

# UT AUTOMATIC



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## IMPORTANTE / IMPORTANT

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E' molto importante che questo manuale d'istruzioni sia conservato insieme all'apparecchiatura per qualsiasi futura consultazione. Se l'apparecchiatura dovesse essere venduta o trasferita ad un altro utente, assicurarsi che il manuale sia fornito assieme, in modo che il nuovo utente possa essere messo al corrente del funzionamento dell'apparecchiatura e delle avvertenze relative.

Nessuna parte di questo documento può essere fotocopiata, riprodotta o tradotta in un'altra lingua senza il consenso scritto.

In caso di necessità di Assistenza Tecnica, contattare il proprio rivenditore.

*It is very important that this manual of instructions is preserved for any future consultation. Be certain that this manual is supplied together to the apparatus when it is sold or it is transferred to an other consumer, so that the new consumer can be informed about the functioning of the apparatus and about the operative instructions.*

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*In case of necessity of technical assistance contact your own retailer.*

Produttore / Manufacturer

**LED SpA**

PROGETTAZIONI E PRODUZIONI ELETTRONICHE

Via Selciatella, 40 04010 APRILIA (LT) ITALIA



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## WARNINGS

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It is very important that this manual of instructions is preserved for any future consultation. Be certain that this manual is supplied together to the apparatus when it is sold or it is transferred to an other consumer, so that the new consumer can be informed about the functioning of the apparatus and about the operative instructions.

**THESE INSTRUCTIONS HAD BEEN COMPILED FOR YOUR SAFETY AND FOR THE SAFETY OF OTHER PEOPLE, WE ASK YOU, THEREFORE, TO PLEASE READ CAREFULLY THEM BEFORE THE INSTALLATION AND USE OF THE APPARATUS.**

- After have removed the packing, make sure of the integrity of the apparatus and the accessories, and in case of doubt don't use the apparatus and address to professionally qualified personal.
- The electric safety of this apparatus is insured only when the same is correctly connected to an efficient net for the connection to the earth in conformity with the actual safety requirements. It is necessary to verify this fundamental safety requisite and, in case of doubt, to require an accurate control of the plant from part of qualified personnel. The manufacturer cannot be considered responsible for possible damages caused from the lack of efficient connection to earth of the installation.
- Before connect the apparatus ascertain that the required power supply (written on the back panel) corresponds to the power supply available from electric socket.
- In case of incompatibility between the available socket and the power cord of the apparatus, replace it with an other of proper type. The use of adapters, multiple connections or cable extensions is not advised. Should their use become necessary it is mandatory to use simple or multiple adapters conforming to the actual safety norms only.
- The use of any electric apparatus involves the observance of some fundamental rules. Particularly:
  - don't touch the apparatus with wet or damp feet or hands.
  - don't use the apparatus with naked feet
- Doesn't let exposed the apparatus to atmospheric agents (rain, sun, and so on).
- Don't leave the apparatus uselessly inserted. Switch-off the main switch when the apparatus is not in use.
- This apparatus has to be destined exclusively to the use for which it was expressly designed. Each other use is to be consider improper and dangerous. The manufacturer can not be considered responsible for possible damages due to improper, wrong and unreasonable use.
- It is dangerous to modify or try to modify the characteristics of this apparatus.
- Before effect any operation of cleaning or maintenance, disconnect the apparatus from the electric net, either disconnect it from the main power or switch-off the main switch of the plant.
- In case of breakdown and / or bad operation of the apparatus, switch-off it. For the possible repair address only to an authorized center of assistance and ask for the use of original spare parts. The lack to follow the above requirements could risk the safety of the apparatus and of the user.

- The ultrasound unit emits H.F. electromagnetic radiations without warning that could influence other medical equipments, not related electronics, telecommunications, systems of navigation, etc.
- Handle with care the transducer, a coarse manipulation can influence its characteristics negatively.
- Before every use, verify the state of the equipment and the accessories in order to discover any condition of electric danger.
- Don't effect treatments to unconscious patient or with troubles of the thermic sensitivity.
- The use of this apparatus is not recommended in patients:
  - carriers of pace-maker or of other electronic installed device, or in proximity of such carrier patient.
  - with serious unbalances of the arterial pressure
  - with serious illness of the nervous system
  - with serious renal insufficiencies
  - in state of pregnancy

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## INTRODUCTION

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### ***DESTINATION OF USE***

The use of the ultrasound unit UT AUTOMATIC is reserved to specialized medical personnel. The equipment has temporary use, and is intended for phisio therapeutic treatment through transducers generating ultrasound waves.

