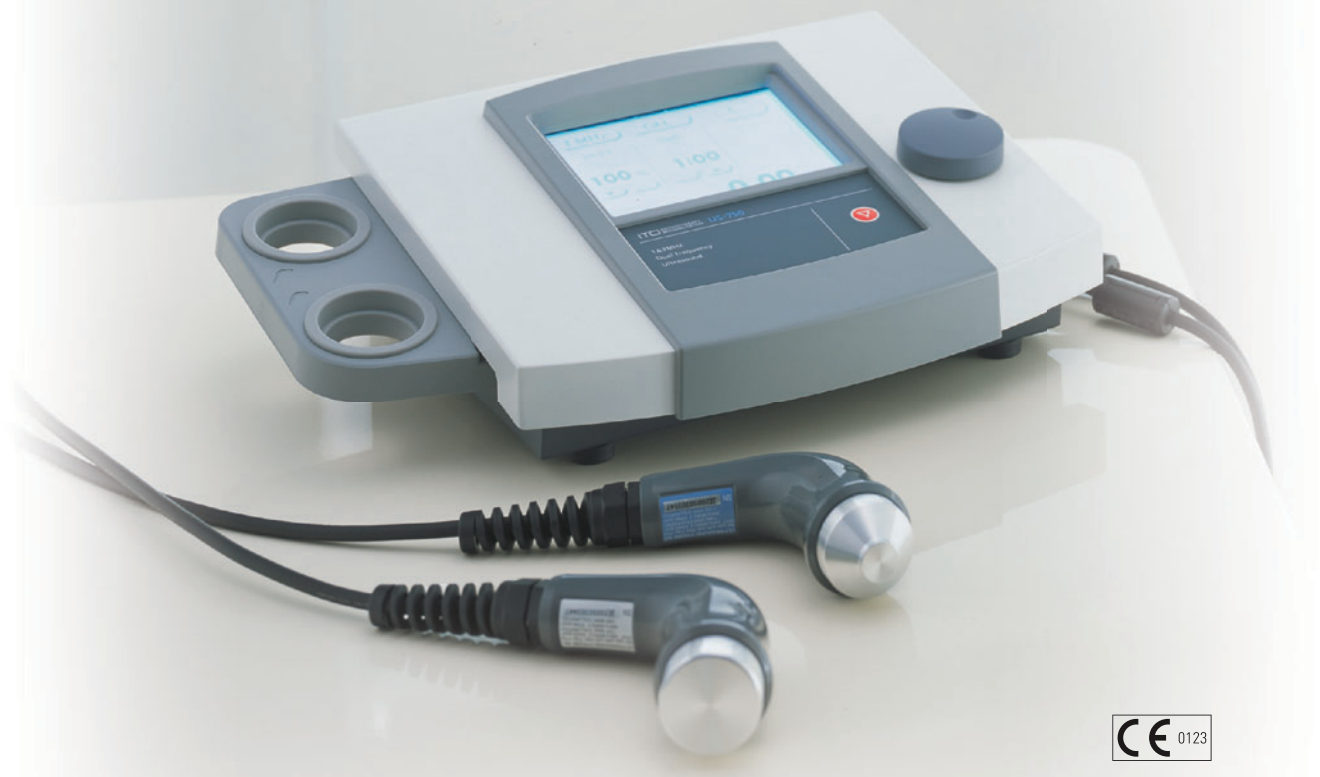
Multi-Frequency Ultrasound

US-750

OPERATION MANUAL



CE 0123

To ensure correct use, please read this manual carefully before operating the unit.
After reading, store the manual in a safe place for future reference.

ITO PHYSIOTHERAPY &REHABILITATION

INDEX

Symbols

· Symbol for "CAUTION"

· Symbol for "CONSULT INSTRUCTIONS FOR USE"

· Symbol for "SERIAL NUMBER"

· Symbol for "CATALOGUE NUMBER"

· Symbol for "AUTHORISED REPRESENTATIVE IN THE EUROPEAN COMMUNITY"

· Symbol for "MANUFACTURER"

· Symbol for "DATE OF MANUFACTURE"

· Symbol for "ULTRASOUND RADIATION WARNING SIGN" by Canadian ultrasound therapy devices standard.

· Symbol for "Waste Electrical and Electronic Equipment (WEEE), Directive"
*This symbol is valid only in European Union.

· Symbol for "TYPE BF APPLIED PART"

· Symbol for "NON-IONIZING ELECTROMAGNETIC RADIATION"

· These marks are to be used to indicate conformity to European Community harmonisation legislations.

· Symbol for "TEMPERATURE LIMIT"

· Symbol for "HUMIDITY LIMITATION"

· Symbol for "ATMOSPHERIC PRESSURE LIMITATION"

SAFETY PRECAUTIONS

Intended Use

Ultrasound has both thermal and nonthermal effects.
Benefits from using ultrasound units are to increase the extensibility of soft tissues, decrease pain especially one's related to soft tissue, facilitate healing of tendons after tendon rupture or injury.

Contraindications

1. Inflammation or impairment of the skin
2 .Locations with impaired sensory
3. Malignant tumor
4. Pregnancy
5. Thrombophlebitis
6. Eyes
7. Over reproductive organs
8. Hemorrhagic areas
9. Over sites of active infection
10. Areas of impaired circulation

For Correct and Safe Use

This unit should be used by a licensed medical practitioner.

- The operating manual is required for safe use of the unit. If you lend or transfer the unit to another party such as a facility, be sure to provide this manual with the unit.
- Carefully read the Safety Precautions before operating the unit. Follow the precautions given.
- To prevent injury to the operator or patient or property damage, the manual uses the following terms and symbols to represent varying levels of danger. Make sure you understand what these symbols mean before reading the manual.

⚠DANGER	Improper handling may result in a high risk of death or serious injury.
⚠WARNING	Improper handling may result in a risk of death or serious injury.
⚠CAUTION	Improper handling may result in injury or property damage.

△	Calls attention to Danger, Warning, or Caution items * This particular symbol means "Electric Shock Hazard."	(Sample Markings) 
⃠	Indicates an action to be avoided. * This particular symbol means: "Do Not Disassemble."	
●	Indicates a mandatory action. * This particular symbol means "Remove the plug from the power outlet."	

