - 80/120 BPS continuous<br>• Treatment time of 60 sec | Sensory stimulation activates A-beta fibers releasing spinal Enkephalin and Dynorphin to block pain at the segmental level (Gate Control). Duration of relief is typically from 30 min to 2 hrs. Fast onset of relief during treatment. | Target tissue - superficial and deep. Monopolar placement over local and distal acu / trigger points and over area of local pain. Set intensity to elicit a strong sensory - tingling sensation. |
| PROBE MOTOR<br>Symptomatic relief of pain with inflammation, and pain of generalized or multisegmental nature. | • 5000Hz – 4/13 BPS continuous<br>• Treatment time of 60 sec | Motor level stimulation activates motor and A-delta fibers causing the release of Bendorphin systemically. Duration of relief is typically from 2-6 hours. Fast onset of relief during treatment. | Target tissue - superficial and deep. Monopolar placement over local and distal acu / trigger points or over area of local pain. Set intensity to elicit a strong pulsing or just visible muscle twitch based on patient tolerance. Increase as adaptation occurs during point stimulation. |
| PROBE NOXIOUS<br>Symptomatic relief of chronic and acute pain with inflammation, and pain of generalized or multisegmental nature. | • Pulsed DC 4 Hz continuous +/- Polarity<br>• Treatment time of 60 sec | Noxious level stimulation activates C and A-delta fibers causing the release of Bendorphin systemically and triggering descending inhibition from the brainstem. Duration of relief is typically from hours to days. Fast onset of relief during treatment. | Target tissue - superficial and deep. Monopolar placement over local and distal acu / trigger points or over area of local pain. Set intensity to elicit a strong pulsing or hot needle sensation based on patient tolerance. Increase as adaptation occurs during point stimulation. |
| PROBE NERVE BLOCK<br>Symptomatic relief of pain from localized dermal or segmental origin | • 5000Hz Continuous<br>• Treatment time of 60 sec | Block pain by causing temporary nerve block via reactive depolarization (Conduction block) of the pain signal to the spinal input. Also known as Wedensky inhibition. Duration of relief is typically from 1-2 hours. Fast onset of relief during treatment. | Target tissue - superficial and deep. Monopolar placement over local acu / trigger points or over area of local pain. Set intensity to elicit a numb gripping sensation. Increase as adaptation occurs during point stimulation. |

| OPERATIONAL SEQUENCE (Infrared) | OPERATIONAL SEQUENCE (Infrared + Stimulation) | OPERATIONAL SEQUENCE (Probe) |
|---|---|---|
| • Press INFRARED button until screen reads "INFRARED THERAPY"<br>• Press START / STOP once to activate the treatment timer.<br>• T15 will display in upper right corner.<br>• Adjust treatment time if necessary using the TIME/PARAMETER button.<br>• The treatment will end at the preset time or if the safety switch is pressed. | • Press selected Modality button until screen displays desired Protocol<br>• Press START / STOP and treatment time will display in upper right corner.<br>• Set Outputs A and B to obtain desired sensation per Application Technique.<br>• Adjust treatment time if necessary using the TIME/PARAMETER button.<br>• The treatment will end at the end of the preset time or if the safety switch is pressed. | • Press selected Modality button until screen displays the desired Protocol<br>• Locate the acu/trigger point using palpation and impedance measurement<br>• Press START / STOP on the probe and T60 will display in upper right corner of the display.<br>• Set Output using the probe controls to obtain the desired sensation per Application Technique.<br>• Adjust treatment time if necessary using the TIME/PARAMETER button.<br>• The treatment will end in 60 seconds or if the start/stop switch is pressed. |

# Neuroprobe 500 Pro Program Menu

## Infrared

SLD Infrared Pads are active when the treatment timer is on. Output is cycled at 45.4 KHz, 62.5 KHz and 83.3 KHz with 1 min per frequency, and at a 50% duty factor.

| PARAMETER | DEFAULT VALUES | RANGE OF USER ADJUSTABLE VALUES |
|---|---|---|
| **Polarity:** | +/- | +/- or + or - |
| **Treatment time:** | 15 minutes | 0 – 99 Minutes |

## Sensory - Motor

The Sensory - Motor modality contains five pre-programmed IFC modes and two pre-programmed Probe modes. In IFC mode, output is provided through the output A-B jacks. The phase of the channels is indicated by the color of the tip pins. The black wires are of the same phase and the red wires in the opposite phase relative to each channel. All variable parameters may be altered during operation.

