

# ADVANCED INTERFERENTIAL THERAPY



**SUPERPRO 29P**

## INSTRUCTION MANUAL

Sun Medisys Inc.  
An ISO 9001:2015 Certified Company  
An ISO 13985:2012 Certified Products

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# SUN MEDISYS INC.



Welcome to the Sun Medisys Inc.

Thank you for trusting Sun Medisys Inc. and considering us.

CONGRATULATIONS for purchasing our next generation 1 MHz Ultrasound Therapy Unit Mini.

We understand what it takes to get this, and certainly there must have been lots of planning and research involved before the purchase.



Sun Medisys Inc., an independent family-run business, started its operation way back in 2000.

With great integrity, high ethical values, stringent quality control, backed up by highly motivated employee force with tremendous efforts and disciplined activity business; we are a registered ISO 9001:2015 manufacturer.



We reassure you that what you have chosen is right.

Thanks

For Sun Medisys Inc.

## INTRODUCTION

Congratulations for purchasing our next generation computerized Interferential Therapy Unit. Model named SuperPro 29P after its 29 programs; the unit can deliver 2000 – 4000 Hz of interferential currents in various ways and modes. It is designed to suit almost every clinical application to provide effective management for most of the Musculo-skeletal painful / inflammatory conditions.

Interferential therapy (IFT) was introduced by Dr. Nemec in the early 1950's. He wanted to overcome the problems of discomfort caused by low-frequency currents, while maintaining their claimed therapeutic effect. It remained disappear until 1970s, when work on pain mechanism by Melzack/Wall showed that pain could be reduced by stimulating primary afferent neurons. The transcutaneous application of alternating medium-frequency electrical currents are applied to the body in such a manner to produce amplitude modulated low frequency current within in the body for therapeutic purposes. It is the production of low frequency current in the body tissue by the simultaneous application of two different medium frequency currents. As the low frequency current is the result of interference of two different medium frequency currents, it is named as: *Interferential Current (IFC)*.

Medium frequency A+ Medium frequency B = low (therapeutic) frequency C Current

## CHARACTERISTICS OF INTERFERENTIAL CURRENTS

Two medium frequency currents are used to produce the interferential current. They are known as carrier waves as they don't produce muscle or nerve stimulation and are used just used to get the greater depth of penetration and to produce interferential current.

- Current A:  $f_1$  -this current is set on the machine, thus called "intrinsic/carrier frequency", usually at 4000 Hz (2000Hz also available).
- Current B:  $f_2$  -same amplitude, but slightly higher frequency; therapist sets this one.  $f_2$  would be variable from 4001 Hz to 4150 Hz - it is better to have  $f_2$  "swing" within a range of frequencies because it limits accommodation and habituation to current.
- $F = f_2 - f_1$ , the amplitude of F (Current C) is NOT constant. This is called as beat frequency current C.  $F = f_2 - f_1$  ranges from 1 Hz to 150 Hz (the frequency swing is also referred to as spectrum or sweep).

## TERMINOLOGIES

**Amplitude Modulated Frequency (AMF):** The frequency with which the amplitude of current is modulated is called Amplitude Modulated Frequency (AMF). In interferential current, the resulting current formed due to the intersection of the two carriers has its amplitude modulated at the frequency which is the difference between the 2 carrier frequencies.

**Beat Frequency:** The frequency of the resultant current is known as the beat frequency. Beat frequency is equal to the difference between two medium frequency currents. It may be kept constant or varied rhythmically to prevent accommodation. Constant beat frequency is also called the selective beat frequency.

**Area of Interference:** Static Interference: The area in which interferential current is set-up remains stationary. This area of static interference gives an appearance of clove leaf as a result of vector addition of two currents and it lies at  $45^\circ$  angles to the perpendicular lines from each electrode.

**Dynamic Interference:** It is possible to move the area in which interference current is developed in a to and fro manner through  $45^\circ$ . It is obtained by varying the current intensity in suitable manner. This

dynamic area of interference is also called as vector sweep, vector scan, rotating vector etc. The available vector scans are 45, 90, 360° C.

**Base:** This denotes the starting point of the waveform or the frequency from the neutral level, i.e. if the base is set at 10 Hz the waveform or the frequency cycle starts from 10 Hz reaches the required peak and travels down. It now maintains a steady flow of current or a pause and again starts from the 10 Hz zone to complete the next consecutive cycle.

**Spectrum:** This denotes the required peak level reach of the waveform or the frequency range from the base, i.e. if the spectrum is set at 0-150 Hz and the base being 0 Hz, the cycle starts from the base of 0 Hz travels and reaches the maximum peak level of 150 Hz and again travels down.

**Sweep:** This denotes the flow of the frequency from a present lowest level to the highest level, which is selected by base and spectrum, i.e., if the user needs a frequency sweep between 10 and 60 Hz the base level is present at 10 Hz and the spectrum level is present at 50 Hz where the frequency sweep is 10 to 60 Hz. The advantage of this being, depending upon the stage of the patient's condition the wave type can be adjusted, and the accommodation property of the tissues can be altered.

Basically, there are three types of wave modes commonly used:

- **Mode 1 - Rectangular Waveform:** Here, the frequency remains at the base level for 1 sec. This form has a very aggressive effect and so many recommendations for chronic conditions.
- **Mode 2 – Trapezoidal Waveform:** Here, the frequency remains at the base level for 5 sec. This form is much milder and tolerated best by the patients easily with sub-acute conditions.
- **Mode 3 – Triangular Waveform:** Here, the frequency reaches from base to spectrum within 6 sec., This form is the mildest and tolerated best by the patients easily with acute conditions.

## INDICATIONS OF IFT

Indications of IFT depend mostly on the spectrum used. The use of spectrum has the advantage that the tissues does not adapt to a certain frequency and accommodation property is prevented. Thus, the given treatment can be performed for a longer period and repeated more often.

**SPECTRUM 100-200 Hz --- FIXED FREQUENCY 100 Hz:** This spectrum shows a particular effect on the automatic nervous system. It produces calming of the sympathetic influence along with a slight analgesic effect. Therefore, *this frequency is of special use in the basic treatment of nearly all painful conditions*, particularly in acute cases and it is useful for the blockage of the stellate ganglion in patients with sympathetic syndrome, above all in cases of cerebral circulatory disturbances.

**SPECTRUM 40-60 Hz --- FIXED FREQUENCY 50 Hz:** This spectrum corresponds to a medium stimulation frequency of low frequency currents and particularly affect the connective tissues (local stimulation). For this reason, they are outstandingly suitable for gymnastic of the fibrous tissue and for use as a test current in locating small region of inflammatory diseases.

