Nu-Tek

INSTRUCTION MANUAL
UsTENS CT1032

www.nutekmedical.com

This manual is valid for the CT1032

CT1032 Rev. V1.2 © 202008

CONTENTS

1. FOREWORD

1.1 General

This manual has been written for the users of CT1032. It contains general information on the operation, precautionary practices, and maintenance information of the device. In order to maximize the use, efficiency, and life of the device, please read the manual thoroughly and become familiar with the controls, as well as the accessories before operating the device.

Pay attention to the following before using the CT1032:
1. Keep yourself informed of the contraindications (see chapter 4).
2. The device may not be used in close proximity (i.e. less than 2 meters) to shortwave equipment.
3. The device may not be used in so-called "wet rooms" (hydrotherapy rooms).

The manufacturer cannot be held responsible for the results of using this apparatus for any purposes other than those described in these operating instructions.

1.2 Therapy possibilities

CT1032 is a therapy apparatus that offers both ultrasound therapy and electrotherapy in combination. Pain affects the quality and enjoyment of life, especially for those who suffer chronic pain. CT1032 is an ultrasound and electrotherapy therapy device for the treatment of chronic and acute muscular pain. The applicator has a radiant surface of 4.0cm^2 and frequency of 1MHz. Combination therapy of ultrasound and electrotherapy, ideal to localize trigger points and or pain points.

1.3 Applicator

The ultrasound applicator for CT1032 has one-frequency head. This applicator can now supply 1 MHz ultrasound. The head has excellent beam characteristics, fully meeting the requirements of the existing standards. The excellent beam characteristics, ergonomic design and effective contact control of the single-frequency applicator make optimal treatment possible.

2. SAFETY PRECAUTIONS

2.1 PRECAUTIONARY DEFINITIONS

The precautionary instructions found in this section and throughout this manual are indicated by specific symbols. Understand these symbols and their definitions before operating this equipment. The definitions of these symbols are as follows:

⚠ **Caution:** Text with a "CAUTION" indicator symbol will explain possible safety infractions that could have the potential to cause minor to moderate injury to an individual or damage to equipment.

⚠ **Warning:** Text with a "WARNING" indicator will explain possible safety infractions that will potentially cause serious injury to an individual and/or equipment damage.

Danger: Text with a "DANGER" indicator will explain possible safety infractions that are imminently hazardous situations that could result in death or serious injury.

2.2 Caution

⚠ **Caution**

1. Read, understand, and practice the precautionary and operating instructions. Know the limitations and hazards associated with using any ultrasound device. Observe the precautionary and operational decals placed on the unit.
2. Keep informed of the contraindications.
3. DO NOT operate the device when connected to any other medical device.
4. DO NOT operate this device in an environment where other devices used intentionally radiate electromagnetic energy in an unshielded manner.
5. Ultrasound should be routinely checked before each use to ensure that all controls function normally.
   - ➢ Check intensity control – make sure it properly adjusts the intensity of the ultrasonic power output in a stable manner.
   - ➢ Check treatment time control – make sure it terminates ultrasonic power output when the timer reaches zero.
6. DO NOT use sharp objects such as pencil point or ballpoint pen to operate the buttons on the control panel.
7. Handle the ultrasound applicator with care. Inappropriate handling of the Ultrasound applicator may adversely affect its characteristics.

8. Before each use, inspect the Ultrasound Applicator for cracks to avoid the ingress of conductive fluid.
9. Inspect Applicator cables and associated connectors before each use.
10. The ultrasound therapy control unit is not designed to prevent the ingress of water or liquids. Ingress of water or liquids may cause malfunction of internal components of the device and therefore create risk of injury to the patient.
11. Caution should be used:
    - With patients suspected or diagnosed with epilepsy.
    - With patients suspected or diagnosed with heart problems.
12. Caution should be used in the presence of the following:
    - When there is a tendency to hemorrhage following acute trauma or fracture.
    - Following recent surgical procedures when muscle contraction may disrupt the healing process.
    - Over the menstruating or pregnant uterus.
    - Over areas of the skin which lack normal sensation.
13. 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.
14. Electrode placement and stimulation settings should be based on the guidance of the prescribing practitioner.
15. Never apply electrodes over irritated or broken skin.
16. The device should be kept out of the reach of children.
17. The device should be used only with the leads and electrodes recommended for use by the manufacturer.
18. Do not use in the bath or shower. The device should not be submerged in water or other liquids as this will possibly damage the device and startle the patient.
19. The use of heat and cold producing devices, such as electric heating blankets, heating pads or ice packs, may impair the performance of the electrodes or alter the patient's circulation and increase the risk of injury to the patient.
20. The CT1032 should not be used while driving, operating machinery, or during any activity in which involuntary muscle contractions may put the user at undue risk for injury.

