

ADVANCE 1 MHZ ULTRASOUND THERAPY



US MINI

INSTRUCTION MANUAL

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

17, Pocket-10, Sector-21,
Rohini, New Delhi-110086 (INDIA)
Email: sunmedisys@gmail.com
www.sunmedisys.com

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

The method of treatment for various conditions falling in the preview of physiotherapy using a specific frequency of sound is called ULTRASOUND THERAPY.

The sound waves which can be heard by human ears are called audio waves (about 20 to 20000 Hertz) and which cannot be heard (above 20 Kilo Hertz) are called Ultrasound waves. The vibration below 20 Hertz are called infrasonic or Infrasound. The meaning of word sound and sonic are same.

When the electric potential is applied on the Quartz or Barium titanate or Zirconate titanate crystal of a specific size, it starts vibrating and produces sound. If the potential is increased, the sound cannot be heard and thus ultrasound is produced. It is called piezoelectric phenomena. This piezoelectric is used in both Diagnostic and Therapeutic Ultrasound machines. The probe or head through which ultrasound are subjected into the body is called Transducer. In diagnostic ultrasound (sonology) the transducer has an array of sonar of detected which send the signal to microprocessor based circuit of machine where the sound is converted in to digital picture of the area scanned. This detector array is not present in case of therapeutic ultrasound machines.

Therapeutic ultrasound refers generally to any type of ultrasonic procedure that uses ultrasound waves for therapeutic benefit.

Ultrasound is applied using a transducer or applicator that is in direct contact with the patient's skin. Gel is used on all surfaces of the head to reduce friction and assist transmission of the ultrasonic waves. Therapeutic ultrasound in physical therapy is alternating compression and rarefaction of sound waves with a frequency of 0.7 to 3.3 MHz. Maximum energy absorption in soft tissue occurs from 2 to 5 cm. Intensity decreases as the waves penetrate deeper. They are absorbed primarily by connective tissue: ligaments, tendons, and fascia (and also by scar tissue).

INDICATIONS FOR ULTRASOUND

Conditions for which ultrasound may be used for treatment include the following examples: ligament sprains, muscle strains, tendonitis, joint inflammation, plantar fasciitis, metatarsalgia, facet irritation, impingement syndrome, bursitis, rheumatoid arthritis, osteoarthritis, and scar tissue adhesion.

What is the difference between 1 & 3 MHz Ultrasound Machines?

The difference between both frequencies in Ultrasound Machines is to do with the depth the sound waves penetrate, which is important when deciding which machine would work best for you.

1 MHz Ultrasound Machine would be appropriate for treating tissue that is between 2.3 and 5cm in depth – this would be great for pain relief for several conditions.

3 MHz Ultrasound Machine would be appropriate for treating tissue at depths between 0.8 cm and 1.6 cm – this is usually fantastic for scar tissue, cellulite reduction and skin conditions.

EFFECTS OF ULTRASOUND

When ultrasound enters in to the body there were two effects on the tissues called thermal and non-thermal effects:

- **THERMAL EFFECTS:** When ultrasound travels through the tissue of the body some of its energy is absorbed by the tissue and create heat with in the tissue as result of absorption. The quantity of Ultrasound absorption depends on the vascularity, nature of tissue and frequency of Ultrasound. The absorption is more in tissues of high protein contents. While the tissues have high fat contents

absorb less. A therapeutic thermal effect can be achieved if the temperature of tissue is raised between 42 to 48 degree C for 5 minutes and pain relief decrease in joint stiffness and increased blood flow can be obtained. Structures which are heated by the ultrasound are periosteum, Superficial bone, menisci joint, skeletal muscles, tendon, major nerve roots.

• **NON-THERMAL EFFECTS:** There are many situation when Ultrasonic produces therapeutic result without involving raise in the temperature, like in stimulation of generation, soft tissue repair, blood flow in chronic tissue and repair. It is possible to increase the rate of repair of fractures using 1.5 MHz or greater in pulse mode. The treatment should be given for 5 minutes for 4 times a week. The most effective treatment were found during the first 2 weeks of bone repair.

It should be noted that the attenuation of therapeutic Ultrasound increases with the quantity of portion present in structure under the treatment, and attenuation decreases with water contents. In the high vascular tissue like mused there will be fast heat dispersion (dissipation) resulting in to non-significant raise of temperature. But the tissue like tendons, ligaments and connective tissue high and fast temperature raise occurs as they possesses less water and are less vascular. Heating of tendons, scars, ligaments and joint capsule etc. cause increase of flexibility and thus the stiffness of these is decreased.