⚠DANGER

Do not use this unit with any other medical device or devices, including the ones listed below. Doing so may result in erratic operation of the unit or devices.

1) Pacemakers and other implanted medical devices
2) Pump-oxygenators and other life-support medical devices
3) Electrocardiographs and other wearable medical devices

⚠CAUTION

Do not use this unit with the following patients:

1) Hemophiliacs
2) Patients with acute (algesic) disease
3) Patients with cardiac disturbances
4) Patients with infectious disease
5) Patients with febrile illness
6) Tuberculosis patient
7) Aged patients with very low physical performance, determined to be unfit by physicians
8) Unconscious patients
9) Patients with abnormal blood pressure or vascular disorders
10) Other patients determined to be unfit by physicians

⚠CAUTION

Avoid applying the unit to the following areas of the body:

1) Over the heart
2) Areas with lacerations, abrasions, or puncture wounds
3) Areas previously treated with deep X-ray therapy or radium radioactive isotopes
4) Ischemic tissues
5) Areas with moderate or higher edema
6) Areas of growing bone in adolescents
7) Analgesic areas
8) Head, endocrine glands, spinal cord

＊Do not use ultrasoundhead except for treatment area.

⚠CAUTION

1. Use carefully with infants and individuals who are unable to express themselves due to senile dementia or other reasons.
2. Be careful when applying the unit to the cervical region, face, head, and other part above the neck.
3. Be careful when applying the unit to the following individuals, since excessive stimulation may worsen symptoms:
   - Patients with injury, inflammation, or other disorder affecting the skin of the area to be treated.
   - Patients with ischemic tissue in the area to be treated.
   - Patients running a high fever (38 ℃)

SAFETY PRECAUTIONS

Precautions Before Use

Before performing therapy, have the patient sit in a chair or lie on a bed in a relaxed posture.

⚠WARNING

1. Exercise extreme care when using this unit with any other device that has not been specifically approved since such use may result in incorrect diagnosis or specific hazards.
2. Connecting the unit for simultaneous use with a surgical device may result in burns on the skin under the stimulation electrode or damage to the stimulation unit. Avoid such combined use.
3. Except for the Ultrasound Probe, do not operate the unit with wet hands. Doing so may result in electric shock.
4. Designate an administrator in charge of the unit. Only trained personnel should be permitted to adjust the unit.
5. Except for treatment area, do not contact metallic or conductor parts with the Ultrasound Probe head. Doing so may result in electric shock.

⚠CAUTION

1. When installing the unit, pay attention to the following aspects:
   1) Install the unit beyond the reach of possible water splashes.
   2) Install the unit where it will not be adversely affected by atmospheric pressure, temperature, humidity, sunlight, dust, ventilation, salt air, sulphur, or other such harmful substances.
   3) Protect the unit against instability, vibration, or impact (including during transportation).
   4) Do not leave the unit in locations with combustible airborne materials such as combustible anesthetic gases mixed with oxygen, nitrogen suboxide and air, or combustible disinfecting agents or cleaning agents mixed with air.
   5) Do not install the unit where chemical products are stored or where gases may be emitted.
   6) Check the voltage, frequency, and permissible current (or power consumption) for the power supply.
   7) To avoid accidents due to distortion of the Main Unit and accessories, keep the unit away from flames or fire.
   8) If operated near a product that emits loud noise, the unit may fail or operate inconsistently. Take appropriate precautionary measures, such as moving the product a safe distance from such noise sources.
2. Make sure that all the cords are properly and safely connected.
3. Do not borrow components from other therapeutic devices for use in this unit. Using any parts other than those specified may result in accidents.
4. Double-check the probes and electrodes that directly contact the patient.

5. If the patient feels any unusual sensations or presents a rash, redness, itching, or other unusual symptoms during operations, suspend use immediately and take appropriate action.
6. When plugging the Power Supply Cord into the wall power outlet, first make certain that the unit is switched [OFF]. Then grasp the plug part of the cord and firmly insert the plug. When unplugging the cord, grasp the plug part to prevent damage to the cable, electric shock, or short-circuiting.
7. Make sure the unit is the sole device powered from the power outlet.
8. Handle the Ultrasound Probes with special care because rough handling may adversely affect its characteristics.

Precautions During Use

⚠CAUTION

～General precautions for electrotherapy, ultrasound therapy, and electrotherapy / ultrasound combo therapy ～

1. Make sure you understand the patient's diagnosis and prescription status. Check for any special precautions or instructions.
2. Explain the "Therapeutic Procedure" to the patient and instruct him or her to inform you immediately if the massage or stimulation is accompanied by sharp pain or discomfort.
3. Set the output power to ensure comfortable therapy levels.
4. Some patients under anesthesia may not be able to correctly judge the adequate amount of stimulation on their own, and the resulting stimulation may be excessive. Check to see how the patient is feeling not just immediately after the start of therapy, but while treatment is underway.
5. If the sensitivity of the patient's skin has been dulled or compromised in any way, consider whether applying the unit is appropriate.
6. Instruct the patient to advise you if he or she feels something unusual during the normal course of therapy. If so, take appropriate action, such as suspending therapy.
7. Be careful not to exceed the duration and intensity of the treatment specified for the case in question.
8. Always monitor the unit and patient for any irregularities. If you detect abnormal conditions, take appropriate action, such as shutting down the unit in a manner safe for the patient.
9. Exercise caution to keep the patient from touching the unit or pressing a key while therapy is underway. Such action on the part of the patient may result in accidents.
10. To avoid accidents, avoid inserting metal or any other object into any of the output ports.
11. Avoid using the unit continuously for longer than 60 minutes at the most, or in a way not described in the operating manual. Such operations may adversely affect the skin or cause an accident.
12. Turn the output to zero while therapy is not being performed.
13. If the unit is operated near a product with poor electromagnetic shielding, product may operate inconsistently or incorrectly, or be broken. Take appropriate precautionary measures, such as securing sufficient distance away from such noise sources.
14. Be careful to avoid applying excessive pressure on the touch-panel.
15. Do not perform therapy with the heart positioned between the applicators.