### *I. SENSORY - MOTOR PROBE TREATMENT PROTOCOLS*

The Sensory – Motor protocols contain two pre-programmed probe protocols. All parameters may be varied during operation. The following probe programs are available:

**PROBE SENSORY:**

| PARAMETER | DEFAULT VALUES | RANGE OF USER ADJUSTABLE VALUES |
|---|---|---|
| **Carrier frequency:** | 5.0 KHz | |
| **Burst frequency:** | 100Hz | .0 Hz to 999 Hz |
| **Burst rate scan:** | 20% | 0 – 50% |
| **Burst scan time:** | 10 Seconds | 0 – 20 Seconds |
| **Modulation:** | ON | ON or OFF |
| **Stim time:** | 60 Seconds | 0 – 999 Seconds |
| **Waveform:** | Burst Alternating Current | |
| **Output:** | 0 mA | 0 – 1.8 mA |

**PROBE MOTOR:**

| PARAMETER | DEFAULT VALUES | RANGE OF USER ADJUSTABLE VALUES |
|---|---|---|
| **Carrier frequency:** | 5.0 KHz | |
| **Burst frequency:** | 8.5Hz | .0 Hz to 999 Hz |
| **Burst rate scan:** | 50% | 0 – 50% |
| **Burst scan time:** | 10 Seconds | 0 – 20 Seconds |
| **Modulation:** | ON | ON or OFF |
| **Stim time:** | 60 Seconds | 0 – 999 Seconds |

| | | |
|---|---|---|
| **Waveform:** | Burst Alternating Current | |
| **Output:** | 0 mA | 0 – 1.8 mA |

## *II. SENSORY – MOTOR, IFC AND SLD INFRARED PAD PROTOCOLS*

Electro therapy may be applied with medium frequency currents to provide greater tissue penetration and higher comfort. Electro therapy with medium frequency current is applied using bipolar electrode placements whereas IFC current is applied by crossing the electrodes over the desired treatment area. The current is passed through the treatment site by creating a third vector field from the crossing or "interfering" of the two channels in the tissue.

The purpose of interferential current therapy is to provide deep tissue treatment, which is not generally obtainable with conventional electrotherapy approaches. Its primary application is in the reduction of pain and in the stimulation of increased blood flow in the deeper tissues and muscles.

The following pads programs are available in Sensory - Motor mode:

### PADS SENSORY:

| PARAMETER | DEFAULT VALUES | RANGE OF USER ADJUSTABLE VALUES |
|---|---|---|
| **Carrier frequency:** | 5.0 KHz | 2.0 KHz, 2.5 KHz, 4.0 KHz, 5.0 KHz or 10 KHz |
| **Burst frequency:** | 100Hz | .0 Hz to 999 Hz |
| **Burst rate scan:** | 20% | 0 – 50% |
| **Burst scan time:** | 10 seconds | 0 – 20 Seconds |
| **Beat:** | | |
| **Sweep:** | | |
| **Rate Scan Time:** | | |
| **Modulation:** | ON | ON or OFF |
| **Vector:** | OFF | OFF, Fast 90º, Slow 90º, Fast 45º, Slow 45º |
| **Auto Intensity:** | | |
| **Treatment time:** | 15 minutes | 0 – 99 Minutes |
| **Waveform:** | Burst Alternating Current | |
| **Output:** | 0 mA | 0 – 99 mA |

### PADS MOTOR:

| PARAMETER | DEFAULT VALUES | RANGE OF USER ADJUSTABLE VALUES |
|---|---|---|
| **Carrier frequency:** | 2.5 KHz | |
| **Burst frequency:** | 8.5 Hz | .0 Hz to 999 Hz |
| **Burst rate scan:** | 50% | 0 – 50% |
| **Burst scan time:** | 10 seconds | 0 – 20 Seconds |
| **Beat:** | | |
| **Sweep:** | | |
| **Rate Scan Time:** | | |
| **Modulation:** | ON | ON or OFF |
| **Vector:** | OFF | OFF, Fast 90º, Slow 90º, Fast 45º, Slow 45º |
| **Auto Intensity:** | 0% | 0 – 20% |

| | | |
|---|---|---|
| **Treatment time:** | 15 minutes | 0 – 99 Minutes |
| **Waveform:** | Burst Alternating Current | |
| **Output:** | 0 mA | 0 – 99 mA |