### ***GENERAL INFORMATION***

Ultrasounds are different from other physical used means in the medical field for the mechanisms of action consisting mainly in:

diathermic effect

effect of cellular pulsation

The ultrasound irradiation determines a massage substantially of notable intensity, that through the oscillations penetrate until the depth of the tissues. This massage, apart from the rapidity of the movement is much more intense than a manual or massage made with mechanic equipment, because has different concentrations of strengths, and because due to the frequency, the phenomenons of pressure and of traction with consequent phenomenons of contractions and expansions happens in the inner structure of the tissues and are separate from brief intervals, while it in the ordinary massage is the tissue mass that is moved.

Being the ultrasound consisting of mechanical energy, it requires a conducting material, different from the air, to be transmitted; the water and the liquids are ideal transmitters of ultrasound, and that explains and justifies the possibility of ultrasound penetration the human body.

In the treatments that are not made into the water, it is normal to interpose a certain amount of an ultrasound transmitter denominated GEL between the radiating head and the body's surface. In subordinate line, the ultrasound irradiation gives birth to a local diathermy, since part of the employed energy, passing through the tissues, changes in heat for physical law. The generation of a local diathermy in the ultrasound treatment is not however immediate. The appearance of the thermal phenomenon and his perception from part of the patient engages due to this particular of not immediateness, a big importance in the respects of the "dose" concept during the treatment, that, as will see later, it is done by means of a circular massage on delimited parts. The previously said phenomenon, at the correct dose, it will owe be revealed like a light pleasant feeling of heat after few minutes of treatment. This constitutes a sure index of having administered in that zone a sufficient dose of energy. The lack or the excessive delay of symptom of the phenomenon, it denotes an insufficiency of dose or wrong positioning (for instance, on healthy tissues rather than on sick tissues). The immediate appearance or the sense of excessive and troublesome heat points out the excess of dose, and the pain in this case must be interpreted like synonymous of excessive heat. Also possible it is a diagnostic error in the evaluation of the state of acuteness of the pathologic phenomenon, in the sense that the same is very more acute of the expectation.

UT AUTOMATIC unit can drive transducers with working frequencies from 1 up to 3MHz.

The ultrasound generator UT AUTOMATIC is designed and realized conforming to the IEC 601.1 and IEC 601.2.5 safety requirements.

A programmable timer allows to pre-set the time of treatment and the automatic stop of the treatment when the pre-set time expires.

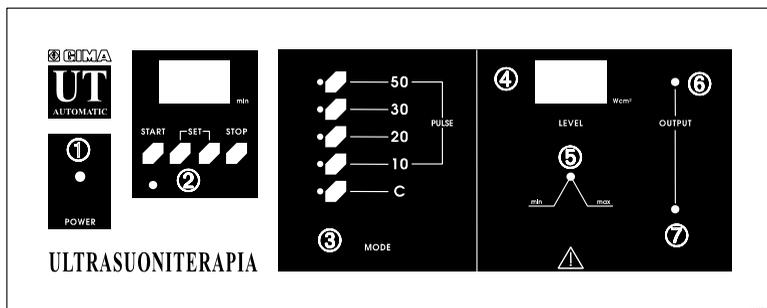
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## CONTRAINDICATIONS AND COLLATERAL EFFECTS

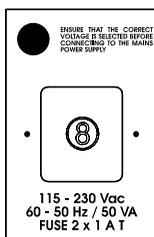
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- Every treatment must be made under the control of a physician.
  - The use of the ultrasound irradiation is not recommended in patients:
    - carriers of pace-maker or of other electronic installed device, or in proximity of such carrier patient.
    - with cardiac illness.
    - with serious unbalances of the arterial pressure.
    - with serious illness of the nervous system.
    - with serious renal insufficiencies.
    - in state of pregnancy.
    - hemorrhagic.
    - epileptic.
    - carriers of metallic prosthesis.
    - with troubles of the thermic sensibility.
    - markedly asthenic.
- It is besides contraindicated its application:
- in the tumoral focuses.
  - on noble organs, like heart, vessels, gonads.
  - on neoplastic lesions.
  - in progress of contagious infectious illnesses (TBC).
  - in infanto-juvenile age.
  - in case of delays of consolidation or pseudorathrosis.
  - on the anterolateral intercostal zone, on the abdomen and on the segments with means of endotissual synthesis.
  - on the testicles.
  - on the eyes.
  - on the cartilages of growth.
  - in the thromboses and thromboflebitis.
  - on the abdomen, in all the cases of calculous or inflammation.
- There is danger of burns due to too high energy level or to the treatments in the continuous mode with static treatment head.