**SPECTRUM 50-100 Hz:** This spectrum creates rhythmic stimulation on of all structure sensitive to frequencies between 50 to 100 Hz. The analgesic and spasmolytic effect are remarkably higher as compared to the 100 Hz and the blood circulation is positively influenced. In this case, we have mild stimulation with little calming effect on the automatic nervous system.

**SPECTRUM 25-50 Hz:** This spectrum has a tetanizing and locally stimulating effect with high dosages. It has a sensory supraliminal effect on the automatic nervous system. When using higher dosages, there is a tendency to tetanic contractions.

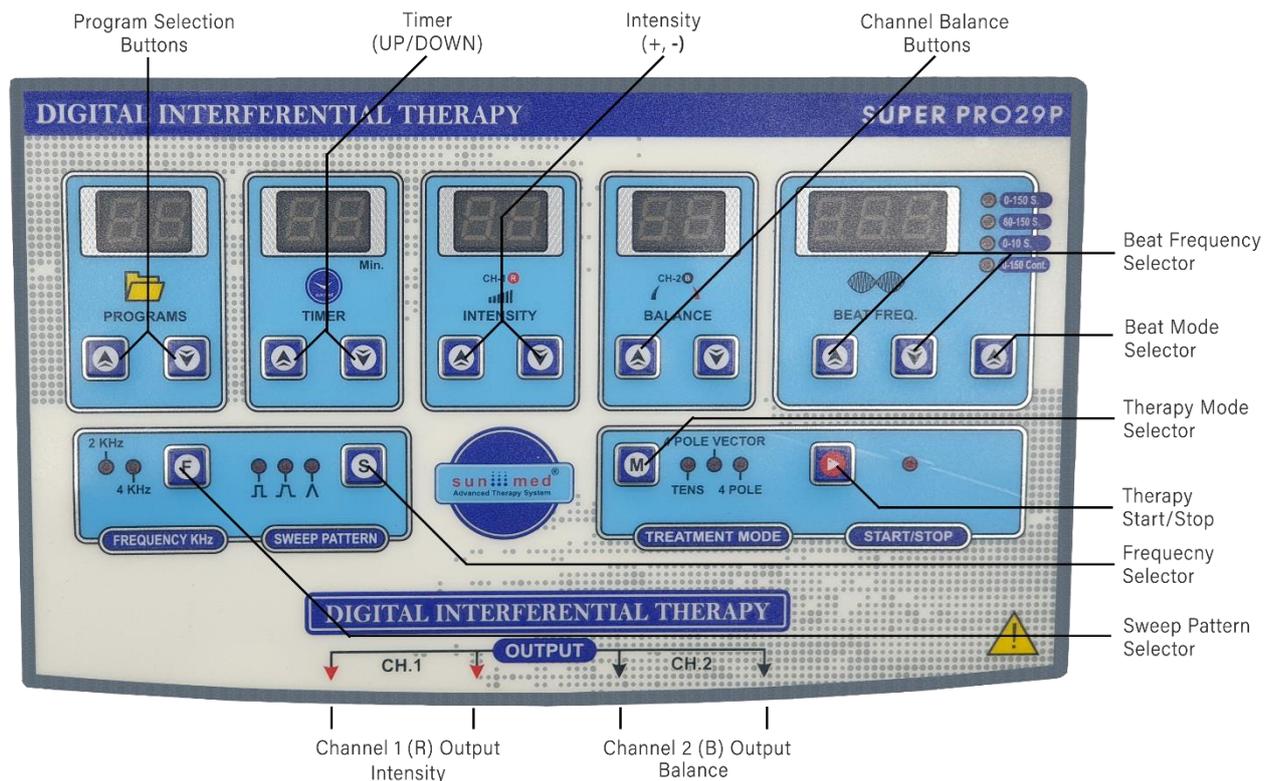
**SPECTRUM 1-10 Hz:** This spectrum provides the strongest stimulation of kinetic system with individual muscle contraction when dosages reach a certain level. Most suitable for muscle gymnastic of the healthy musculature and for the remobilization of joints over long periods of immobilization.

**SPECTRUM 1-100 Hz:** This spectrum provides the most comprehensive general stimulation and calming effect one over the other, all responsive tissues are stimulated including sensorimotor system, musculature connective tissue and autonomic nervous system. Thus, intensive stimulation is brought about which at the same time contains strongly calming element. It also initiates the absorption of edemas which make it useful in case of blunt traumas.

## SALIENT FEATURES

- High cost of interferential Therapy can be cut in half by our SuperPro 29P.
- Both 2KHz and 4KHz Frequencies available
- Three types of Sweep Patterns
- Three types of Treatment Modes
- Four Types of Beat Modes available
- 29 Inbuilt Programs to tackle various musculoskeletal conditions.

## CONTROL PANEL & OPERATION GUIDE



1. Moisten the electrodes and attach to the cables for CH1 & CH2.
2. Connect the wires to the output socket of the front panel.
3. Fix the electrodes on the body of the patient in such a way that the CH1 & CH2 cross over the applied area.
4. If using 2 Pole mode, both the channels CH1 & CH2 can be used individually at two different places.

5. Connect mains cable to main socket given at the back of the unit. Connect the other end to an AC outlet.
6. Switch ON the unit.
7. As soon as the unit is ON the program will read "00" i.e. manual mode, in which the unit can be programmed as per the user requirement.
8. Set the program time, base & sweep frequency range, sweep pattern and select the frequency mode (either 2KHz or 4 KHz).
9. Select the treatment mode and press the Start/Stop button.
10. Finally increase the intensity gently and consciously until patient starts feeling the current up to the patient tolerance capacity.
11. If there is a difference in current in both channels, this can be adjusted by the Balance control, channel CH2 is provided for this purpose.
12. The current in the CH1 & CH2 are independently measured.

## METHOD OF APPLICATION

1. Treatment in that area should not be given if there is any skin disease, cut or wound rashes.
2. Position the patient in such a way that the application area is well visualized, and a patient can sit or lay down during the treatment. The ease of patient is of utmost importance.
3. Place a good quantity of coupling medium on the area to be treated.
4. Check that the electrodes are placed correctly and tied properly.

The electrodes should be in good contact with the skin and enough coupling medium should be there. You can turn the machine OFF, pour more coupling medium and then turn ON the machine.

**COUPLING MEDIUM:** To make a fine contact between the skin of the patient and electrodes: jelly or olive oil or liquid paraffin is used. These are called coupling medium or coupling agents.