⚠CAUTION

～Precautions for ultrasound therapy ～

1. Check for implanted metal, particularly a pacemaker, in the area of the body under the treatment area.
2. Place the probe correctly so that its head part is in full contact with the skin. The required efficacy may not be obtained unless the probe head is properly positioned. Incorrect positioning may even result in overheating of the probe head.
3. Immediately suspend therapy if the probe head overheats.
4. If gel adhering to the Ultrasound Probe is too much and the unit is switched on, the probe may overheat or malfunction. Wipe off any excess amount of Ultrasound Gel adhering to the Ultrasound Probe.
5. Apply the right amount of Ultrasound Gel to the affected area; not too much or too little.

⚠CAUTION

～Precautions for combination therapy ～

1. Use only the designated electrode. Use of other electrodes may result in burns due to excess power or current density.
2. The maximum current density should be restricted to 2 mA rms/cm^2 or less.
3. Error between indication and actual value at setting of low output (≦4mA) may be 30% and more.
4. Remember Intended Use, Contraindications, and Precautions; Installation; Cautions for both ultrasound and electrotherapy when combination treatment.
5. To prevent the interference with device do not use the unit in the vicinity of other electric therapy device. (ex. microwave, shortwave)

Precautions After Use

1. After using the unit, switch off power, and store the unit in an appropriate location.
2. When removing a cord or cable, always grasp by the plug part, not the cord. Pulling on the cord itself may result in damage or malfunction.
3. Clean the unit, probes, and electrodes to avoid any inconveniences in the next therapy session, then store them neatly.
4. If you do not plan to use the unit for an extended period, remove the Power Supply Cord from the power outlet.

Precautions for Maintenance, Inspection, and Transportation

⚠WARNING

1. Do not attempt to repair or modify the unit yourself. Such action may result in accidents. If the unit malfunctions, suspend use and contact your dealer or the manufacturer.
2. Be careful to avoid bumping the unit against a wall, allowing it to topple, or subjecting it to excessive vibration. Although no apparent damage may result, internal damage caused over time may eventually lead to malfunctions or accidents.

⚠CAUTION

1. Never open the unit. Doing so may lead to malfunctions or accidents.
2. Do not damage, break, modify, bend forcibly, tug on, twist, or bundle the electrode cord. If a heavy object is placed on the cord or it is pinched or modified, the cord may be damaged, resulting in fire, electric shock, or other accident.
3. The Ultrasound Probe is waterproof and should never be disassembled, since doing so may degrade its waterproofing or the performance of the transducer, resulting in electric shock. (IPX7)
4. When cleaning the unit, do not wipe using paint thinner, gasoline, kerosene, polishing powder, hot water, or chemicals to prevent discoloration of the Main Unit and probes. Wipe with a cloth soaked in cold water or lukewarm water and forcefully wrung.
5. If you plan to use a unit that has been left standing for some time, always check to ensure that the unit functions normally and safely.
6. Inspect the accessories as often as possible, and replace any accessory that appears defective to minimize operational and safety risks. Sterilize the Ultrasound Probe head, which touches the treatment area, with a cloth moistened with an approximately 70% alcohol solution.
7. We recommend to have the unit checked annually. Checking by a qualified technician items are the followings,
   - ＊Ultrasound calibration
   - ＊Output voltages and currents on all outputs
   - ＊Connectors between the Main Unit and the Ultrasound Probe or the electrode

Disposal

When disposing of the Main Unit, accessories, containers, and packing materials, proceed in compliance with applicable rules and regulations that apply in your area. Correct disposal will help minimize environmental impact.

Maintenance and Check Items

To secure safety, inspect the unit once a year. If you have any questions, please contact your dealer or the manufacturer.

Item	Description	Method
Appearance and symbols	①Is the unit damaged in any way? ②Are the indications on the LCD screens readable?	Inspect visually.
Operations	①Press the power switch and see if the LCD lights up. ②Does the buzzer sound? ③Check to see if the unit functions in the manner described in the operating manual.	Inspect by operating the unit.
Accessories	①Are the accessories damaged in any way? ②Do the cables show any signs of damage?	Inspect visually.
Safety devices	①When removing the applicator from the treatment area or unplug the probe cord from the output port while the unit is delivering output confirm that the unit issues an error and cuts off output. ②Make sure that the unit stops output automatically if no therapy is performed for a period of three minutes or more after the ultrasound output has been set.	Inspect by operating the unit.
Inspecting ultrasound output	Make sure that a drop of water placed on the Ultrasound Probe head vaporises when the unit is turned on to deliver output.	Inspect by operating the unit.

Operating Conditions

	Operation Environment	Storage Environment	Transportation Conditions
Ambient Temperature	10～40℃	−10～60℃	−10～60℃
Relative Humidity	30～75%	30～95%	30～95%
Atmospheric Pressure	700～1060hPa	700～1060hPa	700～1060hPa

Specifications

● Main Unit

● Standard Accessories

Order code

① 011387 Ultrasound Probe (L)【USP001】
② B120612 Ultrasound Gel (250ml)
③ B120860 Probe Holder
B180562 Power Supply Cord (220–240 V, Type F)
B180559 Power Supply Cord (110–120 V, Type A)

● Optional Accessories

Order code

① 011388 Ultrasound Probe (S)【USP002】
② B180563 EST Cable
(for combo use with ES-320)【USC001】