# FRONTAL AND BACK PANEL VIEW



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- 1 - POWER Main Switch
- 2 - TIME Section
- 3 - MODE Section
- 4 - Output power digital display
- 5 - Output power LEVEL control knob

- 6 - Output warning light
- 7 - OUTPUT connector
- 8 - Main Power socket
- 9 - Voltage selector rotary drum

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## FUNCTIONS

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When UT AUTOMATIC is switched on the preset time is 00 minutes, the treatment time **until to a maximum of 30** can be decreased by pushing the down arrowed push-button or increased by pushing the up arrowed push-button, when the right time is selected press the START push-button to start the treatment, the underlying green light will illuminate.

To stop the treatment before the preset time expires, press the Stop push-button.

The time to stop decreases during the treatment until it reach zero and the treatment is automatically stopped.

The previously pre-set time is restored for a new treatment. If the treatment time 00 is pre-set no automatic stop occur.

The output current can be selected by the section MODE: can be selected continuous emission (C) or pulsed emission with duty-cycle 10%, 20%, 30%, 50% (10, 20, 30, 50).

The output power control is made by the knob located under the LEVEL displays, those show the output maximum power (W x cm<sup>2</sup>). The total delivered power is depending by the kind of transducer connected to the electronic unit.

The yellow light above the Output signals the output activation.

**TECHNICAL CHARACTERISTICS**

Main power:	115 - 230 +/- 10 % V~ - 50 - 60 Hz
Maximum in power:	50 W
Fuses	2 x 1AT (5x20)
Ultrasound frequency:	1.0 ⇒ 3.0 MHz
Modulation deep:	100%
Modulation waveform	Pulse (squared)
Modulation Frequency:	2 pps
Output power	0.0 – 3.0 W x cm <sup>2</sup>
Protection	IP21

**ENVIRONMENTAL CHARACTERISTICS OF THE OPERATION**

Environment Temperature:	10 - 40°C
Relative Moisture:	30 - 75%
Atmospheric Pressure:	70 - 106 kPa (10 – 15 PSI)

**SIZE**

Height:	150 mm	Width:	360 mm
Depth	250 mm	Weight:	6 kg

**STANDARD ACCESSORIES**

1 REF GMA60200.30	UT AUTOMATIC Unit
1 REF 00100.03	Unit mains cable 2 mt SIEMENS-IEC

**CHARACTERISTICS OF THE AVAILABLE OPTIONAL TRANSDUCERS**

REF	Description	Protection Class	Radiant Surface cm <sup>2</sup>	Max power ±20%	Shape
60200.40	Ultrasound handle 1MHz φ 60mm	IP67	12.56 (φ 40mm)	37.7W (3Wcm <sup>2</sup> )	
60200.45	Ultrasound handle 1MHz SLIM EFFECT φ 15mm	IP67	1.76	5.28W (3Wcm <sup>2</sup> )	
60200.50	Ultrasound handle 3MHz φ 60mm	IP67	12.56 (φ 40mm)	37.7W (3Wcm <sup>2</sup> )	
60200.52	Ultrasound handle 2MHz φ 60mm	IP67	12.56 (φ 40mm)	37.7W (3Wcm <sup>2</sup> )	
60200.55	Ultrasound handle 3MHz SLIM EFFECT φ 15mm	IP67	1.76	5.28W (3Wcm <sup>2</sup> )	
60200.70	Ultrasound handle 3MHz SF φ 30mm	IP67	7.065	21.2W (3Wcm <sup>2</sup> )	
60200.72	Ultrasound handle 2MHz SF φ 30mm	IP67	7.065	21.2W (3Wcm <sup>2</sup> )	
60200.80	Ultrasound handle 3MHz SLIM φ 60mm	IP67	28.26	43W (1.5Wcm <sup>2</sup> )	
60200.90	Double Ultrasound handle 3MHz 70x130	IP67	91	27.3W(0.3Wcm <sup>2</sup> )	

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# INSTALLATION

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- Unpack the unit and the accessories and verify that these have not suffered damages due to the transport. In the case there is the presence of damages, do not use the unit or the accessories and let verify them from qualified personnel.
- Verify that the available mains voltage conforms the voltage selected on the unit (please refer to the voltage selector on back panel of the unit). Should be necessary to change the mains voltage, please proceed as follows:
  - Rotate the voltage selector, to conform the available voltage.
- Connect the supplied mains cable to a wall socket provided with good earth connection.