## STANDARD ACCESSORIES

- |  |         |
|--|---------|
| 1. Rubber OR Self-Adhesive Electrodes: | 08 Nos. |
| 2. Electrode's Lead:                   | 04 Nos. |
| 3. Velcro Fixation straps:             | 02 set. |
| 4. 1 MHz Applicator (Probe):           | 01 No.  |
| 5. Mains Lead:                         | 01 No.  |
| 6. User's Manual:                      | 01 No.  |

## PROGRAM DESCRIPTION

Please note that all the programs are commonly suggested programs, as in any program the values can be changed or modified except treatment mode, frequency selection, & scan pattern. As the intensity has to be varied as per your requirement i.e. slight current perception according to the individual tolerance, the current can be increased or decreased depending upon each patient tolerance.

### Manual Mode

Program Num.	0
Frequency (KHz)	4
Scan Pattern	Rectangular
Treatment Mode	4 Pole Vector
Timer (min)	5
Scan Mode	To be selected as per requirement

**Program No. 1**

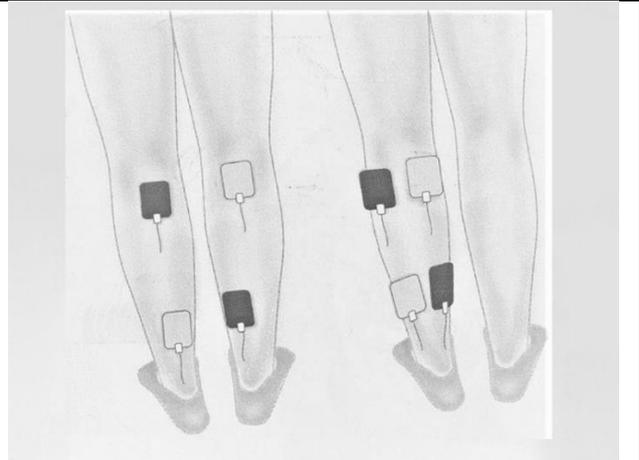
Name: MYALGIA (Lower Limb)

Total Treatment Time: 15 min.

Fixed Mode (Cont.): 100 Hz for 8 min.

Scan Mode: 80-100 Hz for 7 min.

Suggested Sessions: 3-6



**Program No. 2**

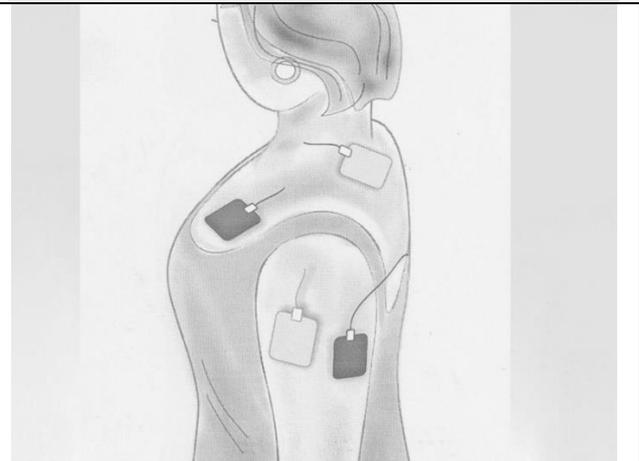
Name: Periarthritis Humero-scapularis

Shoulder-arm syndrome: A

Total Treatment Time: 07 min.

Scan Mode: 0-100 Hz for 7 min.

Suggested Sessions: 5 times/week



**Program No. 3**

Name: Periarthritis Humero-scapularis

Shoulder-arm syndrome: B

Total Treatment Time: 15 min.

Fixed Mode (Cont.): 100 Hz for 8 min.

Scan Mode: 80-100 Hz for 7 min.

Suggested Sessions: 3 times/week



**Program No. 4**

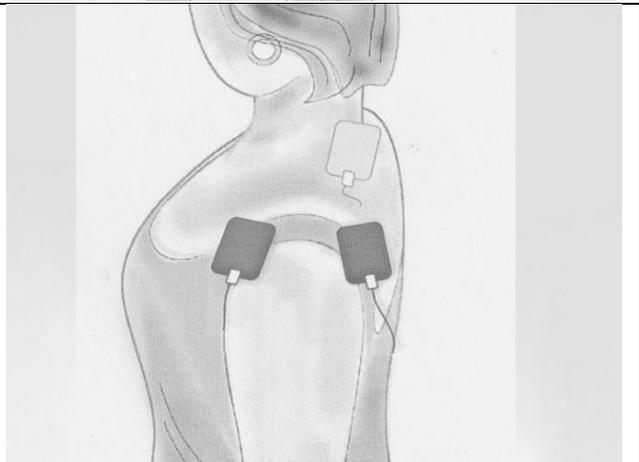
Name: Cervical (Humeroscapular) Syndrome

Total Treatment Time: 16 min.

Fixed Mode (Cont.): 100 Hz for 8 min.

Scan Mode: 80-100 Hz for 8 min.

Suggested Sessions: 5 times/week



**Program No. 5**

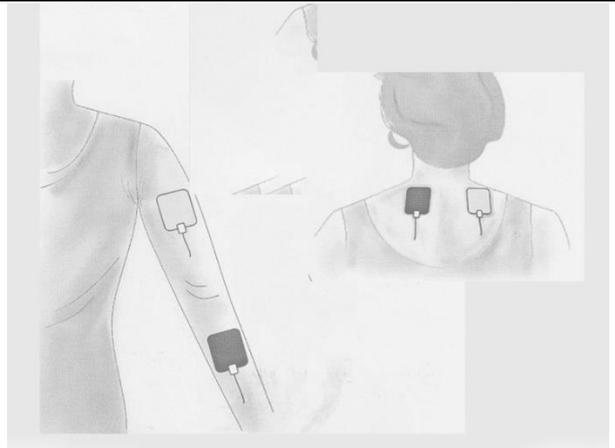
Name: Cervical (Humeroscapular) Syndrome

Total Treatment Time: 16 min.

Fixed Mode (Cont.): 100 Hz for 8 min.

Scan Mode: 80-100 Hz for 8 min.