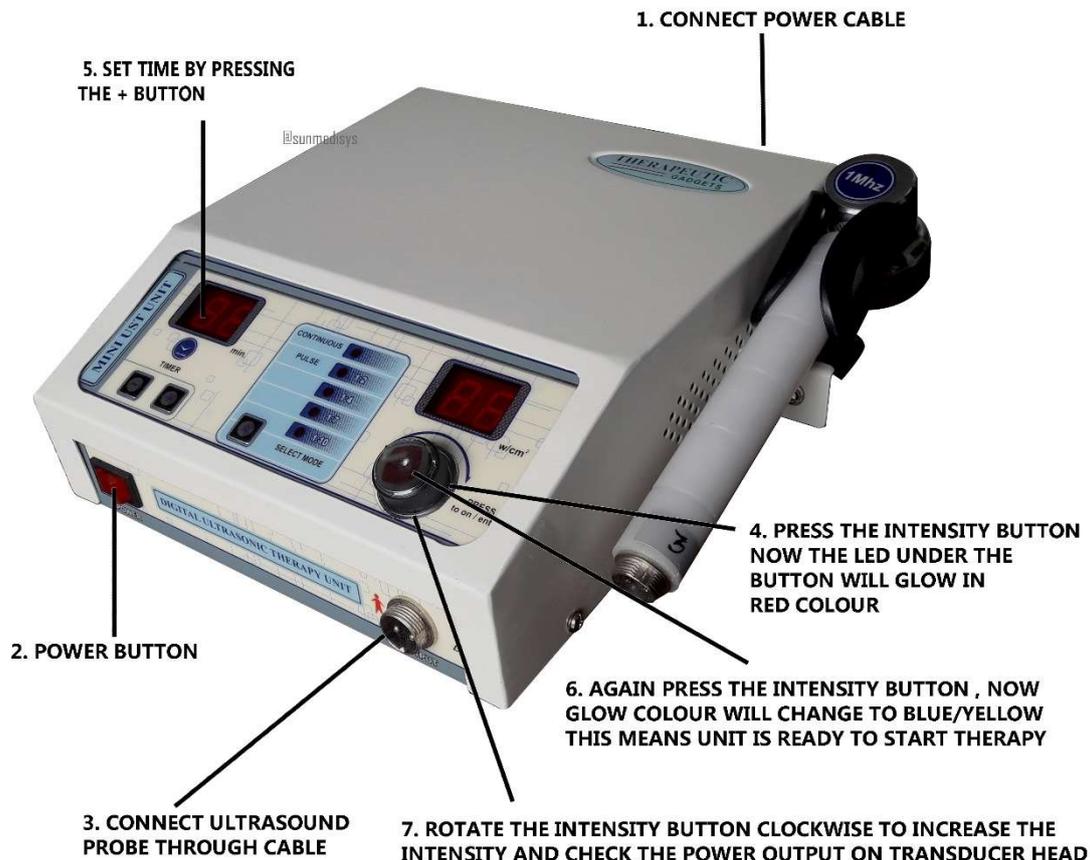
CAVITATION

When ultrasonic therapy is applied on the body, after 30 to 60 second small bubbles are formed inside the tissue due to the vibration, this phenomena is called cavitation.

These bubbles are about one micron is diameter. The cavitation is of two types- stable and unstable. Stable cavitation is of therapeutic importance. When the cavitation results into the formation of bubbles of the increasing diameter, which after few seconds implode and damaging to the tissue, is called transient which generally occurs at high intensity.

QUICK START GUIDE

- Check all the accessories with Main unit like Probe and power cable.
- Now connect power cable with Ultrasound Unit as well as Mains power plug.
- Connect Ultrasound probe to Ultrasound output socket.
- Press Power button which will start glowing red colour.
- Press Intensity Control/ button. Now all display and LED will be ON.
- Set desire treatment time by pressing + button.
- Now you can also select output mode by pressing “M” button.
- If all the parameters are set then Press Intensity control to start therapy.
- Now the Blue/yellow light will glow under intensity button. It means the unit is ready for treatment.
- Now increase the intensity by rotating intensity control clock wise, and the therapy will start. During treatment you can also pause treatment by pressing intensity control button and parameters can also be changed.
- By pressing again intensity control unit will start with set parameters.
- At the end of therapy output will become Zero and the buzzer will sound.
- Unit will go to sleep mode for few second after end of therapy.



METHOD OF APPLICATION

1. Inspect the skin for the presence of any cut, wound rashes or any skin diseases, if so ultrasound treatment shall not be given on that particular area.
2. Clean the skin by tissue paper or cotton, preferably wet cotton.
3. Position the patient in such a way that the application area is well visualized and patient can sit or lay down during the treatment. The ease of patient is of utmost importance.
4. Bring the machine near the patient.
5. Place good quantity of coupling medium on the area to be treated.
6. Activate the machine and set timer and intensity after keeping the transducer on the skin of patient.
7. Ultrasound are being delivered into tissue, now keep the head of transducer at 90 deg. to the patient skin and make small circular movement throughout the treatment. The most painful area should be focused.