## **OPERATE THE UNIT WITHOUT EARTH CONNECTION IS FORBIDDEN.**

- Set the mains switch in the O (out) position. Insert the supplied mains cable in the wall socket.
- Insert and to tighten the transducer in the OUTPUT connector provided at the right side of the anterior panel.
- Turn on the unit, by setting the mains Switch on the I position. When switched on the unit is pre-set as follows:
  - Pre-set time: 00 minutes
  - Mode selection: C.
- Pre-set the treatment time by pressing the proper pushbutton in the TIMER section. **The maximum pre-set time is 30.**
- Pre-set the duty -cycle of the output power, 10 (10%), 20 (20%), 30 (30%), 50 (50%). Choose the C continuous mode or a high duty cycle (30% - 50%) to obtain a high thermal effect and a low level (10-20%) to obtain greater mechanical effect.
- Sprinkle the zone to treat with an abundant layer of conductive gel specific for ultrasounds.
- Press the key START in the timer section to start the treatment: the led under the key will light on.
- With the knob LEVEL the intensity is regulated and the value of the delivered power can be known by a digital display which give the value of the power density per square centimeter. Slowly increase the output level until the patient warns a light sense of heat without however to feel any bother. Move the head of treatment in circular way or "in go come" way slowly and with continuity.
- Press the key Stop to finish the treatment before the pre-set times expire.

**IMPORTANT:** To avoid the danger of the formation of static waves it is necessary to move the ultrasound transducer slowly. In case of treatment with not moving transducer it is advisable to either choose a low duty-cycle (10/20%) or a low power level.

**IMPORTANT:** To avoid the transducer damage does not activate the output power when the handpiece can't dissipate the produced energy.

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## APPLICATIONS

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After have chosen the zone, sprinkle the surface with a rather abundant layer of substance of contact GEL. The energy's distribution is achieved through the direct massage, by moving the emitting handpiece on the zone in order to distribute the dose of energy with uniformity.

With the handpiece clinging well in all his points, avoid the permanence of little bubbles of air that would reflect some of the waves with cutaneous overheating in those small points. The massage is performed slowly beginning from one extremity of the zone with the intention of going toward the other extremity after to have touched all the points. For doing this, the best technique is to describe with the emitting handpiece a rotation on the piano, through concentric circles almost superimposed the one to the other, interesting each time a very narrow zone. One is so certain of saturating the zone of energy, abandons it then for going on to a surrounding zone.

This method has denominated micromassage and is performed slowly, at the speed of one rotation a second for a circle of little ampler than the diameter of the handpiece. The pressure owes be homogeneous and not exaggerated.

After few minutes of circular movement, the patient warns, if the dose is correct, a light feeling of heat in the treated zone, this represents the certainty to have practised the correct relationship intensity-time, that is an indicative factor of big importance, in that zone.

The time that elapses to have the thermal feeling it is, of course, varying and it depends on the power, on the speed of the massage, on the anatomical local conditions, on the illness and from the diversified neurovegetative reflexes of the patient.

The feeling of immediate pain, has to be avoided, being index, that the vibrations going from a less dense means to a denser one (bone), they have phenomenons of excessive refraction, that determine an irradiation of the periosteous.

It is worthwhile in these cases, to reduce considerably the power.

Big importance is devoted to the determination of the dose, in case of treatment with fixed head, the dosing must be reduced to about one tenth, so that avoid the painful feeling of the which we said in precedence. This phenomenon can but have eliminated using the impulsive treatment which allow to apply the same peak power without a excessive heating of the part under treatment.

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# MAINTENANCE

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## *PREVENTIVE MAINTENANCE*

### **BEFORE PERFORMING ANY OPERATION OF MAINTENANCE, DISCONNECT ALL THE ELECTRIC CONNECTIONS.**

The preventive maintenance consists mainly:

- in the control before every use of the state of the unit and the accessories to the purpose of the examining the integrity of all the cables, the isolations, the wraps, etc. projected to avoid the access to parts with voltage applied.
- in the periodic cleaning of the unit to be made regularly in order to maintain the unit in the best conditions of functionality and appearance.
- in the periodic cleaning of the accessories.

## *CLEANING OF THE CABINET AND OF THE FRONTAL AND BACK PANELS*

Clean the outside of the cabinet and the frontal and back panels with a damp cloth: it is recommended to don't use abrasive products or solvents.

It is not particularly advised the use of ethylic alcohol or detergents that contain this substance for the cleaning of the frontal and back panels.

## *CLEANING OF THE HANDPIECES*

Clean the handpiece with soft detergents. Remove completely all the residuals of GEL from it.

**NOTE:** Periodically (at least once a year), the unit should have submitted to control from personal qualified for the verification of the following safety electric parameters:

- leakage currents.
- resistance between the clamp of earth and every electroconductive accessible part for the connection to the protective earth has foreseen.