2.3 Warning

⚠ Warning

1. Care must be taken when operating this equipment around other equipment.
2. Potential electromagnetic or other interference may occur to either this device or to the other equipment, or both. Minimize this interference by not using this device in conjunction with the other equipment.

3. This device may not be used in close proximity (i.e. less than 2 meters) to short-wave equipment.
4. Avoid exposure to direct sunlight, rain, excessive dust, moisture, mechanical vibrations and shocks.
5. This device may not be used in so-called “wet rooms” (hydrotherapy rooms).
6. Before administering any treatment, you should become acquainted with the operating procedures for each program of treatment, as well as the indications, contraindications, warnings, and precautions. Consult other resources for additional information regarding the application of electrotherapy and ultrasound.
7. Do not use solvents to clean this device.
8. Do not use this device if it is damaged in any way.
9. This device must only be serviced, repaired and opened by individuals at authorized sales centers.
10. Dispose of this device in accordance with local regulations. Keep the operating instructions with the device.
11. Pregnant and nursing women should use caution when using the device.
12. Avoid use over or near bone growth centers until bone growth is complete.
13. Treatment time should not exceed 30 minutes a day.
14. Do not use a cell phone while operating the device.
15. Patients with sensitivity to the coupling gel should use caution when using the device.
16. Stimulation should not be applied over the carotid sinus nerves, particularly in patients with a known sensitivity to the carotid sinus reflex.
17. Stimulation should not be applied over the neck, thorax, or mouth. Severe spasm of the laryngeal and pharyngeal muscles may occur and the contractions may be strong enough to close the airway or cause difficulty in breathing.
18. Stimulation should not be applied trans-cerebrally (across the head), over the carotid sinus (where the jaw meets the neck), over metal implants or in conjunction with sleep apnea or heart monitors.
19. Stimulation should not be applied transthoracically. Since the introduction of electrical current into the heart may cause cardiac arrhythmias.
20. Stimulation should not be applied to swollen, infected or inflamed areas or skin eruptions, e.g. phlebitis, thrombophlebitis, varicose veins, etc.
21. Stimulation should not be applied over, or in proximity to, cancerous lesions.
22. Always keep the ultrasound head in constant motion.
23. Use ample conductive gel with the ultrasound head to ensure good coupling throughout the treatment. If needed, apply more when setting intensity.
24. Consult your doctor or physiotherpist if you are in any doubt whatsoever.

2.4 Danger

Danger

Patients with an implanted neurostimulation device must not be treated with or be in close proximity to any shortwave diathermy, microwave diathermy, therapeutic ultrasound diathermy, or laser diathermy anywhere on their body. Energy from diathermy (shortwave, microwave, ultrasound, and laser) can be transferred through the implanted neurostimulation system, can cause tissue damage, and can result in severe injury or death. Injury, damage, or death can occur during diathermy therapy even if the implanted neurostimulation system is turned "off."

Biohazardous materials

Handle, clean, and dispose of components and accessories that have come in contact with bodily fluids according to national, local, and facility rules, regulations, and procedures.

2.5 Adverse reaction

- Skin irritation, inflammation, and electrode burns beneath the electrodes are potential adverse reactions.
- Perform the following procedures to avoid the negative effects of ultrasound therapy.

Applicator Movement

If movement of the applicator is too slow, the patient may feel periosteal pain characterized by a deep ache or pain. If motion is too fast, or if the applicator does not maintain good contact with the skin, the therapeutic effect of the sound waves will be reduced and the applicator may overheat.

Patient Susceptibility

Some patients are more sensitive to ultrasound output and may experience a reaction similar to a heat rash. Be sure to inspect the treatment area during and following treatment, and discontinue if an adverse reaction occurs.

Coupling

Coupling is described as contact between the applicator and the treatment site and may be accomplished through the use of a coupling agent, such as gel or lotion. Anything used as a coupling agent must be highly conductive. Air is a very poor conductor of ultrasonic waves.