Suggested Sessions: 5 times/week



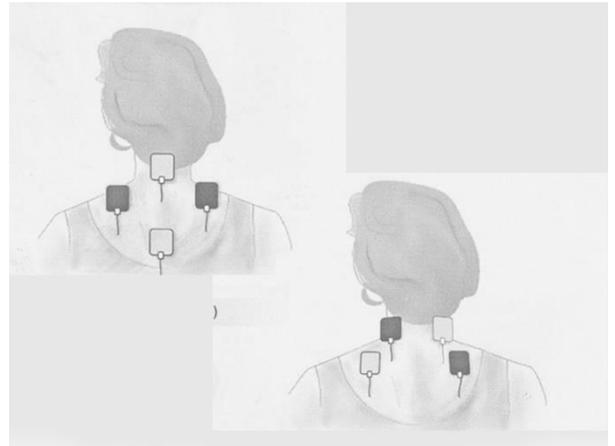
**Program No. 6**

Name: Whiplash Injury (sequelae)

Total Treatment Time: 10 min.

Scan Mode: 100 Hz for 10 min.

Suggested Sessions: 3-5 times/week



**Program No. 7**

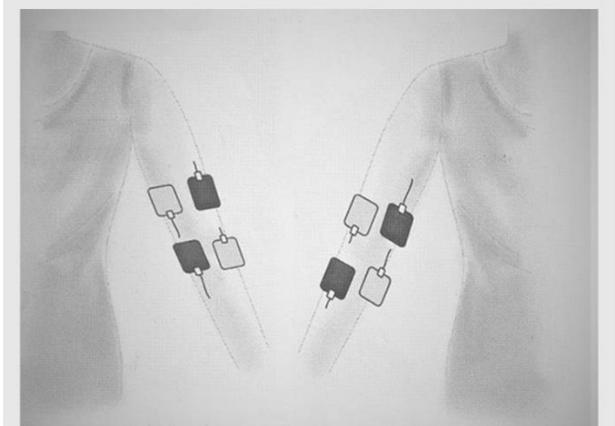
Name: Radio-Humeral epicondylitis (tennis elbow)

Total Treatment Time: 17 min.

Fixed Mode (Cont.): 100 Hz for 7 min.

Scan Mode: 80-150 Hz for 10 min.

Suggested Sessions: 3-5 times/week



**Program No. 8**

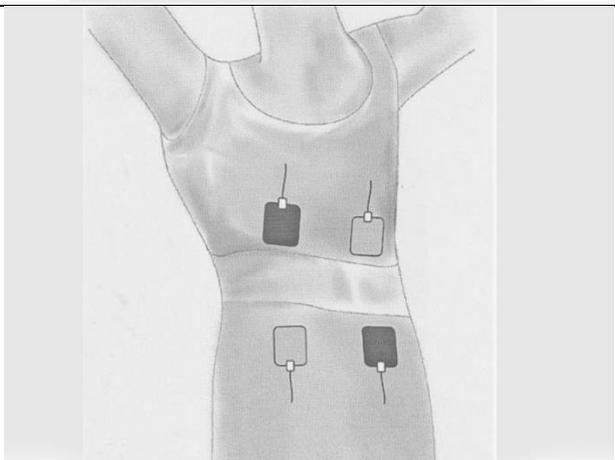
Name: Lumbago (lower back pain) A

Total Treatment Time: 15 min.

Fixed Mode (Cont.): 100 Hz for 8 min.

Scan Mode: 80-100 Hz for 7 min.

Suggested Sessions: 5 times/week



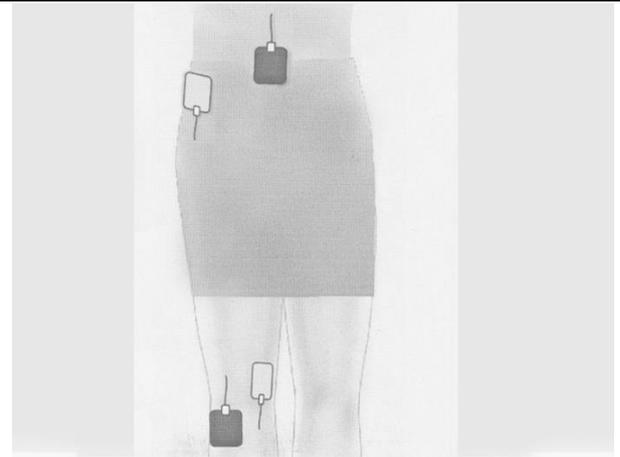
**Program No. 9**

Name: Lumbago (lower back pain) B

Total Treatment Time: 10 min.

Scan Mode: 0-100 Hz for 10 min.

Suggested Sessions: 5 times/week



**Program No. 10**

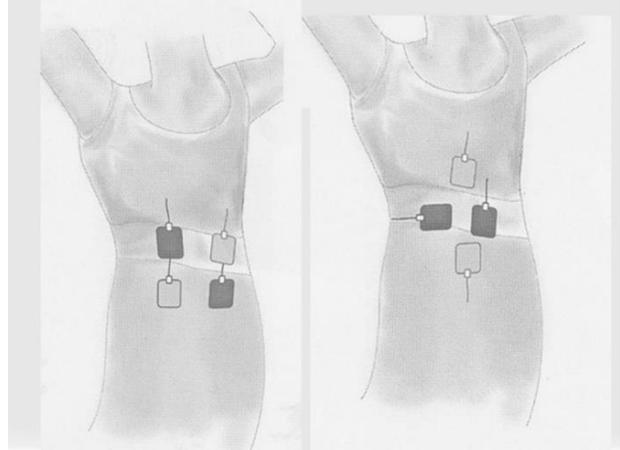
Name: Lumber Spondylosis Deformans

Total Treatment Time: 15 min.

Fixed Mode (Cont.): 100 Hz for 8 min.

Scan Mode: 80-100 Hz for 7 min.

Suggested Sessions: 3-5 times/week



**Program No. 11**

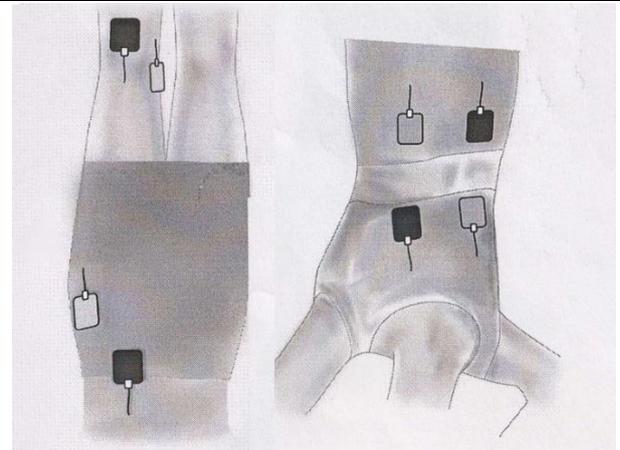
Name: Lumber Intervertebral Disk Hernia

Total Treatment Time: 15 min.

