sunimed™
Advanced Therapy Systems

ADVANCE 1&3 MHZ
ULTRASOUND THERAPY

SUPER PRO 1300

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)
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SUN MEDISYS INC.

sunmed™
Advanced Therapy Systems


CERTIFICATE

This is to Certify that the Management System of

SUN MEDISYS INC.

17, POCKET-10, SECTOR-21, ROHINI NEW DELHI -110086, INDIA.

has been found to conform to the Medical Devices – Quality Management System standard:

ISO 13485:2016

This certificate is valid for the following scope of operations:

MANUFACTURING OF PHYSIOTHERAPY (ELECTROTHERAPY) EQUIPMENT, REHABILITATION SLIMMING & BEAUTY THERAPY, SURGICAL & SCIENTIFIC INSTRUMENTS.

Certificate No.: IN9194H

Director

IAS IAF


QRO
QUALITY RESEARCH ORGANIZATION

Certificate of Registration

SUN MEDISYS INC

17, POCKET-10, SECTOR-21, ROHINI, NEW DELHI, 110086, INDIA.

has been independently assessed by QRO

and is compliant with the requirement of

ISO 9001:2015

Quality Management System

For the following scope of activities:

MANUFACTURING OF PHYSIOTHERAPY (ELECTROTHERAPY) EQUIPMENT, REHABILITATION SLIMMING & BEAUTY THERAPY, SURGICAL & SCIENTIFIC INSTRUMENTS.

Certificate Number: 305021030610Q

QRO EGAC IAF


SPC

CERTIFICATE

Of Compliance

This is to certify that the technical documentation has been independently assessed and compliant with the requirements of LVD directive 2014/35/EU

Manufacturer

Name : SUN MEDISYS INC

Address : 17, POCKET-10, SECTOR-21, ROHINI, NEW DELHI, 110086, INDIA

Product Details : PHYSIOTHERAPY (ELECTROTHERAPY) EQUIPMENT, REHABILITATION SLIMMING & BEAUTY THERAPY, SURGICAL & SCIENTIFIC INSTRUMENTS (AS PER ANNEXURE ATTACHED)

Applicable Standard : Directive 2014/35/EU

Certificate No.: SPC21C6131

Date of Initial Registration: 24-03-2021

1st Surveillance audit on or before: 23-03-2022

2nd Surveillance audit on or before: 23-03-2023

Date of Re-Certification: 24-03-2024

Authorised Signatory

SP Certification Limited

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Email: info@spcertification.co.uk

www.spcertification.co.uk

CE AFIST SPC

Welcome to the Sun Medisys Inc.

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

CONGRATULATIONS for purchasing our next generation 1&3 MHz Ultrasound Therapy Unit Super Pro 1300 unit.

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 20,000 Hz) and above 20 kHz are called Ultrasound waves. The sound waves below 20 Hz are called infrasonic or Infrasound. The meaning of the words sound and sonic are the same.

When the electric potential is applied to the Quartz or Barium titanate or Zirconate titivate 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 is subjected to the body is called Transducer. In diagnostic ultrasound (sinology) the transducer has an array of sonar detected which send the signal to the microprocessor-based circuit of the machine where the sound is converted into a digital picture of the area scanned. This detector array is not present in the 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. The gel is used on all surfaces of the applicator 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 5 cm 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 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 creates heat within the tissue as a 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 with high protein content. While the tissues that have high-fat

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

• **NON-THERMAL EFFECTS**: There are many situations Ultrasonic produces therapeutic results 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 4 times a week. The most effective treatment was found during the first 2 weeks of bone repair.

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

CAVITATION

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

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

OPERATION GUIDE

• Check all the accessories with the Main unit like the Probes and power cable.

• Now connect the power cable with Ultrasound Unit as well as the Mains power plug.

• Connect Ultrasound probes 1&3 MHz to the respective output sockets.

• Press the Power-on button on the left hand of your unit and the display will be on.

• Press the enter  button to start the unit.

• Now you can select the output mode [MANUL] or [PROG] either by pressing  button or rotating & press the  knob.

MANUAL MODE:

If you have selected the MANUAL mode you can set the time from 0-60 min. by rotating the **-enter+** knob clockwise to increase & anticlockwise to decrease the time.

- After setting the time press the **-enter+** knob and select the output mode either Continuous or Pulse (P1:1, P1:2, P1:4, P1:7 & P1:10) by rotating the knob.

- Now press the **-enter+** knob to select the output frequency (1 MHz or 3 MHz) either by pressing the  button or rotating the **-enter+** knob clockwise or anticlockwise. The selected frequency will be shown by the glow of the LED of the respective frequency.
- Now press the **-enter+** knob to set the output intensity from 0-3.0 W/cm^2 in continuous mode & 0-3.5 W/cm^2 in pulse mode with increment step of 0.1 W/cm^2.
- Your treatment session is started and after the treatment session is over the unit will stop & give you the audible beep to reset. Press the reset  button.

PROGRAM MODE:

If you have selected the PROG. mode the display will show you the PROG.01 and you can go through the program list of 30 programs by rotating the **-enter+** knob clockwise from PROG.01 to PROG. 30 or come back by rotating the knob anticlockwise.