## PADS SENSORY – MOTOR:

| PARAMETER | DEFAULT VALUES | RANGE OF USER ADJUSTABLE VALUES |
|---|---|---|
| **Carrier frequency:** | 5.0 KHz | |
| **Burst frequency:** | 100 - 2 Hz | |
| **Burst rate scan:** | 20% | 0 – 50% |
| **Burst scan time:** | 10 seconds | 0 – 20 Seconds |
| **Beat:** | | |
| **Sweep:** | | |
| **Rate Scan Time:** | | |
| **Modulation:** | ON | ON or OFF |
| **Vector:** | | |
| **Auto Intensity:** | 0% | 0 – 20% |
| **Treatment time:** | 30 minutes | 0 – 99 Minutes |
| **Waveform:** | Burst Alternating Current | |
| **Output:** | 0 mA | 0 – 99 mA |

## PADS MOTOR – SENSORY:

| PARAMETER | DEFAULT VALUES | RANGE OF USER ADJUSTABLE VALUES |
|---|---|---|
| **Carrier frequency:** | 5.0 KHz | |
| **Burst frequency:** | 15 - 2 - 100 Hz | |
| **Burst rate scan:** | 20% | 0 – 50% |
| **Burst scan time:** | 10 seconds | 0 – 20 Seconds |
| **Beat:** | | |
| **Sweep:** | | |
| **Rate Scan Time:** | | |
| **Modulation:** | ON | ON or OFF |
| **Vector:** | | |
| **Auto Intensity:** | 0% | 0 – 20% |
| **Treatment time:** | 30 minutes | 0 – 99 Minutes |
| **Waveform:** | Burst Alternating Current | |
| **Output:** | 0 mA | 0 – 99 mA |

### PADS SEQ MOTOR SENSORY:

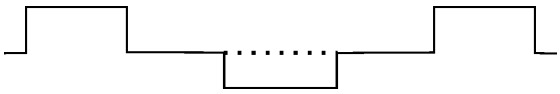
| PARAMETER | DEFAULT VALUES | RANGE OF USER ADJUSTABLE VALUES |
|---|---|---|
| **Carrier frequency:** | 5.0 KHz | |
| **Burst frequency:** | 2 - 15 - 100 Hz | |
| **Burst rate scan:** | 20% | 0 – 50% |
| **Burst scan time:** | 10 seconds | 0 – 20 Seconds |
| **Beat:** | | |
| **Sweep:** | | |
| **Rate Scan Time:** | | |
| **Modulation:** | ON | ON or OFF |
| **Vector:** | | |
| **Auto Intensity:** | 0% | 0 – 20% |
| **Treatment time:** | 30 minutes | 0 – 99 Minutes |
| **Waveform:** | Burst Alternating Current | |
| **Output:** | 0 mA | 0 – 99 mA |

## Probe Noxious

The Noxious Probe mode contains one pre-programmed mode. All parameters may be varied during operation and saved by the user. The following program is available in Noxious Probe mode:

### PROBE NOXIOUS

Sensory / Noxious Waveform



| PARAMETER | DEFAULT VALUES | RANGE OF USER ADJUSTABLE VALUES |
|---|---|---|
| **Pulse rate:** | 4.0 Hz | 0.1 – 15.0 Hz |
| **Polarity:** | +/- | +/- or + or - |
| **Stim time:** | 60 Seconds | 0 – 999 Seconds |
| **Waveform:** | Monophasic or Biphasic square wave pulsed current | |
| **Output:** | 0 mA | 0 – 1.5 mA |

## Nerve Block

The Nerve Block modality contains one pre-programmed Pad mode and one pre-programmed Probe mode. In Pad mode, output is provided through the output A-B jacks. The phase of the channels is indicated by the color of the tip pins. The black wires are of the same phase and the red wires in the opposite phase relative to each channel. All variable parameters may be altered during operation.

## *I. NERVE BLOCK PROBE TREATMENT PROTOCOL*

The Nerve Block modality contains the following pre-programmed probe protocol (Probe Nerve Block):

**PROBE NERVE BLOCK:**

| PARAMETER | DEFAULT VALUES | RANGE OF USER ADJUSTABLE VALUES |
|---|---|---|
| **Carrier frequency:** | 5.0 KHz | |
| **Stim time:** | 60 Seconds | 0 – 999 Seconds |
| **Waveform:** | Alternating Current | |
| **Output:** | 0 mA | 0 – 2.25 mA |

## *II. NERVE BLOCK PADS AND SLD INFRARED PAD PROTOCOL*

The Nerve Block modality contains the following pre-programmed Pads protocol (Pads Nerve Block):