Fixed Mode (Cont.): 100 Hz for 5 min.

Scan Mode: 0-100 Hz for 10 min.

Suggested Sessions: 3-5 times/week



**Program No. 12**

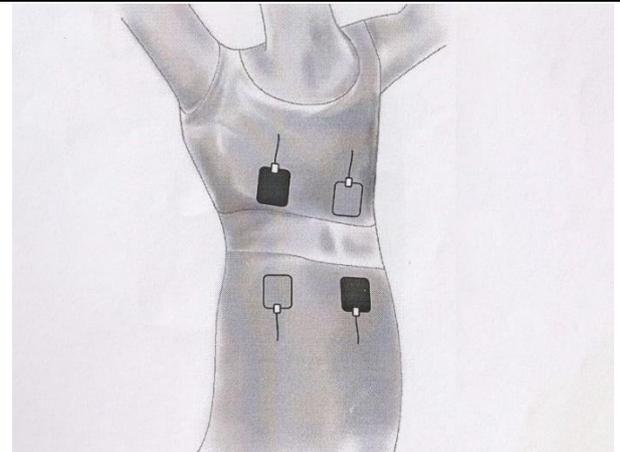
Name: Lumber Spondylosis/Spondylolisthesis

Total Treatment Time: 15 min.

Fixed Mode (Cont.): 100 Hz for 8 min.

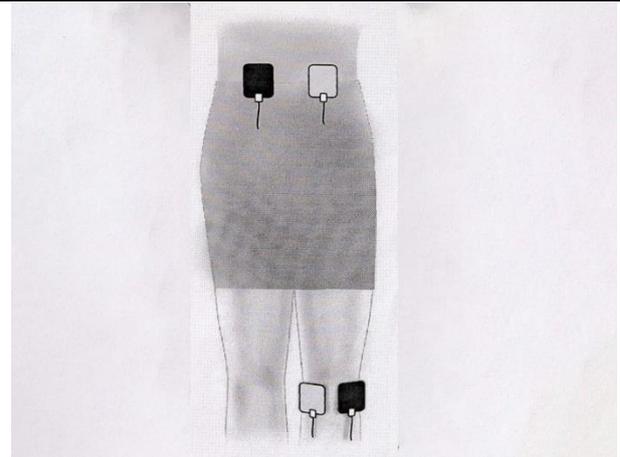
Scan Mode: 0-100 Hz for 7 min.

Suggested Sessions: 5 times/week



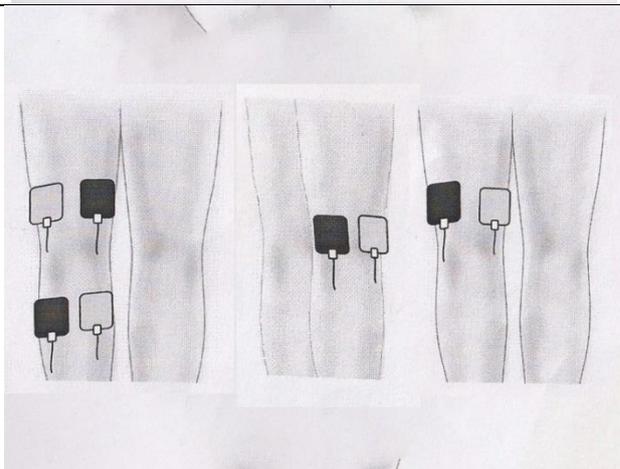
**Program No. 13**

Name: Lumber Spondylolisthesis: B  
 Total Treatment Time: 10 min.  
 Fixed Mode (Cont.): 100 Hz for 10 min.  
 Suggested Sessions: 3 times/week



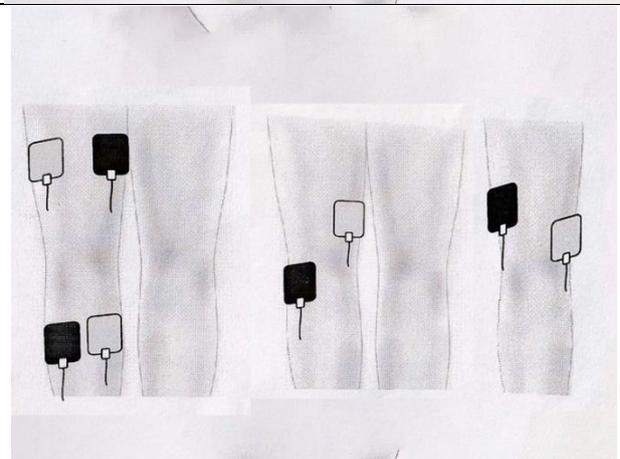
**Program No. 14**

Name: Osteoarthritis of knee joint  
 Total Treatment Time: 15 min.  
 Fixed Mode (Cont.): 100 Hz for 8 min.  
 Scan Mode: 80-100 Hz for 7 min.  
 Suggested Sessions: 3-5 times/week



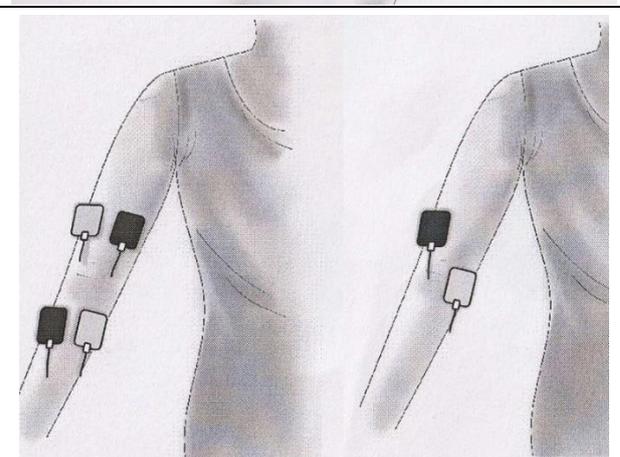
**Program No. 15**

Name: Rheum Arthritis of the Knee  
 Total Treatment Time: 15 min.  
 Fixed Mode (Cont.): 100 Hz for 5 min.  
 Scan Mode: 80-100 Hz for 7 min.  
 Suggested Sessions: 3-5 times/week



**Program No. 16**

Name: Rheum Arthritis of the elbow  
 Total Treatment Time: 15 min.  
 Fixed Mode (Cont.): 100 Hz for 8 min.  
 Scan Mode: 80-100 Hz for 8 min.  
 Suggested Sessions: 3-5 times/week