3. INTENDED USE

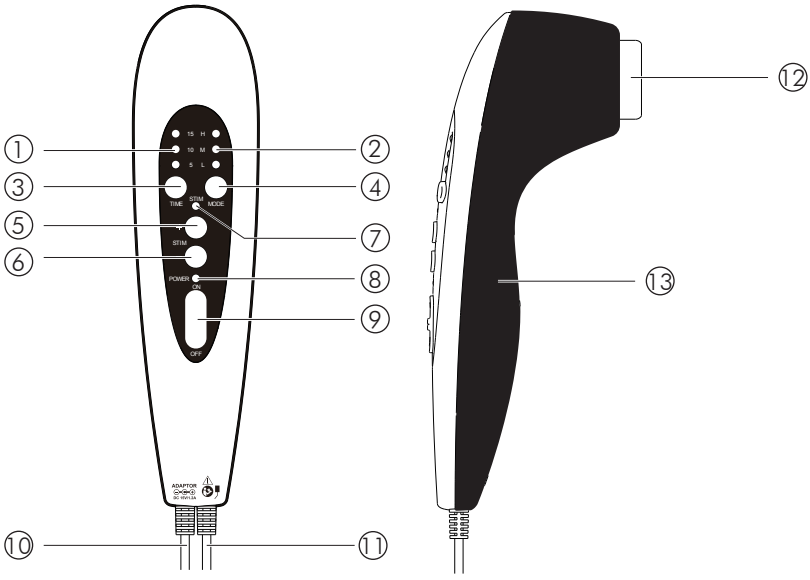
CT1032 is a Portable Ultrasound and TENS combo device that generates deep ultrasonic waves within body tissues and TENS, transcutaneous electrical nerve stimulation, for the treatment of selected medical conditions such as symptomatic relief of chronic intractable pain, post-traumatic pain and post-surgical pain, muscle spasms, and joint contractures. Not recommended for the treatment of malignancies.

4. CONTRAINDICATIONS

1. Do not use over or near bone growth centers (epiphyseal discs) until bone growth is complete.
2. Do not use over a healing fracture.
3. Do not use over the eyes.
4. Do not use over the heart.
5. Do not use over brain tissue.
6. Do not use on patients with demand type cardiac pacemakers.
7. Do not use on someone who is pregnant.
8. Do not use on testicles.
9. Do not use on patients post laminectomy.
10. Do not use on areas of the body that lack sensation.
11. Do not use on areas of post-traumatic sequelae.
12. Do not use if the patient has an endoprosthesis / metal implants.
13. Do not use on patients with implanted neurostimulation systems.
14. Do not use to treat malignancies nor in the region where tumors or malignant tumors are present.
15. Do not use on patients who have thrombophlebitis and/or varices.
16. Do not use on patients experiencing septic inflammation.
17. Do not use on patients who have diabetes mellitus.
18. Do not use on patients who have osteoporosis.
19. Do not use over ischemic tissues in patients with vascular disease where the blood supply would be unable to follow the increase in metabolic demand.
20. Do not use over the carotid sinus nerves or arteries, laryngeal or pharyngeal muscles.
21. Do not use on patients with hemorrhagic diatheses (excessive bleeding disorders).
22. Do not use over an area of the spinal cord following a laminectomy.
23. Do not use over areas that are under anesthesia.

24. Do not use on acute injuries
25. Do not use on open wounds.
26. Do no use if patient is feverish (pyrexia).
27. Do not use on patient with tuberculosis.
28. Do not use on patients who have localized inflammation.

5. PRESENTATION



1. TIME LED: indicates treatment times of 5 minutes, 10 minutes and 15 minutes
2. MODE LED: indicates intensity of the ultrasound Low (L), Medium (M) and High (H)
3. TIME button: Adjusts treatment times to either 5 minutes, 10 minutes and 15 minutes
4. MODE button: Adjusts the ultrasound intensity: Low, Medium and High
5. "+" button: Increases the intensity of stimulation
6. "–" button: Decreases the intensity of the stimulation
7. STIM LED: indicates the stimulation output state – when illuminate the stimulation is on.
8. PWR LED: indicates power state
9. On/Off switch: Power on by shifting up or power off by shifting down

10. Adapter connection point
11. Lead wire and electrode pad connection point
12. Ultrasound Head / Applicator
13. Main body

6. INSTALLATION

6.1 Before Use

Remove the device and all accessories from box. Inspect the device for damages or missing parts and/or accessories. Report any damage or missing parts or accessories to your local dealer or retailer from which you purchased this device. The case contains the following accessories.