**PADS NERVE BLOCK:**

| PARAMETER | DEFAULT VALUES | RANGE OF USER ADJUSTABLE VALUES |
|---|---|---|
| **Carrier frequency:** | 5.0 KHz | |
| **Treatment time:** | 15 Minutes | 0 – 99 Minutes |
| **Auto intensity:** | 0% | 0 – 20% |
| **Waveform:** | Alternating Current | |
| **Output:** | 0 mA | 0 – 70 mA |

# TROUBLESHOOTING

The following table lists machine problem symptoms and possible areas to check for the problem causes. If these suggested measures do not correct the machine malfunction, call your ACP Customer Support representative.

| PROBLEM | CAUSE | REMEDY |
|---|---|---|
| Unit will not power on (under line power use) | • Power Supply not plugged in to the unit of AC outlet<br>• Power Supply not operational | • Verify if Power Supply is connected as appropriate<br>• Verify AC outlet is functional<br>• Verify power plug used is appropriate and undamaged (see figure 1 below)<br>• Inspect Power Supply operation per procedure below |
| Unit will not start | • No program selected | • Select mode of operation: Infrared therapy, sensory/motor, noxious probe, nerve block |
| Cannot set carrier frequency | • Treatment in progress | • Stop treatment, adjust, and re-start |
| Patient feels surging or spiking sensation during Estim. | • Absent, inadequate, or improper conductive medium interface<br>• Lead wire(s): short or breakage<br>• Non-conductive or poorly conductive electrodes<br>• Breakthrough effect of stimulation in probe modes of operation | • Replace with correct and adequate conductive medium<br>• LEAD WIRE TESTER: Plug the distal (patient end) of the lead wire into the test connectors while observing polarity (red / black). Plug the device end of the lead wire into the receptacle labeled LEAD WIRE TESTER. When the POWER is on, green LED will turn on if the lead wire passes the test. LED will be red if the lead wires are faulty and need to be replaced. (see Figure 7. below)<br>• Remove electrode(s) and replace if necessary<br>• Adjust output up or down as necessary |
| Patient cannot detect output during Estim | • Failure of lead wire (s), electrode(s), or conductive medium interface<br>• Failure of the Neuroprobe 500 Pro | • Use NeuroprobeOutput Tester to determine if unit has failed or is operating incorrectly. Plug the Output Tester into the Adapter. Turn on the Neuroprobe. Increase output intensity. If LED illuminates properly, test lead wire(s). (see figure 2 below) If LED is not illuminated, contact ACP Service Center at (800) 350-1100.<br>• LEAD WIRE TESTER: Plug the distal (patient end) of the lead wire into the test connectors while observing polarity (red / black). Plug the device end of the lead wire into the receptacle labeled LEAD WIRE TESTER. When the POWER is on, green LED will turn on if the lead wire passes the test. LED will be red if the lead wires are faulty and need to be replaced.<br>• If Output Tester shows the unit to be functional, and the Lead Wire tester show the lead wires to be functional, examine the electrodes, or conductive medium interface for problems. |
| SLD Infrared Pads Red Diodes - some light up others are dim or out | • Defective diodes | • Contact ACP at (800) 350-1100 to replace the SLD Infrared Pad |
| SLD Infrared Pads All of the diodes are inoperative | • Defective unit or pad | • Try another pad to determine if the same condition exists. If neither pad lights up contact ACP at (800) 350-1100 to replace the Neuroprobe Unit. If one pad lights and the other does not contact ACP at (800) 350-1100 to replace the SLD Infrared Pad |

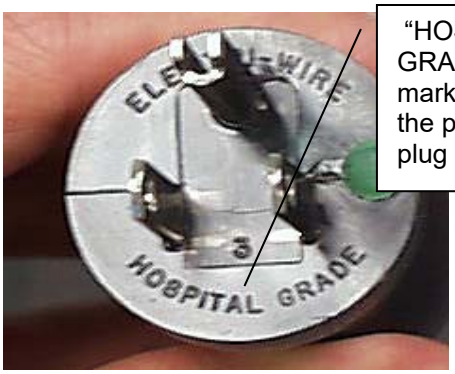



Figure 1


Figure 2

**NOTE:** *When using the Neuroprobe Output Tester, increase unit output intensity to 40 mA or higher in order to significantly illuminate the LED. Also, view the LED located at the end of the output tester directly. If viewed at an angle, the LED may be too dim to notice that it is illuminated.*

## INSPECT POWER SUPPLY OPERATION

1. Connect the power cord to the power supply and to a power outlet.
2. Connect the power supply cable to the stimulator unit (Figure 4).