**Program No. 17**

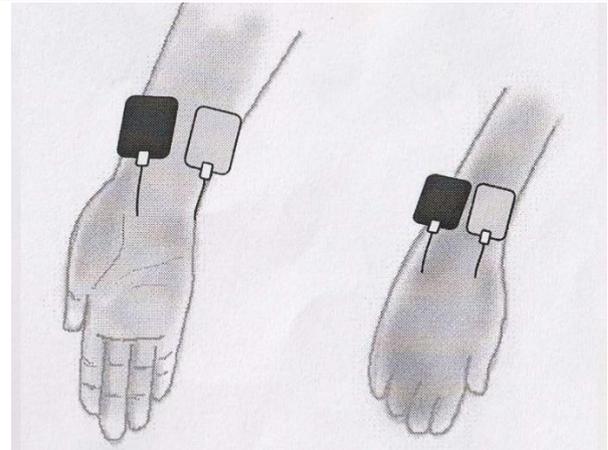
Name: Tenovaginitis

Total Treatment Time: 15 min.

Fixed Mode (Cont.): 100 Hz for 10 min.

Scan Mode: 0-100 Hz for 7 min.

Suggested Sessions: 5 times/week



**Program No. 18**

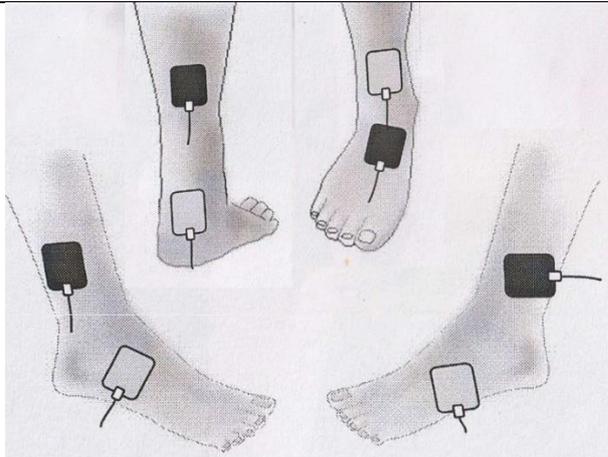
Name: Distortion (foot)

Total Treatment Time: 15 min.

Fixed Mode (Cont.): 100 Hz for 8 min.

Scan Mode: 80-100 Hz for 7 min.

Suggested Sessions: 3-5 times/week



**Program No. 19**

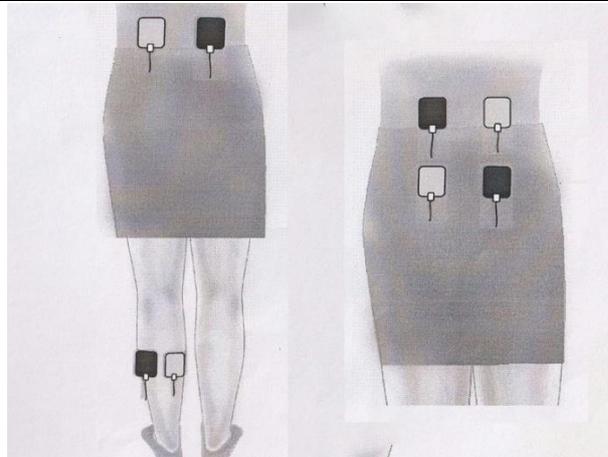
Name: Sciatica (foot)

Total Treatment Time: 10 min.

Fixed Mode (Cont.): 100 Hz for 5 min.

Scan Mode: 80-100 Hz for 5 min.

Suggested Sessions: 5 times/week



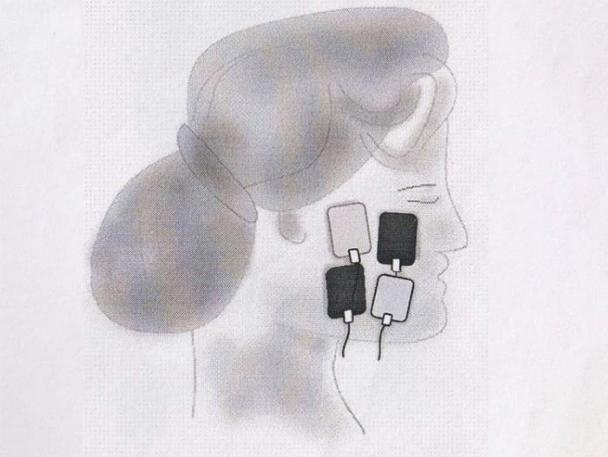
**Program No. 20**

Name: Trigeminus Neuralgia

Total Treatment Time: 10 min.

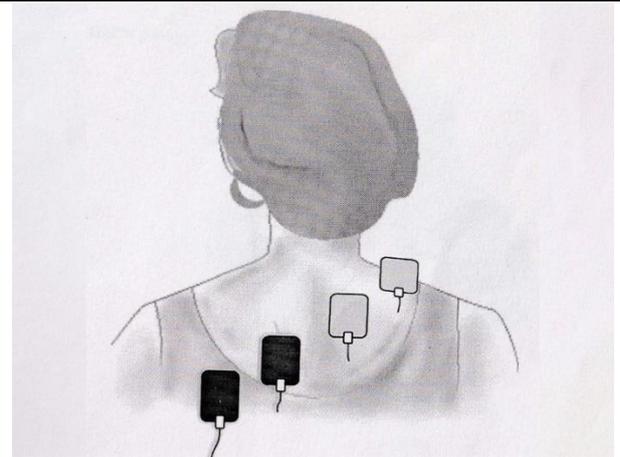
Scan Mode: 80-100 Hz for 7 min.