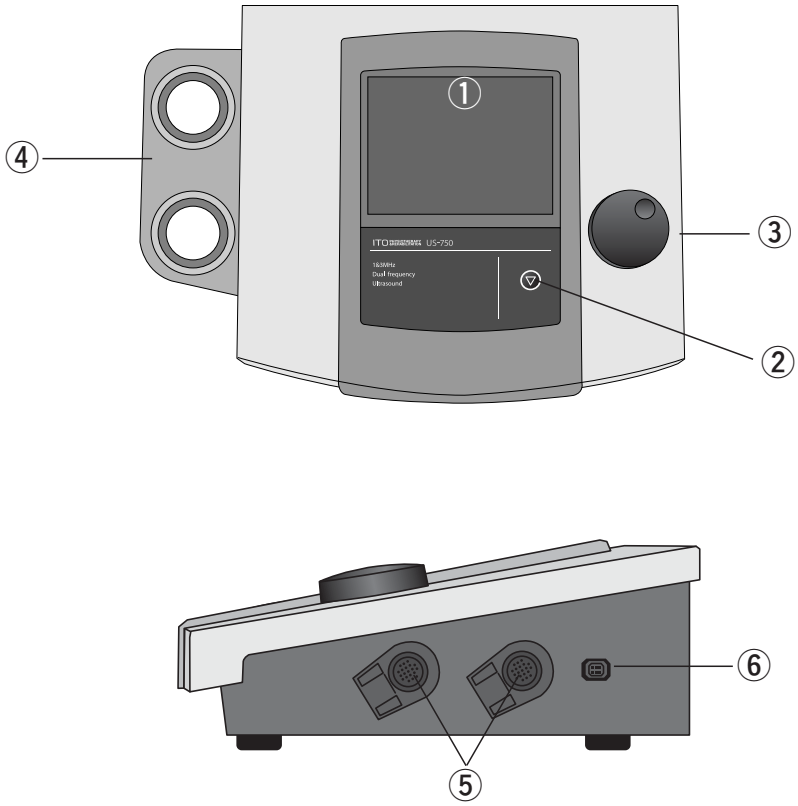
Specifications for Main Unit

Power supply : AC100–240V 50/60Hz
Power consumption : 95VA
Safety class according to IEC 60601-1 : Class I, Type BF
Timer : 1 to 30 min. ±3%
Ultrasound frequency : 1MHz, 3MHz **Pulse frequency :** 100Hz
Duty : 5%, 10%, 20%, 30%, 40%, 50%, 100% (CW)

			ERA(cm^2)±20%		BNR±30%	
			IEC	FDA	IEC	FDA
Oscillator characteristics	L type	3MHz	6.0	6.0	2.4	3.2
		1MHz	5.0	5.5	3.5	3.5
	S type	3MHz	0.5	0.9	2.4	3.6
		1MHz	0.9	0.9	3.6	3.6

Max. ultrasound output : Continuous : 2.00W/cm^2 Pulsed : 3.00W/cm^2
Dimensions : 285 (W)×102 (H)×250 (D)mm
Weight : 3 kg

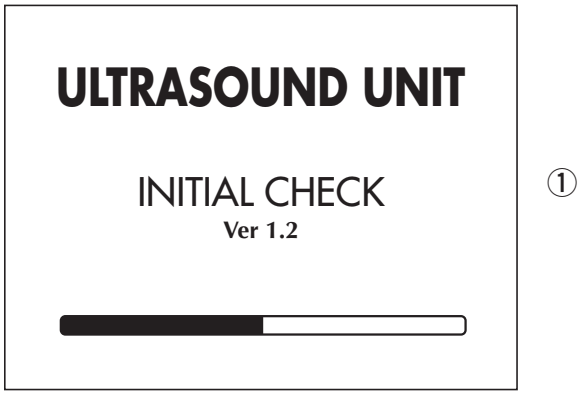
Names of Main Unit Components



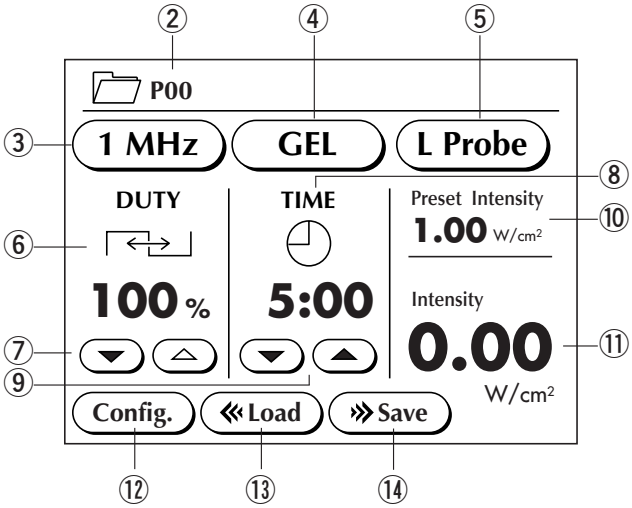
① Touch panel
② Emergency stop switch
③ Output control dial
④ Probe Holder
⑤ Probe output ports
⑥ EST Cable port
⑦ Power switch
⑧ Power inlet

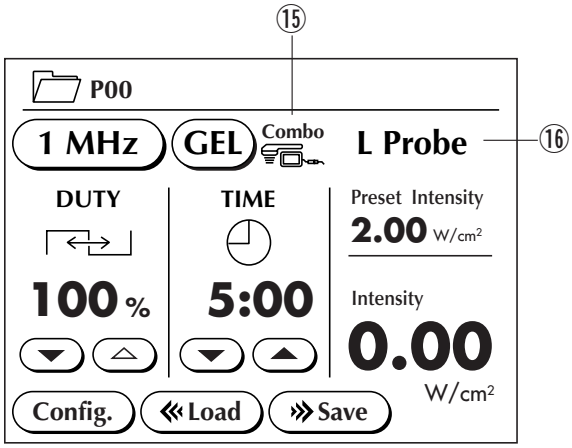
Description of Display Screens ①

● Initial Check Screen



● Full Mode Screen





■ Initial Check Screen

① This screen appears immediately after the unit is turned on. While this screen is displayed, the unit confirms program startup, the presence of a connected probe, and oscillator characteristics.

■ Full Mode Screen

② **Program display area** ··· Shows the all programs currently running. The program number is highlighted after program settings are changed.

③ **Frequency selection area** ··· Touch the area to select 1 MHz or 3 MHz.

④ **Coupler selection area** ··· Select GEL mode or OTM mode.

⑤ **Probe selection area** ··· Select L probe or S probe.

⑥ **Output mode display area** ··· Displays the set output mode.

⑦ **Output mode setting area** ··· Set pulsed output (5, 10, 20, 30, 40, 50%) or continuous output (100%).

⑧ **Timer display area** ··· Displays the timer setting.

⑨ **Timer setting area** ··· Set the timer to a desired time between 1 and 30 minutes.

⑩ **Preset output display area** ··· Displays the output level for the previous operation. (Indicates 1.00 W/cm^2 on first use.)

⑪ **Ultrasound output display** ··· Displays the ultrasound output value.

⑫ **Configuration setting area** ··· Touch the area to display the Configuration Setting screen.

⑬ **Load program area** ··· Touch the area to display the Load Program screen.