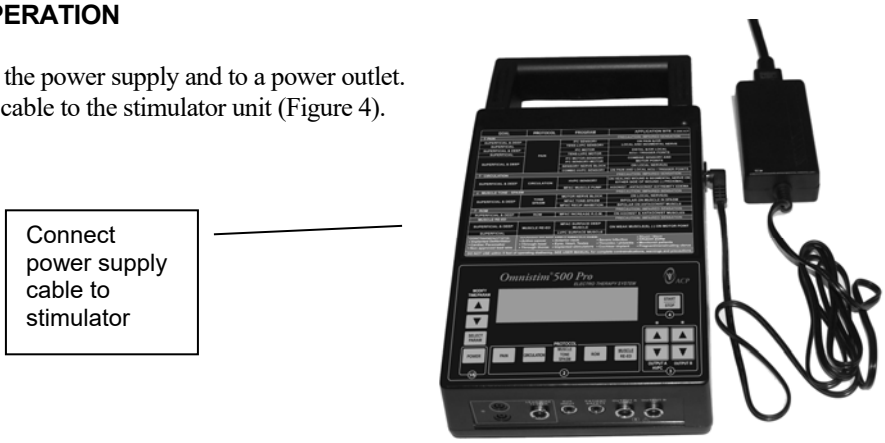



Figure 4

3. Press the power supply switch ON (if applicable, Figure 5a).

**NOTE:** Newer power supply model does not have a ON/OFF switch (Figure 5b).


Figure 5a

Figure 5b

4. Verify the CHARGE light is on or blinking (Figure 6).
5. Power on the stimulator and verify that you hear a click of the safety circuit relay energizing.


For reference only:

Charge light solid - charging in progress.

Charge light blinks slowly - charging completed.

Charge light flickers (blinks rapidly) - batteries not installed or are not charging properly.

Figure 6

## LEAD WIRE TESTER OPERATION

Lead Wires should be inspected periodically, as well as any time there are output anomalies reported by the patient.

- Plug the distal (patient end) of the lead wire into the test connectors while observing polarity (red / black).
- Plug the device end of the lead wire into the receptacle labeled LEAD WIRE TESTER.
- When the POWER is on, green LED will turn on if the lead wire passes the test. LED will be red if the lead wires are faulty and need to be replaced.

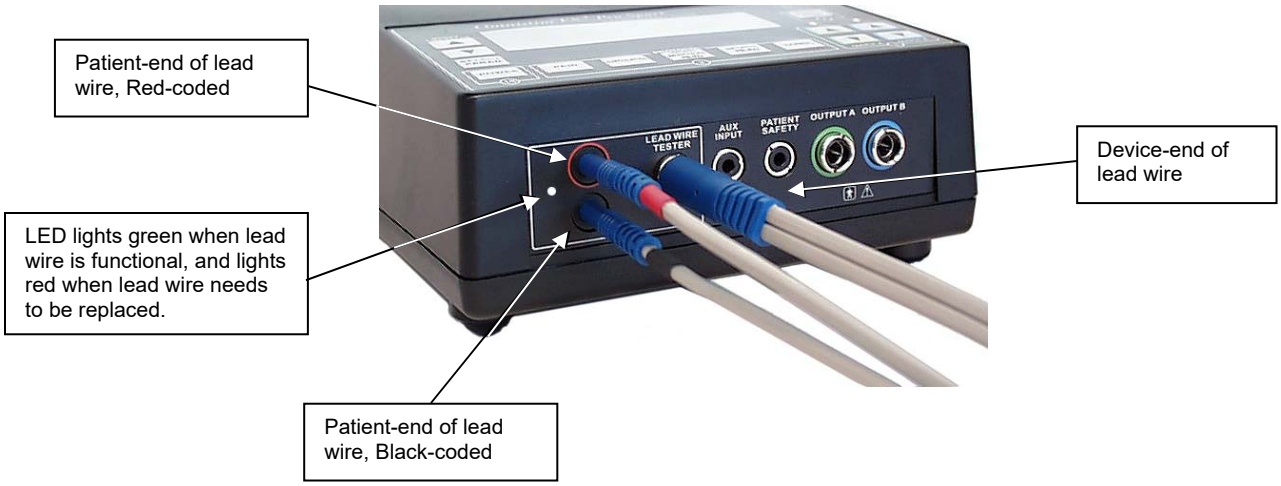



Figure 7

## Service Center

For repair or service of ACP Products and accessories, please call (800) 350-1100 and follow the prompts. Normal hours of operation are 6:00am to 5:00pm Pacific Standard Time. After hours, please leave a message and a technician will return your call during the next scheduled workday.