Suggested Sessions: 5 times/week



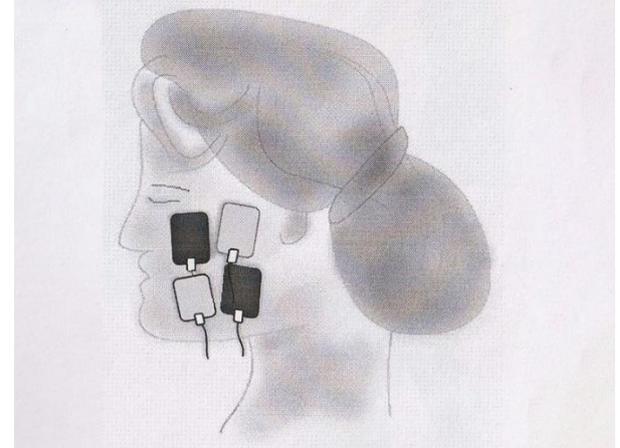
**Program No. 21**

Name: Intercostal Neuroglia  
Total Treatment Time: 15 min.  
Fixed Mode (Cont.): 100 Hz for 8 min.  
Scan Mode: 80-100 Hz for 7 min.  
Suggested Sessions: 5 times/week



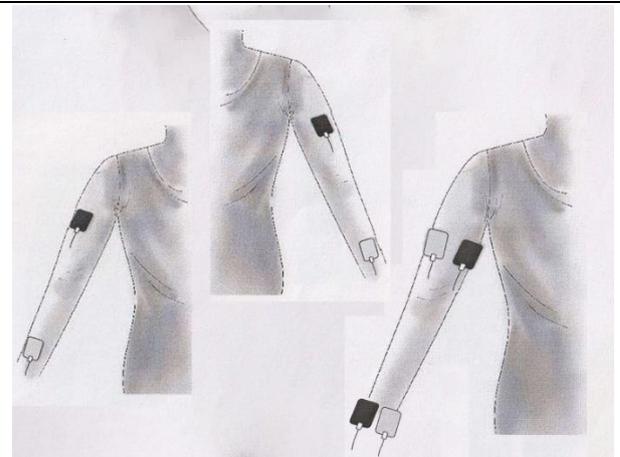
**Program No. 22**

Name: Peripheral Facial Paralysis (bell's palsy)  
Total Treatment Time: 10 min.  
Scan Mode: 0-10 Hz for 5 min.  
Suggested Sessions: 3-5 times/week



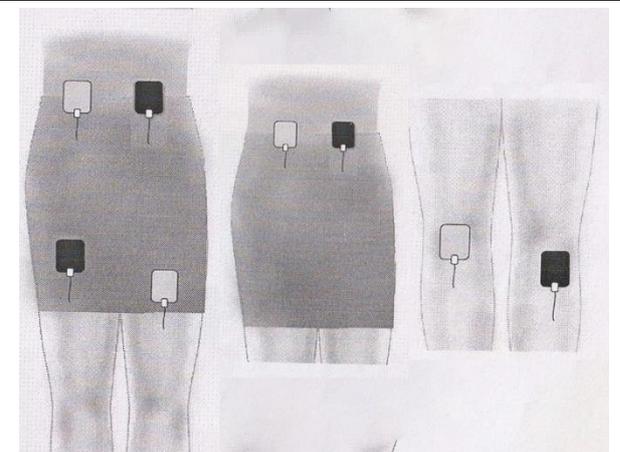
**Program No. 23**

Name: Motor Paralysis (upper limb)  
Total Treatment Time: 15 min.  
Fixed Mode (Cont.): 80-100 Hz for 8 min.  
Scan Mode: 0-10 Hz for 7 min.  
Suggested Sessions: 5 times/week



**Program No. 24**

Name: Motor Paralysis (lower limb)  
Total Treatment Time: 15 min.  
Fixed Mode (Cont.): 80-100 Hz for 8 min.  
Scan Mode: 0-10 Hz for 7 min.  
Suggested Sessions: 5 times/week



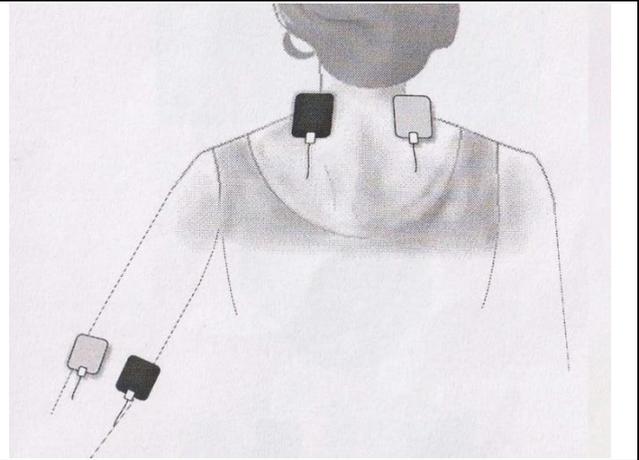
**Program No. 25**

Name: Paresthesia

Total Treatment Time: 10 min.

Scan Mode: 0-100 Hz for 10 min.

Suggested Sessions: 3-5 times/week



**Program No. 26**

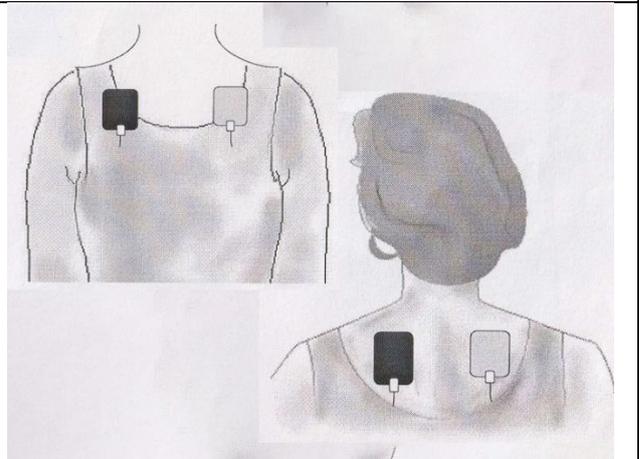
Name: Bronchial Asthma

Total Treatment Time: 10 min.

Fixed Mode (Cont.): 70 Hz for 5 min.

Scan Mode: 80-100 Hz for 5 min.

Suggested Sessions: 3-5 times/week



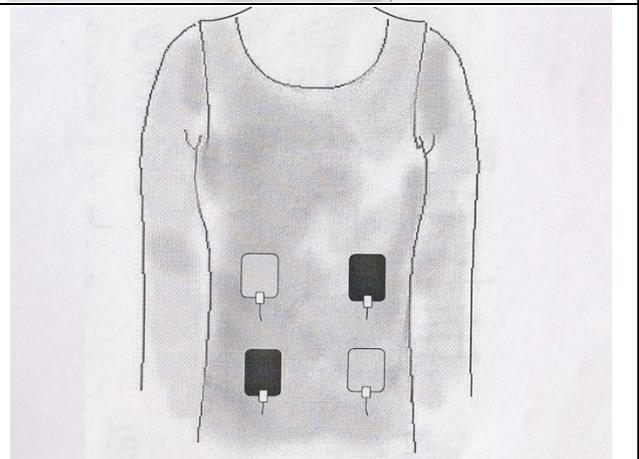
**Program No. 27**

Name: Gastric Ptosis

Total Treatment Time: 15 min.