- Select the desired program by pressing the **-enter+** knob to see the pre-set treatment time, mode, frequency and intensity.
- Now you only need to press the  button to start the treatment.
- You can increase or decrease the intensity during the treatment session by rotating the **-enter+** knob clockwise or anticlockwise.
- After the treatment session the unit will stop & give you the audible beep to reset. Press the reset  button.

METHOD OF APPLICATION

1. Inspect the skin for the presence of cuts, wound rashes or any skin diseases, if so ultrasound treatment shall not be given to that particular area.
2. Clean the skin with tissue paper or cotton, preferably wet cotton.
3. Position the patient so that the application area is well visualized and the patient can sit or lay down during the treatment. The ease of the patient is of utmost importance.
4. Bring the machine near the patient.
5. Place a good quantity of coupling medium on the area to be treated.
6. Activate the machine and set the timer and intensity after keeping the transducer on the skin of the patient.
7. Ultrasounds are being delivered into the tissue, now keep the head of the transducer at 90° to the patient skin and make small circular movements throughout the treatment. The most painful area should be focused on.
8. Remember the head should be in well contact with the skin and a sufficient quantity of coupling medium should be there. If it is needed to put more coupling medium. Switch the machine OFF, pour the coupling medium and then turn on the machine.

• COUPLING MEDIUM: To make fine contact between the skin of the patient and the transducer: jelly or olive oil, or liquid paraffin is used. These are called coupling mediums or coupling agents. A coupling medium should have the following properties:
• Gel-like viscosity for ease of use • Non-allergic • chemically inert• Transparent • Inexpensive.

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. 3 MHz Applicator (Probe) -1 No.
4. Applicator connecting Wire- 2 No.'s
5. Mains Cable -1 No.
6. User's Manual -1 No.
7. 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 & 3 MHz ±10%
Modes	Continuous; Pulse i.e. 1:1, 1:2, 1:4, 1:7 & 1:10
Ultrasound Power	3.0 W/cm^2 in continuous mode 3.5 w/cm^2 in pulse mode
Fuse	1 Amp (within AC socket) 3 Amp (for ultrasound output)
Weight	2.0 kg (approx.)
Packing Dimensions	28 X 28 X 16 cm

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	ULTRASOUND PROGRAMS				
S.No.	**Indication**	**Time (min.)**	**Power W/cm2**	**Mode**	**Freq.**
1	ACHILLIES TEND.	12	1.5	CONT.	1 MHz
2	ARTHRITIS ELBOW	10	1.0	CONT.	1 MHz
3	BURSITIS	10	1.5	1:1	1 MHz
4	CARPAL T. SYNDROM	10	1.0	CONT.	1 MHz
5	COXARTHROSIS	15	1.5	CONT.	1 MHz
6	DELTOID MUSC. DIS.	12	1.0	CONT.	1 MHz
7	DORSAL PAIN	10	1.2	CONT.	1 MHz
8	EPICONDYLITIS 1	10	1.2	1:1	1 MHz
9	FIBROMYALGIA	10	1.5	1:2	1 MHz
10	FROZEN SHOULD.	12	1.2	1:1	1 MHz
11	HIP PERIARTH.	10	2.5	CONT.	1 MHz
12	KNEE OSTEOARTH.	10	1.0	CONT.	1 MHz
13	LUMBAGO	12	1.5	1:1	1 MHz
14	MYOFACIAL PAIN	10	1.5	1:1	1 MHz
15	PLANTER FIBROSIS	20	1.8	CONT.	1 MHz
16	QUAD. MUSCLE	12	1.5	CONT.	1 MHz
17	ROTATOR CUFF TEN	12	1.0	CONT.	1 MHz
18	SCIATICA PAIN	15	1.5	1:1	1 MHz
19	SHOULDER PERI A.	8	1.5	CONT.	1 MHz
20	SMALL JOINT ART.	10	1.0	1:1	1 MHz
21	SUBDELTOID BURS.	20	1.5	1:1	1 MHz
22	DISTAL TRICEP T.	10	0.8	1:1	3 MHz
23	EPICONDYLITIS 2	10	1.2	CONT.	3 MHz
24	GOOSE FOOT	10	1.2	CONT.	3 MHz
25	OCCIPITAL NEUR.	10	1.0	1:1	3 MHz
26	PATELLAR TENDIN.	10	1.5	1:1	3 MHz
27	POST OPERATIVE	15	1.0	1:1	3 MHz
28	QUAD. TENDINITIS	10	1.5	1:1	3 MHz
29	SKIN TONE UP	12	1.0	CONT.	3 MHz
30	TEMPO. PAIN	10	1.0	1:2	3 MHz

MAINTENANCE

There is very little maintenance required for the US Super Pro 1300. 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.
Remove a burnt-out fuse 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 an 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 carefully read the instructions 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 the 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” (hydro therapy rooms).
• Sun Medisys will not be responsible for Therapy Effects resulting from improper use of the apparatus.

WARRANTY CERTIFICATE

Customer Name: _____

Address: _____

_____

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 charge, if it is due to faulty material or workmanship, subject to the following Terms and Conditions.

- The Instrument should be used properly following 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 is to be 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.