Part	Quantity
UsTENS CT1032	1 PC
Operating instruction	1 PC
Electrode 50 x 100mm	1PC
Lead wire	1 PC
Adapter 100-240V 50/60 Hz, 1.2A	1 PC
Ultrasound transmission gel (85g)	1 PC
Quick Start Guide	1 PC

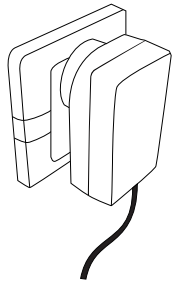
6.2 Connection

- Prior to connecting this device to the power supply, verify that the voltage and frequency stated on the rating label match the available power supply.
- The power adapter is a part of the supply circuit on which the device's safety depends on. The approvals for the CT1032 are only valid if used in combination with this type of adapter we provide.

⚠ **Caution**: It is not permitted to connect CT1032 to any other type of adapter other than adapter we provide.

⚠ **Caution:** Connection of accessories other than the ones specified by the manufacturer can adversely affect the safety of the patient and the proper function of the equipment; therefore, it is not permitted.

6.3 Connection of the power adapter



- Connect the power adapter to the device's power cord.
- Connect the power adapter to the wall outlet.

6.4 Therapy modes

CT1032 offers 2 treatment modes:

- Combination: Ultrasound + Electrical Stimulation therapy
- Ultrasound: Ultrasound therapy

6.5 Disconnect from power adapter

- Power off the unit by switching power on/off switch from "ON" to "OFF" position.
- Remove the power adapter from the wall outlet.

7. OPERATION

7.1 Measures with regards to treatments

Before treatment

- Ensure there are no contraindications to treatment.
  Clean the skin of the treatment area with soap or alcohol (70%).
- If the skin has excess hair, trim or shave hair for optimal treatment.
- Apply a liberal amount of ultrasound transmission/conductive gel to the treatment area. Use only the ultrasound gel with CE mark.
- Ultrasonic Action Function Test:
  Place the probe horizontally, then apply several water drops on the surface of the probe, turn the device on and press the time button to activate the ultrasound device. You will be able to observe the ultrasonic action as the water droplets will appear to be dancing on the sound head and you may notice a slight "steam" being released. The water droplets on the probe start to perform one million vibrations per second showing the atomization phenomenon.

During treatment

- Move the ultrasound-head in a circular motion. The area treated should be two times the diameter of the applicator.

➢ If experiencing poor transmission of ultrasound energy, it is advised to add more gel or reposition the ultrasound-head.

⚠ **Caution**

The ultrasound-head should be moved in a slow, flat, circular motion over the skin surface of the treatment area. Apply the sound head evenly (in time) over the treatment area - not too slow to avoid inducing heat; not too fast to prevent bad contact which would reduce the effectiveness of the treatment.

After treatment

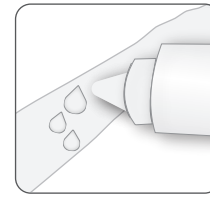
➢ Clean the contact surface immediately after each treatment. Make sure that no ultrasound gel remains on the treatment head. We recommend cleaning the head and cable daily, using lukewarm water – do not immerse the device in water.

➢ The treatment heads can be disinfected using a cloth moistened with 70% alcohol.

➢ Check if there are any signs of improvement (e.g. pain, circulation or mobility).

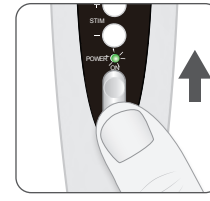
7.2 Operating the device

7.2.1 Ultrasound therapy



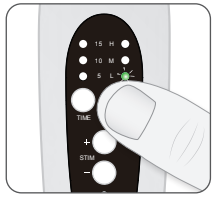
1. Apply Transmission Gel
   Apply a layer of ultrasound transmission gel on the treatment area. The gel acts as a coupling substance and ensures effectiveness. The area treated should be two times the diameter of the treatment head.

⚠ **Caution:** Never apply the gel to the applicator. The applicator will register this as contact and may emit ultrasound energy, which could damage the applicator.

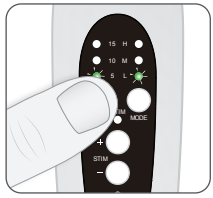


2. Switch on the device
   Connect the power adapter according to section 6.3. Switch on the device, using power on/off switch by switching from “OFF” to “ON” position. The LED of power will be light.

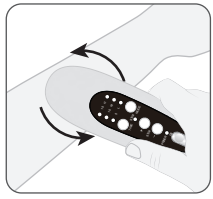
3. Adjusting intensity
Press the “MODE” button to select the ultrasound intensity. The intensity has three levels, Low (L), Medium (M) and High (H), each level corresponds to a light indicator.