Scan Mode: 0-100 Hz for 15 min.

Suggested Sessions: 5 times/week



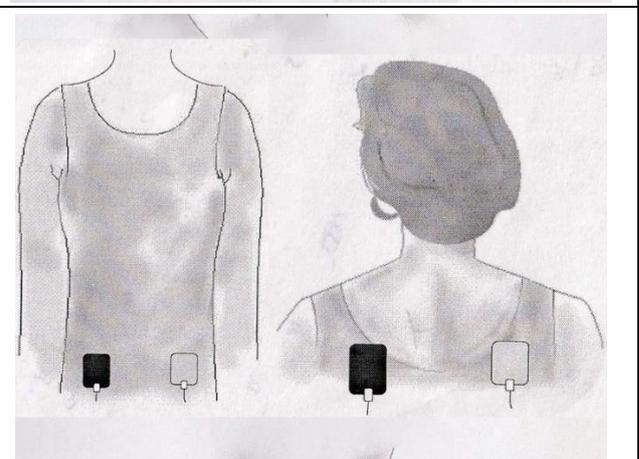
**Program No. 28**

Name: Gastric Atony

Total Treatment Time: 10 min.

Scan Mode: 0-100 Hz for 10 min.

Suggested Sessions: 5 times/week



## TECHNICAL SPECIFICATIONS

Power Source	110/230v AC 50/60 Hz, 1.5 Amps Current
Output Type	100% Isolated
Carrier Frequency	4 KHz and 2 KHz
Number of Programs	0 – 29: Total 30 Programs
Output Channel	Channel 1 (RED): Constant Carrier Frequency Channel 2 (BLACK): Variable Carrier Frequency
Output Current	0-70 mA
Beat Frequency	0-150 Hz
Scan Programs	0-150 sec, 80-150 sec, 0-10 sec, & 0-150 cont.
Scan Patterns	Rectangular Trapezoidal Triangular
Therapy Modes	2 Pole Pre-Modulated Interferential Therapy 4 Pole Classic Interferential Therapy 4 Pole 45° vector Interferential Therapy
Timer	0-99 min.

## CONTRADICTION

1. Patients who do not comprehend the physiotherapist's instructions or are unable to cooperate should not be treated.
2. Patients who are taking anticoagulation therapy or have a history of pulmonary embolism or deep vein thrombosis should not be treated with vacuum electrode applications.
3. Similarly, patients whose skin may be easily damaged or bruised.
4. Application should not be performed over:
  - the trunk or pelvis during pregnancy.
  - Active or suspected malignancy.
  - The eyes and the anterior aspect of the neck.
  - The carotid sinuses (stimulation in this area may cause a drop in blood pressure)
  - Patients with a pacemaker.
  - Dermatological conditions, e.g. - dermatosis, broken skin.
  - Danger of haemorrhage or current tissue bleeding (e.g. – recent soft tissue injury).
  - Active epiphyseal regions in children.

## PRECAUTIONS

- The Unit must be grounded during application.
- Do not use this unit near other high frequency/electromagnetic devices.
- If there is abnormal skin sensation, electrodes should be positioned in a site other than that area to ensure effective stimulation.
- Patients who have abnormal circulation.
- For patients who have febrile conditions, the outcome of the first treatment should be monitored.
- Patients who have epilepsy, advanced cardiovascular conditions, or cardiac arrhythmias should be treated at the discretion of the physiotherapist in consultation with the appropriate medical practitioner.
- Only the supplied/recommended accessory must be used with the unit.
- Do not apply this unit in conditions of pregnancy.
- Keep the electrodes separate during the treatment.

## MAINTENANCE

There is very little maintenance required for the UST Mini. If the ON/OFF switch lamp is not glowing steadily when the switch is put on, the problem could be due to a blown fuse.

To replace a burnt-out fuse, remove it from the fuse holder and replace it only with a 1A/250V Fuse.

**DISCONNECT THE POWER TO THE INSTRUMENT BEFORE REMOVING THE FUSE FROM THE HOLDER.**

There are no other user-serviceable parts inside the instrument. Refer all problems to the nearest dealer or write to us at our email: [sunmedisys@gmail.com](mailto:sunmedisys@gmail.com), you can Also Visit us and write your query at [sunmedisys.com](http://sunmedisys.com).

### Replacement of Fuse

There is one mains fuse and one extra fuse within the mains fuse socket, to replace the mains fuse peel out the fuse socket with a fingernail and replace the fuse with the extra fuse - push the fuse back into the socket until you hear a click.

## WARNING

- Before using the equipment, the user should read carefully the instructions contained in this manual.
- Before treating a patient, the user should familiarize himself with the operating modes and have a clear knowledge of indications & contraindications for the use of apparatus.
- Please ensure this manual is readily available at all times to the personnel authorized to use the apparatus.
- For safety purposes, the power cord has been fitted with an earthed plug.
- **ONLY USE AN EARTHED POWER SUPPLY SOCKET.**
- The unit must be connected to approve the power supply system.
- Do not use the apparatus close to SWD or MWD devices, which may cause instability in output and functioning in the program.
- Never leave the patient unattended during the treatment.
- The apparatus may not be used in so-called "wet rooms" (hydrotherapy rooms).
- Sun Medisys will not be responsible for Therapy Effects resulting from improper use of the apparatus.

### Some of our other devices:



**Ultrasound Therapy Devices**



**Various Other Therapy Devices**

# WARRANTY CERTIFICATE

**Customer Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Equipment Name:** \_\_\_\_\_

**Serial No.:** \_\_\_\_\_

**Warranty Form:** \_\_\_\_\_ **To** \_\_\_\_\_

The Instrument is warranted by the manufacturer for one year from the date of purchase and during this period, the defective parts shall be replaced or repaired, free of charges, if it is due to faulty material or workmanship, subject to the following Terms and Conditions.

- The Instrument should be used properly in accordance with the instructions as given in the instruction manual.
- The warranty does not cover the Instrument attended by others except our authorized service center/dealer.
- Replacement of parts made of Rubber Electrodes, Laser Probe, Laser Diode, enclosure and carry bag are not covered within this Warranty.
- The cost incurred bringing the machine to our dealer's premises or service center and back are to be borne by the customer.
- The Warranty does not cover the Instrument operated outside the range of stipulated Electric Supply.
- The decision of the manufacturer is final in all cases of warranty claims.

HERE CERTIFIED  
Yours Truly  
Sun Medisys Inc.

For More Information, visit us at [www.sunmedisys.com](http://www.sunmedisys.com), you can write any queries there or directly buy from us.

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