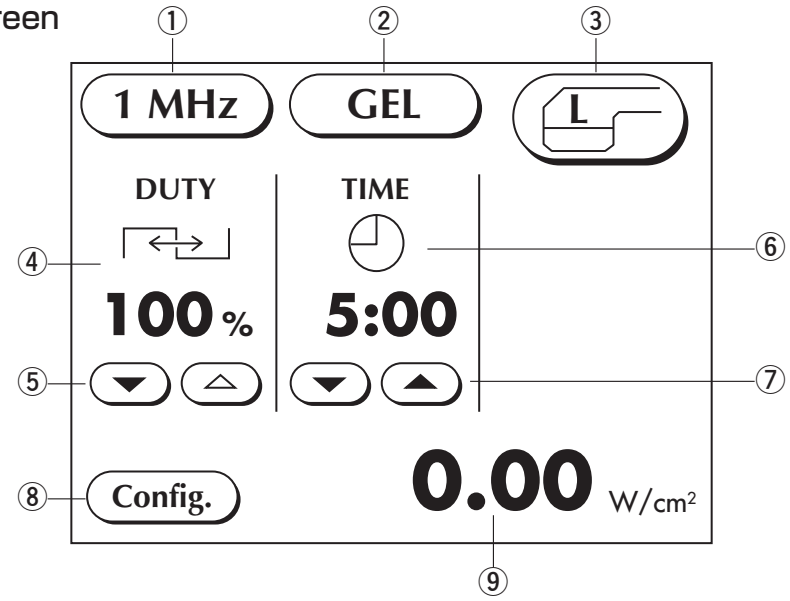
⑭ **Save program area** ··· Touch the area to display the Save Program screen.

⑮ **Combination therapy display** ··· This indication appears automatically when the electrotherapy unit is connected and the unit switches to combination mode.

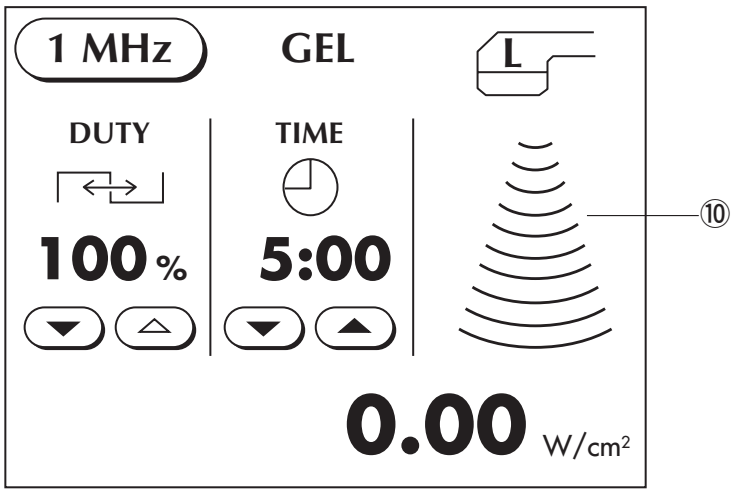
⑯ **Probe display** ··· If only one probe is connected, only this probe is indicated.

Description of Display Screens ②

● Brief Mode Screen



● Output Operation Screen



■ Brief Mode Screen

① **Frequency selection area** ··· Touch the area to select 1 MHz or 3 MHz.

② **Coupler selection area** ··· Select GEL mode or OTM mode.

③ **Probe selection area** ··· Select L probe or S probe.

④ **Output mode display area** ··· Displays the set output mode.

⑤ **Output mode setting area** ··· Set pulsed output (5, 10, 20, 30, 40, 50%) or continuous output (100%).

⑥ **Timer display area** ··· Displays the timer setting.

⑦ **Timer setting area** ··· Set the timer to a desired time between 1 and 30 minutes.

⑧ **Configuration setting area** ··· Touch the area to display the Configuration Setting screen.

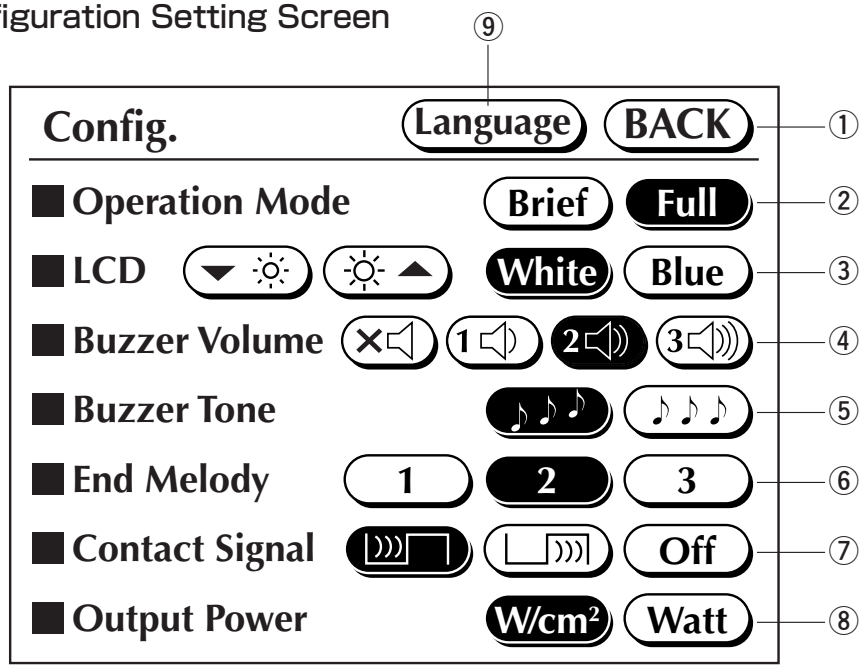
⑨ **Ultrasound output display** ··· Displays the ultrasound output value.