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# SPECIFICATIONS

| | |
|---|---|
| **GENERAL:** | |
| **Dimensions (with Probe):** | 8.0" (21cm) W x 12.0" (30cm) D x 3.5" (8.4cm) H |
| **Weight:** | 3lbs. 2oz. (1. 4kg.) |
| **Operating Power:** | 120 / 240 VAC; 50/60 Hz; 50W |
| **Display System:** | Super Twist LCD full character display with adjustable contrast/viewing angle. |
| **Push Buttons:** | Conductive rubber with excellent tactile feel. Speed and sensitivity are fully adjustable. |
| **System Architecture:** | Intel CMOS Integrated micro-controller with on board memory and instruction set. |
| **STIMULATION SYSTEM:** | |
| **Output:** | Constant voltage up to maximum preset current limit. |
| **Output Waveform:** | AC square wave into resistive load, IFC FF 0-99 mA peak into 500 ohm load; Nerve Block mode 0 to 70 mA RMS current into a 500 ohm load; Probe Sensory, Motor 0-1.8 mA RMS 10k ohm load Nerve block mode, O to 2.25 mA RMS current into a 10K ohm load. Noxious Mode 0-1.5 mA RMS 10K ohm load. |
| **Channel Isolation:** | Independent transformer isolation |
| **Line Linkage:** | Less than 50 micro Amps when operated with the charger system |
| **IFC MODES:** | |
| **Full Field Burst Rate:** | 0.1 - 999 Hz |
| **Rate Scan:** | 0 - 20 seconds, 0 - 50% modulation |
| **Vector:** | Fast 90□- Scans amplitude of channel A from 0-maximum every 10 seconds relative to channel B, which varies concurrently out of phase. Slow 90 - Scans amplitude of channel A from 0 - maximum every 60 seconds relative to channel B, which varies concurrently out of phase. Fast 45 - Scans amplitude of channel A from 50% to maximum every 10 seconds relative to channel B, which varies concurrently out of phase. Slow 45 - Scans amplitude of channel A from 50% to maximum every 10 seconds relative to channel B, which varies concurrently out of phase. |
| **Output:** | IFC FF 0-99 mA peak into 500 ohm load, Nerve Block mode 0 to 70 mA RMS current into a 500 ohm load |
| **PROBE SENSORY/MOTOR MODE:** | |
| **Waveform:** | AC square wave, 5000 Hz carrier frequency |
| **Burst Rate:** | Adjustable from .1 to 999 B.P.S., 50% duty factor |
| **Rate Scan:** | From 0-50% programmable with scan time from 0-20 seconds |
| **Output:** | 0-1.8 mA RMS into 10K ohm load |
| **PROBE NERVE BLOCK MODE:** | |
| **Waveform:** | AC square wave, 5000 Hz carrier frequency |
| **Output:** | 0-2.25 mA RMS into 10K ohm load |
| **PROBE NOXIOUS MODE:** | |
| **Waveform:** | Monophasic or Biphasic Square wave pulsed current 50% duty factor |
| **Polarity:** | +, - or +/- every alternate pulse |
| **Burst Rate:** | Adjustable from DC to 15 Hz, 50% duty factor |
| **Output:** | 0-1.5 mA Peak current into 10K ohm load |
| **INFRARED THERAPY MODE:** | |
| **Waveform:** | Square wave 50% duty factor |
| **Pulse Rate:** | 45.4, 62.5and 83.3 KHz at 50% duty factor 1 min per frequency |

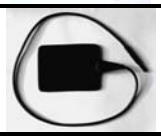
# SPECIFICATIONS (Cont.)