4. Adjusting treatment time
Press the "TIME" button to cycle through the treatment time (5, 10 and 15 minutes), as shown by the “TIME” indicators. When the time is chosen, the system will start working. During working time, the user can press the "TIME" button to adjust the treatment time.



5. Start treatment
Move the treatment head in a flat, slow, circular motion over the skin surface treatment area that is covered with a layer of ultrasound transmission gel. Apply the sound head evenly (in time) over the treatment area.



Caution:

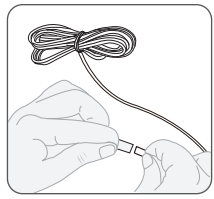
- The device has a load detection system for safety. When the treatment head does not have good contact with the skin, the device will stop treatment automatically. During this time, the TIME LED will flash slowly (1Hz). The device will not restore treatment until the contact is good.
- The device has a temperature protection function. When the temperature of the treatment head exceeds 107 ℉ (42 ℃) the treatment will automatically stop and the TIME LED will flash quickly (2Hz). The device will not restore treatment until the temperature is below 104 ℉ (40 ℃).

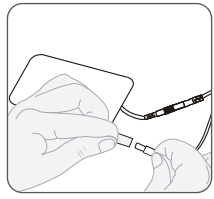
6. Turn off the device
After the time duration has been completed, the device will automatically revert back to standby state. Once your therapy session has been completed, turn off the product by sliding the Power switch downwards from “ON” to the “OFF” position.

7.2.2 Combination therapy

1. Connect the lead wire and electrode pad to the unit as shown by the pictures at the right.

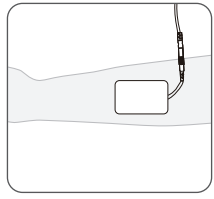
   - Plug the lead wire into the connection point attached to the device,
   - Connect the electrode pad with the lead wire.
   - Make sure all connections are securely in place.



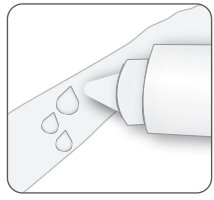


⚠ **Caution:** The device must be turned off before connecting the lead wires to the device.

2. Place electrode firmly on the skin after cleaning and drying the treatment area.
   - Place the electrode pad on the area of the body indicated by your physician or therapist.
   - Make sure the electrode pad is placed firmly to the skin and has made good contact between the skin and the pad.

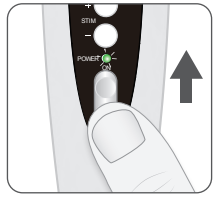


3. Apply Transmission Gel
   Apply a layer of ultrasound transmission gel on the treatment area. The gel acts as a coupling substance and ensures treatment effectiveness. The area treated should be two times the diameter of the treatment head.

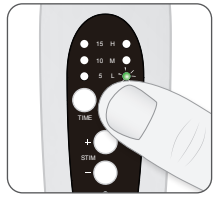


⚠ **Caution:** Never apply the gel to the applicator. The applicator will register this as contact and may emit ultrasound energy, which could damage the applicator.

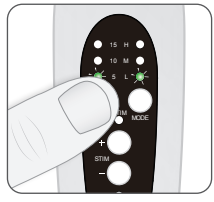
4. Switch on the device
   Connect the power adapter according to section 6.3. Switch on the device, using power on/off switch by switching from "OFF" to "ON" position. The LED of power will be light.



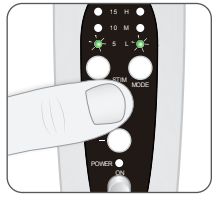
5. Adjust ultrasound intensity
   Press "MODE" button to select ultrasound intensity within low, middle and high. The LED will be lighted to indicate the intensity which you selected.



6. Adjust treatment time
   Press the "TIME" button to cycle through the treatment time (5, 10 and 15 minutes), as shown by the "TIME" indicators. When the time is chosen, the system will start working. During working time, the user can press the "TIME" button to adjust the treatment time.



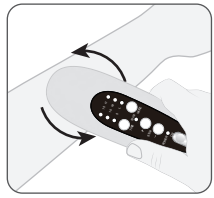
7. Adjust stimulation intensity
   Press the "**+**" button to increase the intensity of the stimulation. Press the "-" button to decrease the intensity of the stimulation. The STIM LED will flash every time the "+" or "-" button is pressed.
   Remark: There are two colors of Stim LED for indicate the output intensity of stimulation.
   Green light: Output intensity $<$10V;
   Orange light: Output intenstiy $\geqslant$10V.