Remember the head should be in well contact with the skin and sufficient quantity of coupling medium should be there. If it is need to put more coupling medium. Switch the machine OFF, pour the coupling medium and then turn on the machine.

- **TREATMENT TIME:** There is no hard or fast rule for the treatment time and number to 10 minutes (depending on the area to be treated) for 5 days from treatment plan. As the pain reduces, the dose or time can be reduced. Later on ultrasound be give on alternate days and then stopped. High intensity dose not be used after 5 day.

- **COUPLING MEDIUM:** To make a fire contact between skin of patient and transducer: jelly or olive oil, or liquid paraffin is used. These are calls coupling medium or coupling agent.

A coupling medium should have the following properties:

- Gel like viscosity for ease of use.
- Non allergic.
- Chemically inert.
- Transparent.
- Inexpensive.

ULTRASONIC DOSE RANGE:

Low Intensity: 0.1 to 0.8 Watts/cm²
 Medium intensity: 0.8 to 1.5 Watts /cm²
 High intensity: 1.5 to 3.0 Watts /cm²

STANDARD ACCESSORIES:

The Ultrasound Therapy Unit will be supplied with the following accessories:

1. Main Ultrasound Unit 1 No.
2. 1 MHz Applicator (Probe) 1 No.
3. Applicator Wire 1 No.
4. Main Cable 1 No.
5. User's Manual 1 No.
6. 1 Amp Fuse (Extra) 1 No. (Within the Ac Socket)

TECHNICAL SPECIFICATIONS

Mains Voltage	100-230v AC 50/60 Hz ±10% SMPS Supply
Maximum Power Consumption	40 VA
Treatment Time	Up to 60 min.
Emission Frequency	1 MHz ±10%
Modes	Continuous; Pulse i.e. 1:2, 1:4, 1:7 & 1:10
Ultrasound Power	2.5 w/cm ² in continuous 3.5 w/cm ² in pulsed
Fuse	1 Amp (within AC socket) 3 Amp (for ultrasound output)
Weight	2.0 kg (approx.)
Packing Dimensions	28 X 28 X 16 cm

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 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, you can Also Visit us and write your query at sunmedisys.com

Replacement of Fuse:

There is one mains fuse and one extra fuse in the within the mains fuse socket, to replace the mains fuse peel out the fuse socket with a finger nail 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 clear knowledge of indications & contraindications for the use of apparatus.
- Please insure this manual is readily available at all times to the personnel authorized to use the apparatus.
- For safety purpose, the power cord has been fitted with an earthed plug.
- **ONLY USE AN EARTHED POWER SUPPLY SOCKET.**
- The unit must be connected to approve power supply system.
- Do not use the apparatus close to SWD or MWD devices, may cause instability in output and functioning in program.
- Never leave the patient unattended during the treatment.
- The apparatus may not be used in so called "wet rooms" (hydro therapy rooms).
- Sun Medisys will not be responsible for Therapy Effects resulting from an improper use of the apparatus.

WARRANTEE 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 excepting our authorised service centre / 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 centre and back are to borne by the customer.
- The Warranty does not cover the Instrument operated outside the range of stipulated Electric Supply i.e. below 198 volts and above 242 Volts.
- The decision of the manufacturer is final in all cases of warranty claims.

HERE CERTIFIED

Yours Truly

Sun Medisys Inc.

OUR OTHER PRODUCTS



2 Channel TENS



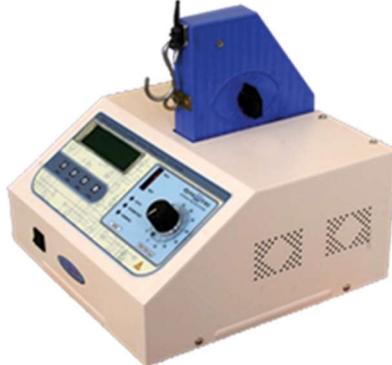
IFT/MST



4 Channel TENS PWM



Digital Traction



LCD Traction



Longwave



LASER



4 Channel LCD TENS



4 Channel TENS with battery backup



1 MHz Ultrasound



LCD Ultrasound



TENS/MST

For More Information, Visit us at www.sunmedisys.com, you can write any queries there or directly buy from us.

You can get in touch with us through

EMAIL: sunmedisys@gmail.com

WhatsApp: +91 8130758457

+91 9810967982

+91 9811567982