| | |
|---|---|
| **SLD INFRARED PADS:** | |
| **Wavelengths:** | 630nm with 875 nm |
| **Diodes and Dimensions:** | 15 x 630nm & 24 x 875nm on each 4.5" x 7.5" pad in dual pad configuration<br>110 x 630 nm and 48x875 nm on a 29" x 14" L.E. Pad |
| **TIMER FUNCTIONS:** | |
| **Treatment Timer:** | Adjustable for 1-99 minutes in one-minute increments in IFC modes. In probe mode the time is adjustable from 1-999 seconds. Tums output to zero and system off and sounds 10-second buzzer to indicate completion of treatment in IFC modes. In probe mode the system returns to the detection mode following time out. |
| **PROBE DETECTION:** | |
| **Sensitivity:** | Adjustable from 200K to 5 Meg ohms |
| **Display:** | Bar graph and numeric indicator 0-200uA |
| **Audio:** | Variable frequency increases with skin conductivity |
| **PATIENT SAFETY SYSTEMS:** | |
| **Activation:** | By patient safety hand control which shuts down output. Output modality may not be changed during operation. Output levels are reset to zero at the start and completion of treatment. |
| **MISC:** | |
| **Auto Intensity:** | Output intensity is gradually increased during treatment from 0 to 20% automatically in a linear manner over the duration of treatment when the anti-adaptation mode is selected. The amount of increase is user programmable. |
| **Treatment Programs:** | Infrared Therapy: 1 Preset<br>Sensory-Motor: 7 Presets<br>Noxious: 1 Preset<br>Nerve Block: 2 Presets<br>For program details see Page 24 |
| **Certificates and Approvals:** | Device is designed to meet or exceed all safety requirements of a medical device in it's class, per IEC 60601 and CSA C22.2 No. 601.1 |
| **Caution:** | Federal law restricts this device to sale by or on the order of a physician (or other health practitioner licensed by their state). |

**NOTE:** *ACP reserves the right to change technical specifications and product availability without notice.*

# STANDARD AND OPTIONAL ACCESSORIES

| ITEM | ITEM NO. | DESCRIPTION |
|---|---|---|
|  | **140500B** | **Neuroprobe 500 Pro**<br>**Pain Management System**<br>2 channels of programmable stimulation with Infrared Therapy, Sensory/Motor, Noxious Probe, and Nerve Block with point locator, optional probe, IFC and SLD Infrared Pad treatments.<br>Shipping Weight: 4 lbs (1.8 kg) |

| ITEM | ITEM NO. | DESCRIPTION |
|---|---|---|
|  | **48758** | Lead Wire – Blue & Green Coded plug-in, 7' (214cm) .080 tip pin stereo plug. |
|  | *** 55055** | Grounding Pad, 3x4 cm Electrode w/ 180 cm Black Cable, 2 mm Black Male Plug |
|  | **39555** | Patient Safety Switch |
|  | **51122** | Line Power Supply 110v, CE |
|  | **19856** | AC Line Power Cord, Hospital Grade |
|  | *** 67652** | Neuroprobe 500 Pro Leatherette Soft Carrying Case with ACP Logo |
|  | **72266** | Neuroprobe 500 Pro Operator Manual |

**** This item is an optional accessory and is not included with the unit.***

## SLD Infrared Pads

| ITEM | ITEM NO. | DESCRIPTION |
|---|---|---|
|  | *** 76896** | Infrared Therapy Pads<br>in a dual pad configuration<br>15 x 660nm and 24 x 880nm on each 5" x 7" |
|  | *** 49952** | Nylatex Wrap 2 ½" x 48" |
| | *** 55281** | Nylatex Wrap 4" x 18" |

**** This item is an optional accessory and is not included with the unit.***

## Electrodes

| ITEM | ITEM NO. | DESCRIPTION |
|---|---|---|
|  | **MULTI-USE ELECTRODES** | |
| | **38155** | 2x2 Multi-use E-stim Electrodes<br>(4ea/pkg, 10pkg/bx) |
| | **61227** | 2x4 Multi-use E-stim Electrodes<br>(4ea/pkg, 10pkg/bx) |
| | **26854** | 3x5 Multi-use E-stim Electrode<br>(2ea/pkg, 10pkg/bx) |
|  | **SINGLE-USE ELECTRODES** | |
| | **28303** | 2x2 Single-use E-stim Electrodes<br>(2ea/pkg,150pkg/box)<br>*(requires alligator clip 22097/13539)* |
| | **38293** | 2x4 Single-use E-stim Electrodes<br>(2ea/pkg, 150pkg/box)<br>*(requires alligator clip 22097/13539)* |
|  | **SINGLE-USE WOUND CARE ELECTRODE** | |
| | **40944** | 4x4 Single-use Non-Gelled Electrode<br>(25ea/bx)<br>*(for Wound Care ONLY)* |
|  | **22097** | Alligator Clip Assembly with Lead – Pair<br>(1ea Black & 1ea Red)<br>*(for use with Single-use Electrodes)* |
|  | **13539** | Alligator Clip Assembly, Pair<br>(1ea Black & 1ea Red)<br>*(for use with Single-use Electrodes)* |