⚠ **Caution:**

a) The electrical stimulation cannot work without the ultrasound output. So users can only adjust the stimulation intensity after the ultrasound works properly.
b) If the stimulation level is uncomfortable or becomes uncomfortable, reduce the stimulation intensity to a comfortable level and contact your medical practitioner if problems persist.
c) Move the ultrasound treatment head while you are adjusting the stimulation intensity to prevent the local skin temperature from becoming too high or burning.
d) Each step of increase output intensity is 1V when the output intensity less than 5V; 0.5V/step when the output intensity over 5V.
e) In the particular standard for Electrical Nerve and Muscle Stimulators, IEC 60601-2-10,it is recommended not to exceed a current density of 2 mA r.m.s./cm^2,otherwise skin irritations or burns can occur. For current types that contain a DC component we recommend not to exceed a current density of 0.2 mA/cm^2.

8. Start treatment
   Move the treatment head in a flat, slow, circular motion over the skin surface treatment area that is covered with a layer of ultrasound transmission gel. Apply the sound head evenly (in time) over the treatment area.



⚠ **Caution:**

- The device has a load detection system for safety. If the electrode pad or the ultrasound treatment head do not have good contact with the skin, the STIM LED and TIME LED will flash and stop treatment after the output intensity of stimulation surpasses 5V. The intensity will automatically but slowly increase to setting level after the pad and treatment head have made good contact with the skin.
- The device has a temperature protection function. When the temperature of the treatment head exceeds 107℉(42℃) the treatment will automatically stop and the TIME LED will flash quickly (2Hz). The device will not restore treatment until the temperature is below 104℉ (40℃).
- The device works without vibration. You must move the applicator with a slow but deliberate speed, flat against the treatment area and in a circular motion around the treatment area. After finishing the treatment, the device will enter the waiting state. It is not recommended that the user restart treatment upon completion of therapy.

9. Turn off the device
   After the time duration has been completed, the device will automatically revert back to standby state. Once your therapy session has been completed, turn off the product by sliding the Power switch downwards from “ON” to the “OFF” position.

7.3 The applicator

The applicator is a precision instrument. Great care is taken in the development and production in order to obtain the best possible beam characteristics. Rough treatment (jarring or dropping) can adversely affect these characteristics, and must therefore be avoided.

8. MAINTENANCE

8.1 Cleaning of the device

Switch off the device and disconnect it from the power supply. The device can be cleaned with a damp cloth. Use lukewarm water and a non-abrasive liquid household cleaner (no abrasive, no alcohol content solution). If a more sterile cleaning is needed, use a cloth moistened with an antimicrobial cleaner.

⚠ **Caution:** Do not submerse the device in liquids. Should the unit accidentally become submersed, contact the dealer or Authorized Service center immediately. Do not attempt to use the device that has been submersed in any liquid substrate until inspected and tested by a Service Technician Certified by an Authorized Service center. Do not allow liquids to enter the ventilation holes.

8.2 Cleaning of the applicator

The applicator should be regularly inspected for damage, e.g. hairline cracks, which could allow the penetration of liquids. Clean the contact surface immediately after each treatment. Make sure that no ultrasound gel remains on the applicator. We further recommend cleaning the head and cable daily, using lukewarm water. The applicator can be disinfected using a cloth moistened with 70% alcohol.

8.3 Cleaning the lead wire and adapter

Periodically wipe the lead wire and adapter clean with a cloth dampened with a mild soap solution, and then gently wipe them dry. Use of rubbing alcohol on the lead wire will damage the insulation and dramatically shorten their life.

8.4 Cleaning the electrode pad

1. Switch the power off and remove the pad from the skin and the lead wire.
2. Wash the pad when the adhesive surface becomes dirty and/or the pad is difficult to attach to the skin.
   - Wash the pad softly with your fingertips under slow running cold water for several seconds (do not use a sponge/cloth/sharp object like a nail on adhesive side, do not use detergents, chemicals or soap).
3. Dry the pads and let the adhesive surface air-dry completely (do not wipe with a tissue paper or cloth).
4. Replace the pad on the clear plastic film and store in plastic bag.