## *CORRECTIVE MAINTENANCE*

If a malfunction is found, it is suggested of to check first of all the control setting to discover eventual errors.

In the case unit has submitted to external mechanical solicitations, for instance after a serious fall, or if the unit has been submitted to dripping of liquid, or if the unit has been submitted to strong overheating (for instance direct light of the sun, fire), or if the functionality's of the unit seem you changed or if some wrap of the unit or of the transducer is broken, out of location or lacking, or if some connector or cable show signs of deterioration, the unit and the relative accessories should have checked from professionally qualified personnel.

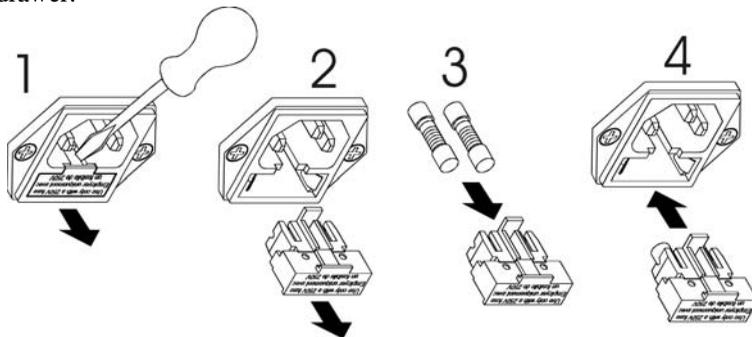
### *SUBSTITUTION OF THE FUSES*

In the case it is necessary to replace the fuses, after having disconnected the cable from mains, proceed as follows:

1 - 2 with the help of a small screwdriver, draw out the drawer located under the mains inlet.

3 after having extracted the damaged fuses, insert two fuses size 5x20 - 1AT (delayed).

4 put in the drawer.



## TROUBLE SHOOTING

Following are some simple solutions to UT AUTOMATIC trouble.



### Problem



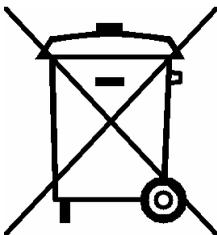
### Solution

The equipment does not function also if the main switch is switched on.	Please check for the lighting of the warning light inside the main switch.
The warning light into the main switch does not light.	Please check the correct connection of the power cord. To check if the apparatus is selected on the correct tension of feeding. Be certain of the availability of the main power.
To the light the apparatus doesn't seem to work correctly.	Switch off the unity, wait for about 45 seconds and try again.
The unity light but ultrasound are not emitted.	Check the warning light under the TIMER's START pushbutton: it should lit Check for the right handpiece's cable connection to the output connector. Check the output warning light: it should lit.

In the case the problem in your unity is not solved please refer to a trained service people.  
Do not open the unity since no serviceable parts by the operator are inside.

**IMPORTANT NOTICE:** When you return the unity for service, please return also all the supplied handpieces.

**Informazioni in base all'Art. 13 del D.Lgs. 151/05 del 25/07/2005  
"Attuazione delle Direttive 2002/95/CE e 2003/108/CE, relative  
alla riduzione di sostanze pericolose nelle apparecchiature  
elettriche ed elettroniche, nonché allo smaltimento dei rifiuti.**



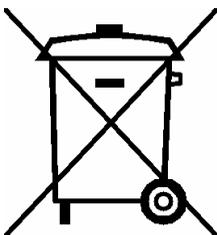
A fine vita il presente prodotto non deve essere smaltito come rifiuto urbano, lo stesso deve essere oggetto di una raccolta separata.

Se il rifiuto viene smaltito in modo non idoneo è possibile che alcune parti del prodotto (ad esempio eventuali accumulatori) possono avere effetti potenzialmente negativi per l'ambiente e sulla salute umana.

Il simbolo a lato (contenitore di spazzatura su ruote barrato) indica che il prodotto non deve essere gettato nei contenitori per i rifiuti urbani ma deve essere smaltito con una raccolta separata.

In caso di smaltimento abusivo di questo prodotto sono previste delle sanzioni.

**Information about elimination of this product  
(Applicable in the European Union and other European  
countries with separate collection systems)**



On the end of the life, the present product mustn't be eliminated as urban refusal, but it must be eliminated in a separated collection.

If the product is eliminated in unsuitable way, it is possible that some parts of the product (for example some accumulators) could be negative for the environment and for the human health.

The symbol on the side (barred dustbin on wheel) denotes that the products mustn't throw into urban refuses container but it must be eliminated with separate collection.

In case of abusive elimination of this product, could be foreseen sanctions.