## Infection Control Supplies

| ITEM | ITEM NO. | DESCRIPTION |
|---|---|---|
|  | **52479** | Barrier Film for Infection Control of Touch Operatory Surfaces – 4” x 6” Clear Perforated Sheets, 1200 sheets/roll. |
|  | **50593** | Barrier Film for Infection Control of Infrared Therapy Pads – 12” x 14” Perforated Sheets, 800 sheets/roll. |
|  | **63574** | Barrier Tubing 3" x .004 High Clarity – 1,200’ / roll |
|   | **55536** | Super Sani-Cloth® Wipes, Single Use Packets (50 pkt/bx) |
| | **44425** | Super Sani-Cloth® Wipes, Tub (160/Tub) |
| | **96849** | Sani-Cloth® Wipes w/ Bleach, Tub (75 wipes/tub) |

# STANDARD LIMITED PRODUCT WARRANTY

*The warranty information provided in this section is applicable only to products purchased from ACP, directly or through an authorized dealer. This section does not apply to leased products. The terms of maintenance and repair of any leased products are detailed in the separately executed agreement between the parties.*

## Warranty Coverage

This warranty provides coverage, for Equipment purchased, against manufacturer's defects in material and workmanship, and extends to the original owner of the product during the warranty period for that product. Only those items returned to the ACP Service Center within the warranty period, and also within thirty (30) days after notification to ACP of the defect, shall be eligible for repair under the Standard Limited Product Warranty. Buyer is responsible for shipping cost associated with sending the Equipment to the ACP Service Center. ACP shall ship Equipment to Buyer after repair at no cost to the Buyer provided repair is deemed to be under warranty. ACP may, at its discretion and only for valid warranty claim, repair or replace any part(s) that prove to be defective during the warranty period.

## Warranty Exclusion

Any and all warranty coverage will be void if any of the following have occurred:

1. The product contains repairs or replacement parts not furnished by ACP.
2. The product is damaged resulting from misuse or negligence.
3. The product has been tampered with and/or altered, including serial number alteration.

**Note:** Use of the Equipment with accessories and/or supplies not approved by ACPL for use with the Equipment may void the warranty if such accessory or supply item caused damage to the Equipment.

## Warranty Period

The following coverage is provided at no additional cost to the Buyer:

**New Equipment / Product**. Products purchased as new from ACP are warranted against manufacturer's defects in material and workmanship for a period of one (1) year from the date of purchase.

**Refurbished Equipment / Product.** Products purchased specifically as Refurbished Equipment are warranted against manufacturer's defects in material and workmanship for a period of six (6) months from the date of purchase.

**Accessories.** All accessories for ACP equipment / products are warranted against manufacturer's defects in material and workmanship for a period of three (3) months from the date of purchase.

## Warranty Validation

The following information needs to be provided to the ACP Customer Support representative prior to the product being returned under warranty coverage:

1. Buyer name or account number as it appears under the "Bill TO" on the ACP or recognized ACP Dealer invoice.
2. Invoice Date and Number.
3. Model number, description, and serial number of equipment.
4. Detailed description of the problem.

## Return of Defective Equipment

Any Equipment returned to the ACP Service Center under warranty coverage must have the Warranty coverage validated and must receive authorization from ACP Customer Support prior to being received at the Service Center.

Shipping charges, insurance, and any other costs incurred in sending product to ACP Service Center is the responsibility of the customer and will not be refunded. ACP shall cover the shipping charges and related costs to return the unit to the customer, provided repair is deemed to be under warranty.

ACP is not responsible for any loss or damage to the Equipment prior to receipt at the ACP Service Center. Equipment returned for warranty service must be shipped complete with all accessories (except for manuals), in its original packing or equivalent so as not to be damaged while in transit.

**Note:** Any Equipment sent to the ACP Service Center that is not covered by the ACP Limited Product Warranty is subject to a minimum service and handling fee.

**IMPORTANT:**

**DO NOT SHIP THE EQUIPMENT TO ACP SERVICE CENTER WITHOUT FIRST SECURING AUTHORIZATION TO DO SO. EQUIPMENT SENT IN WITHOUT AUTHORIZATION FROM ACP CUSTOMER SUPPORT WILL NOT BE ACCEPTED.**

**Returned Materials Shipping Address:**

**Accelerated Care Plus**
**Attn: ACP Service Center**
**4999 Aircenter Circle, Suite 103**
**Reno, NV 89502**