■ Output Operation Screen

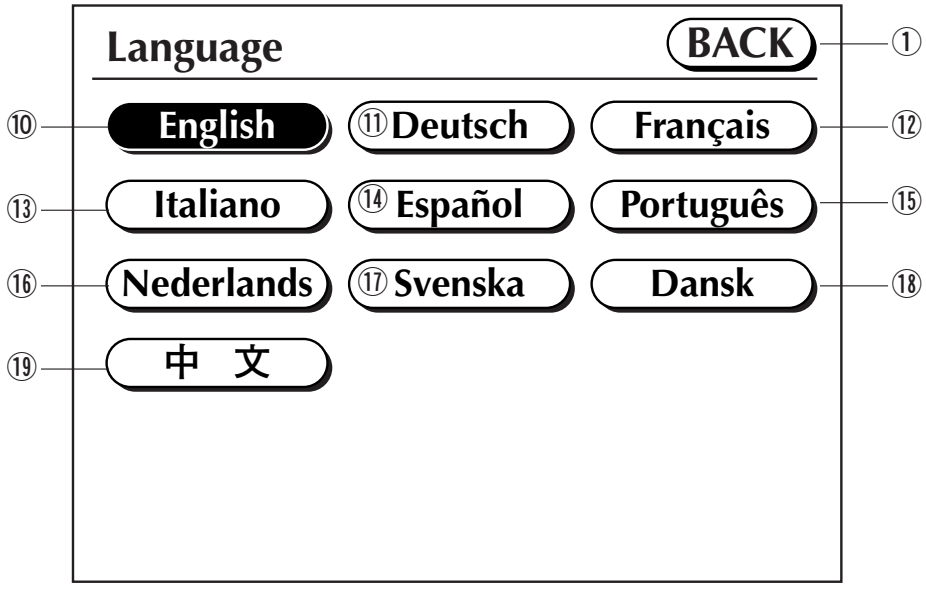
⑩ **Output on/off display** ··· The output waveform is displayed when output is on.

Description of Display Screens ③

● Configuration Setting Screen



● Language Setting Screen



■ Configuration Setting Screen

① **Back area** ··· Touch the area to display the previous screen.

② **Selecting an operation screen**

- Touch (Brief) to display the Brief Mode screen.
- Touch (Full) to display the Full Mode screen.

③ **Adjusting the LCD**

- Touch (▼☼) to reduce display brightness.
- Touch (☼▲) to increase display brightness.
- Touch (White) to change the background to white and characters to blue.
- Touch (Blue) to change the background to blue and characters to white.

④ **Adjusting the buzzer volume** ··· Adjusts the loudness of the buzzer. Select the buzzer volume by touching the desired area .

(×) : No buzzer (1) : Low (2) : Medium (3) : High

＊Even if "No buzzer" is selected, the buzzer will sound during the initial check and when a therapy session is complete.

⑤ **Adjusting the buzzer tone**

- Touch (♪♪♪) to select a sequence of tones.
- Touch (♪♪♪) to select monotone buzzer signal.

⑥ **Selection of ending melody** ··· Select the ending melody from 1 through 3.

⑦ **Setting of contact signal**

- (♪) Issues an audible signal during ultrasound output standby mode.
- (♪) Issues an audible signal during ultrasound output mode.
- (Off) No sound issued.

⑧ **Setting the output unit indication**

- Touch (W/cm²) to indicate ultrasound output power in units of W/cm².
- Touch (Watt) to indicate ultrasound output power in units of watts.

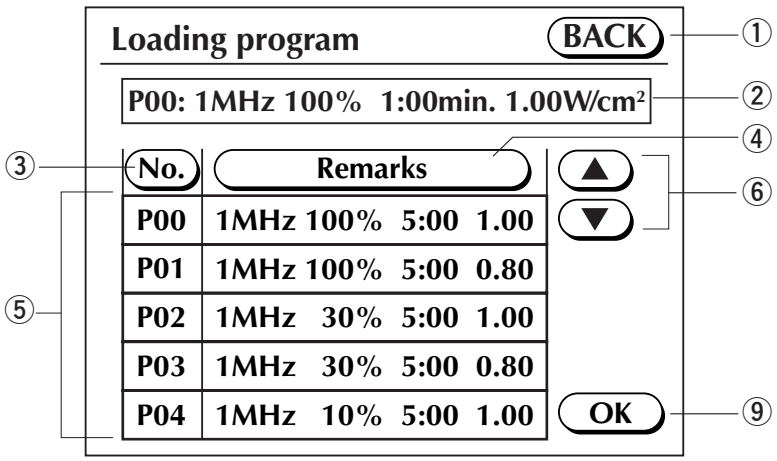
■ Language Setting Screen

⑨ **Setting a language** ··· From the following ten languages, select the desired language for screen indications. Touch the corresponding button area to select the language.

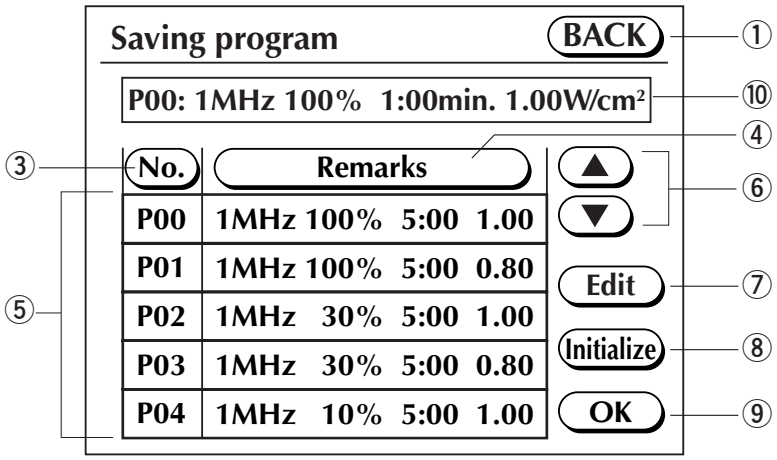
⑩ **English**	⑪ **Deutsch**	⑫ **Français**
⑬ **Italiano**	⑭ **Español**	⑮ **Português**
⑯ **Nederlands**	⑰ **Svenska**	⑱ **Dansk**
⑲ **中文**		

Description of Display Screens ④

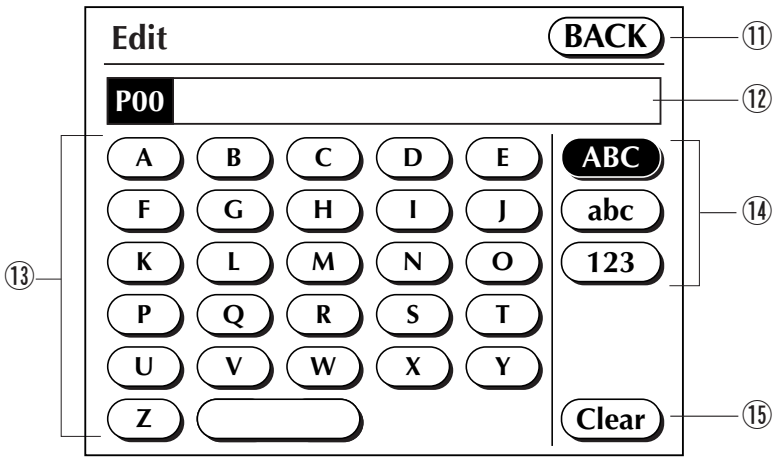
● Load Screen



● Save Screen



● Edit Screen



■ Load Screen, Save Screen

① **Back area** ··· Touch the area to display the previous screen.