⚠ **CAUTION:**

1. The life of the electrode pad may vary by the frequency of washing, skin condition, and storage state.
2. If the electrode pad no longer sticks to your skin or the electrode pad is broken, you should replace with a new electrode pad.
3. Before applying the electrode pad, it is recommended to wash and degrease the skin, and then completely dry the area.
4. Do not turn on the device when the electrode pad is not positioned on the body.
5. Never remove the electrode pad from the skin while the device is still powered on.
6. If replacement electrode is necessary, use only electrode pads that are 2 inch x 4 inch (50*100mm), the same as the electrode pad provided with the CT1032 device.
7. Use of electrode pads larger than provided may reduce the effect of the stimulation. Use of an electrode pad that is much smaller than the electrode pad provided with CT1032 device may increase the chance of skin irritation or electrode burns occurring under the electrode pad.
8. Always use electrode pads that CE marked.

9. TROUBLESHOOTING

NOTE: If the following measures fail to alleviate the problem, please call your authorized agency or supplier.

Problem	Possible causes	Possible solution
LED fails to light up	Adapter contact failure	Ensure adapter is connected. Check the following contacts: • All contacts are in place. • All contacts are not broken.
Electrical stimulation weak or cannot feel any stimulation	Electrode pad dried out or Is contaminated	Replace with new electrode pad
	Electrode pad does not stick to skin well	Reconnect the electrode pad
	Lead wire Old/worn/ damaged	Replace new lead wire
	Electrical stimulation intensity is low	Increase the output intensity
	Intensity is too high	Decrease intensity

Stimulation is uncomfortable	Electrode active area size is too small.	Use only electrode pads that are 2 inch x 4 inch (50x100mm)
	Damaged or worn electrode or lead wire	Replace with new electrode pad or lead wire
	May not be operating the device according to the manual	Please check the manual before use
Stimulation stops	Poor electrode contact	Reapply electrodes, secure firmly
	Damaged or worn electrode or lead wire	Replace with new electrode pad or lead wire
	No contact medium	Use with appropriate ultrasound gel
Stimulation is ineffective	Improper electrode and applicator placement	Reposition electrode and applicator
	Unknown	Contact clinician

10. SPECIFICATIONS AND TECHNICAL DATA

10.1 Technical data of Ultrasound

Frequency:	1MHz ± 10%
Ultrasound power control (MODE):	3 intensity levels(L、M、H)
Output power:	3W(L)、4W(M)、5W(H)
Pulse repetition rate:	100Hz ± 10%
Pulse width:	10ms
Pulse duration:	3ms-5ms
R_{tpa}:	2-3.3
Duty factor:	30%, 40%, 50%
Effective radiating area (A_{ER}):	4.0cm^2
Intensity:	1.25w/cm^2(duty cycle at 50%)
R_{BN} (Max.):	5.0
Beam type:	Collimated
Waveform:	Pulsed
Treatment time:	5min, 10min, 15min
Material of treatment head:	Aluminum

10.2 Technical data of Electrical Stimulation

Treatment time:	5min, 10min, 15min
Carrier Frequency (C.F.):	2.5kHz
Beat Frequency:	1-120Hz
Output voltage:	0~15V (500 Ω Load)
Stim power control:	25 intensity levels

10.3 Technical data of CT1032 main device

Service of life:	2 years
Safety class:	Class II, BF-type
Dimension:	209mm(L)x53mm(W)x89mm(H)
Weigh:	235g

10.4 Technical data of power supply

Supply voltage:	AC 100-240V
Frequency:	50/60Hz
Supply current:	0.5A
Output voltage:	DC 15V
Output current:	1.2A
Dimensions:	64mm(L)x50mm(W)x26.5mm(H)
Weight:	120g

10.5 Environmental conditions

Operating conditions:	Temperature:5～40℃ Relative humidity:30%～75% Atmospheric pressure: 700～1060hPa
Storage and transportation conditions:	Temperature:-20～55℃ Relative humidity:10%～93% Atmospheric pressure:700～1060hPa

11. STORAGE

For a prolonged pause in treatment, place the unit with the adapter, lead wire, electrode pad and manual back in the case. Store it in a dry room and protect it against heat, sunshine and moisture. Store the machine in a cool, well-ventilated place according to the storage condition on page 21. Never place any heavy objects on the machine.

12. DISPOSAL

Fully discharged batteries must be disposed of in a specially labeled collection container, at toxic waste collection points or through an electrical retailer. You are under legal obligation to dispose of batteries correctly.

Please dispose of the device in accordance with the legal obligation in your area.

13. IMPORTANT INFORMATION REGARDING ELECTROMAGNETIC COMPATIBILITY (EMC)

1. The device needs special precautions regarding electromagnetic compatibility (EMC) and needs to be installed and put into service according to the EMC information supplied in this manual.
2. Care must be taken when operating this device adjacent to or stacked with other equipment. Potential electromagnetic or other interference could occur to this or other equipment. Try to minimize this interference by not using other equipment in conjunction with it.
3. The performance of the device was determined to be essential performance. This device has been thoroughly tested according to tested and inspected to assure proper performance and operation!

Table 1

Guidance and manufacturer's declaration - electromagnetic emissions		
The CT1032 device is intended for use in the electromagnetic environment specified below.The customer or the user of the CT1032 should assures that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment - guidance**
RF emissions CISPR 11	Group 1	The CT1032 device uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR11	Class B	The CT1032 device is suitable for use in all establishments including domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations / flicker emissions IEC 61000-3-3	Complies	

Table 2

Guidance and manufacturer's declaration — electromagnetic immunity			
The CT1032 device is intended for use in the electromagnetic environment specified below.The customer or the user of the CT1032 should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	±8 kV contact ±15 kV air	±8 kV contact ±15 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/ output lines	± 2 kV for power supply lines ± 1 kV for input/ output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line(s) to lines ± 2 kV line(s) to earth	± 1 kV line(s) to lines ± 2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.

Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% U_T (> 95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 seconds	<5% U_T (> 95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (> 95% dip in U_T) for 5 seconds	Mains power quality should be that of a typical commercial or hospital environment. If the user of the device requires continued operation during power mains interruptions, it is needed that the device be powered from an uninterruptible power supply.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE: U_T is the a.c. mains voltage prior to application of the test level.			

Table 3

Guidance and- manufacturer's declaration. Electromagnetic immunity			
The CT1032 device is intended for use in. the electromagnetic environment specified below.The customer or the user of the CT1032 should assure that it is used in such an environment.			
Immunity test	**IEC 60501 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	Portable and mobile RF communications equipment should be used no closer to any part of the CT1032 device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** $d=1.2\sqrt{P}$ $d=1.2\sqrt{P}$, 80MHz to 800MHz $d=2.3\sqrt{P}$, 800MHz to 2.7GHz where P is the maximum output power rating of the transmitter In watts (W) according to the. transmitter manufacturer and d Is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, [a] should be less than the compliance level in each frequency range. [b] Interference may occur In the vicinity of equipment marked with the following symbol: 
Radiated RF IEC 61000-4-3	10 V/m 80 MHz to 2.7 GHz	10 V/m	

NOTE 1 At 80 MHz ends 800 MHz. the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the CT1032 device is used exceeds the applicable RF compliance level above, should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the CT1032.

b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Table 4

Recommended separation distances between portable and mobile RF communications equipment and the CT1032 device

The CT1032 device is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the CT1032 device can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the CT1032 as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	**Separation distance according to frequency of transmitter m**		
	150 kHz to 80 MHz $d=1.2\sqrt{P}$	**80 MHz to 800 MHz** $d=1.2\sqrt{P}$	**800 MHz to 2.7 GHz** $d=2.3\sqrt{P}$
0,01	0.12	0.12	0.23
0,1	0.37	0.37	0.74
1	1.17	1.17	2.33
10	3.69	3.69	7.38
100	11.67	11.67	23.33

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1 At 80 MHz and 800 MHz. the separation distance for the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

14. WARRANTY

Please contact your dealer or the device center in case of a claim under the warranty. If you have to send in the unit, enclose a copy of your receipt and state what the defect is.

The following warranty terms apply:

1. The warranty period for CT1032 products is one years from date of purchase. In case of a warranty claim, the date of purchase has to be proven by means of the sales receipt or invoice.
2. Defects in material or workmanship will be removed free of change within the warranty period.
3. Repairs completed under warranty do not extend the warranty period either for the unit or for the replacement parts.
4. The following is excluded from the warranty:
   - All damage which has arisen due to improper treatment, e.g. non-observance of the user instruction.
   - All damage which is due to repairing or tampering by customer or unauthorized third parties.
   - Damage which has arisen during transportation from the manufacturer to the consumer or to the service center.

15. DESCRIPTION OF SYMBOLS

CE 0197 — Complies with the European Medical Device Directive (93/42/EEC) and amended by directive 2007/47/EC requirements. Notified body TÜV Rheinland (CE0197)

IPX7 — Only for Ultrasonic head: Protected against the effects of temporary immersion in water

 Keep dry

 Class II symbol

Symbol for protection against electric shock: Type BF

Please refer to instruction manual because of the higher levels of output.

Disposal in accordance with Directive 2012/19/EU (WEEE)

Date of manufacture

Manufacture date and series number

The name and the address of the manufacturer

The name and the address of the Authorized EC-representative in Europe

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