② **Current program display** ··· Shows the details of the currently selected program. As the factory default setting, the first ten programs show the parameters of each preset program. When the program names of these are changed, the program name will be shown instead of the parameters.

③ **Sort by program number area** ··· Touch the area to sort programs by program number.

④ **Sort by remarks area** ··· Touch the area to sort programs by remarks.

⑤ **Program list** ··· Displays five programs at a time.

⑥ **Program selection area** ··· Touch the area to scroll the program list up or down to show previous or next five programs.

⑦ **Edit area** ··· Touch the area to display the Edit screen for the selected program.

⑧ **Initialize / Delete area** ··· Either initializes the entire programs to the factory default setting, or deletes a selected program. When no program is selected, (Initialize) will be shown. When a program is selected, (Delete) will be shown.

⑨ **Data entry area** ··· Touch the area to load/save the selected program.

⑩ **Displays the current program file to be saved** ··· Shows the details of the currently running program. (The displayed program file is saved to memory.)

■ Edit Screen

⑪ **Back area** ··· Touch the area to display the previous screen.

⑫ **Input area** ··· Displays up to 25 entered characters.

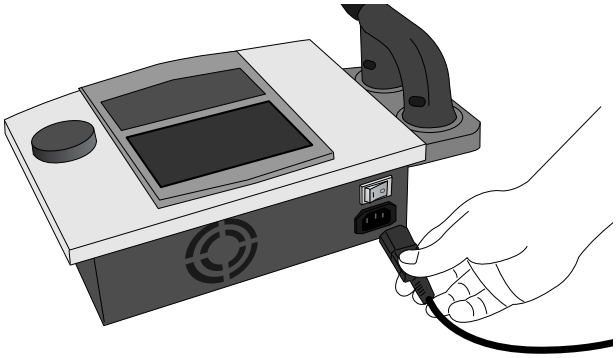
⑬ **Keyboard** ··· Touch keys for entering characters.

⑭ **Setting of characters** ··· Sets the type of characters shown on the keyboard.

⑮ **Clear** ··· Deletes an entered character.

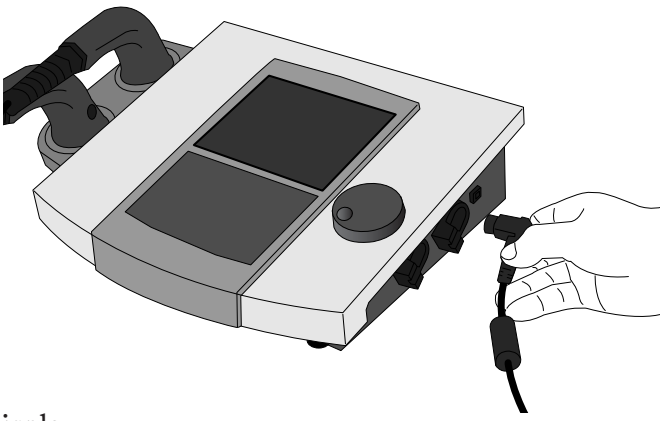
① Make sure the Power switch on the rear side of the Main Unit is turned OFF.

② Connect the Power Supply Cord to the socket on the rear side of the Main Unit.



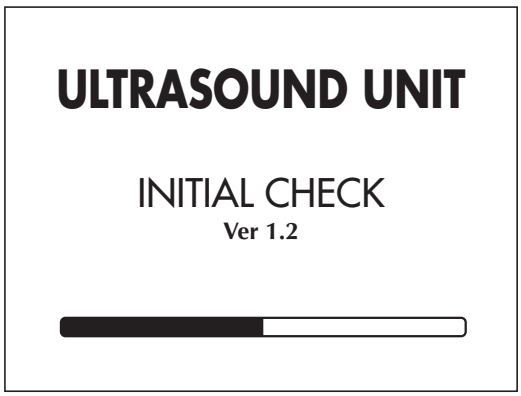
③ Connect the probe you intended to use (L probe, S probe, or both) to the probe output port.

*The probe may be connected to either port.



④ Turn the Power switch ON.
The unit turns on, and the display shows the Initial Check screen. While this screen is displayed, the unit checks the connected probe and oscillator characteristics. After the initial check, the buzzer beeps twice and the unit enters simple operation mode.

*For the second and subsequent startups, the unit will retain in memory the session status for the session immediately before the unit was switched off.



⚠ WARNING

With the exception of the probe, never operate any part of the unit when your hands are wet. Doing so may result in electric shock.

⚠ CAUTION

Hold the probe clear of contact with any objects during the initial check.

* If a gel residue is left on the probe or if the probe is immersed in water, the initial check will not proceed correctly.
* To do ultrasound therapy after spreading Ultrasound Gel (accessory) on treatment area.

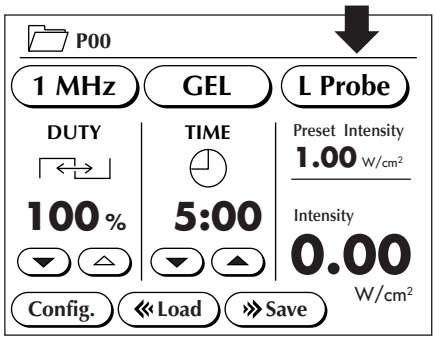
⚠ PRECAUTIONS REGARDING THE AUTO CONTACT FUNCTION

1. The auto contact function reduces the output to minimum levels when the Ultrasound Probe is removed from the treatment area (skin). Note that this function does not eliminate output completely.
   Do not leave the Ultrasound Probe unattended while the unit is ON.
   Always turn off the power when not performing ultrasound therapy.
   Wipe off all Ultrasound Gel after each use.
2. If you plan to continue therapy after a minute or so of completing the previous session, check the temperature of the probe head before resuming to prevent burns.
3. If the unit is not used for more than three minutes, output will shut off automatically.

How to Use Full Operation Mode

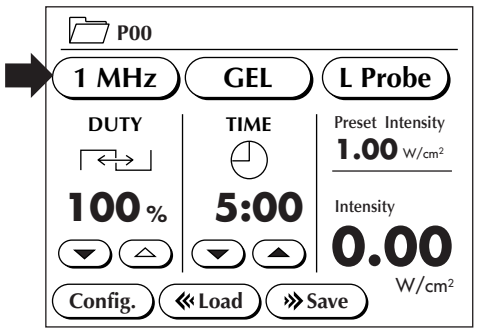
① Select the probe you wish to use

- If only one probe is connected, the screen will display this probe.
- If both L probe and S probe are connected, check the screen and select the probe you wish to use.



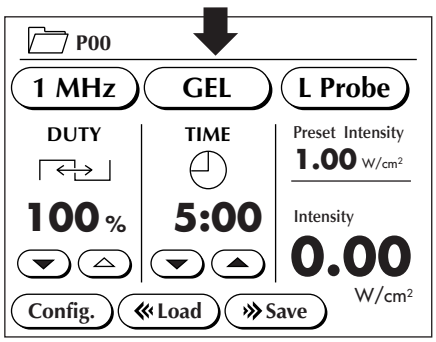
② Select the frequency to use

- Touch the screen to select 1 MHz or 3 MHz.



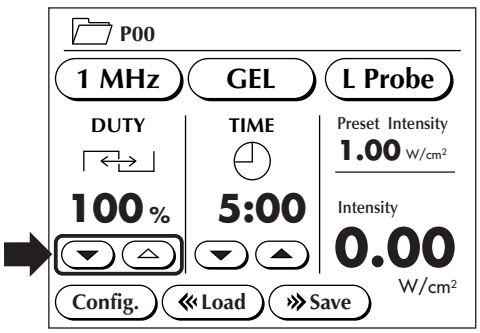
③ Select the coupler mode to use

- Touch the screen to select the GEL mode or OTM mode.



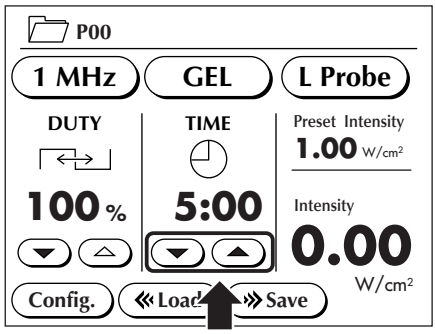
④ Select the output mode

- Touch the screen to select a DUTY setting from 100% (continuous), 50, 40, 30, 20, 10, and 5%.



⑤ Set the timer

・Touch the screen to set the timer. The timer can be set to value between 1 and 30 minutes in 1-minute increments.



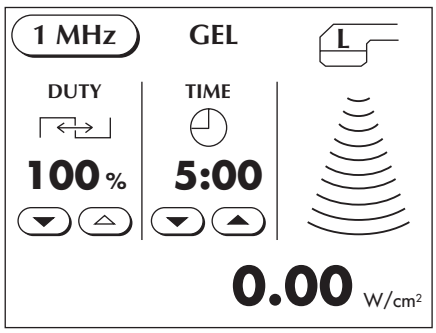
⑥ Start ultrasound output

・Turn the output control dial to the right to begin ultrasound output. The unit will automatically adjust output to the preset level or the level previously used. Once the output reaches the preset level, the output can be adjusted manually.

⑦ Changing settings during ultrasound output

・During ultrasound output, you can change settings for each item on the display by touching the screen.

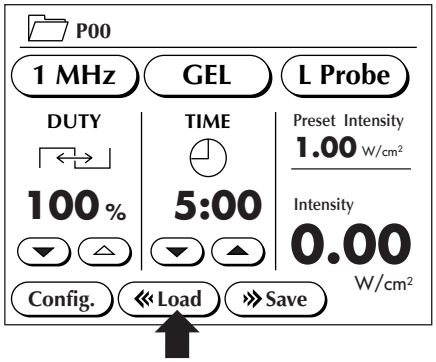
＊You can adjust or select frequency, output mode, timer, and ultrasound output.



⑧ Ultrasound output shuts off when the timer value expires

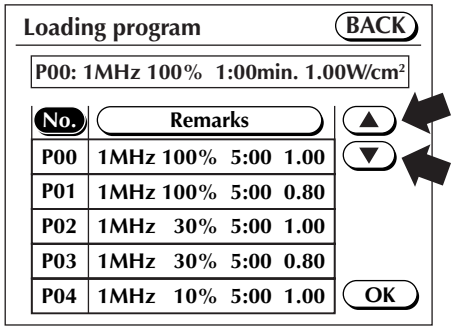
⑨ Load a program

・Touch the screen to display the Load Program screen.

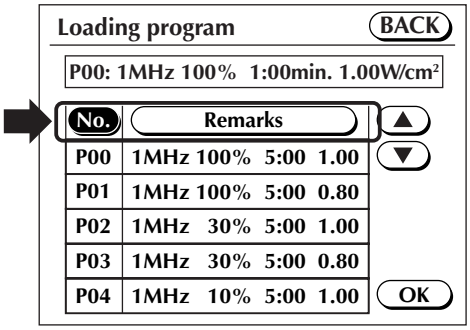


⑩ Select the program to use

・Touch the screen to scroll through the program list. Each touch of the scroll area will show the shows the next or previous five programs in the program list.

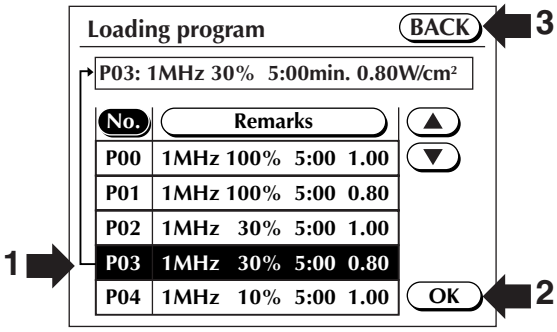


・Sort programs by touching (No.) or (Remarks). The stored programs can be sorted in alphabetical order or by program number.



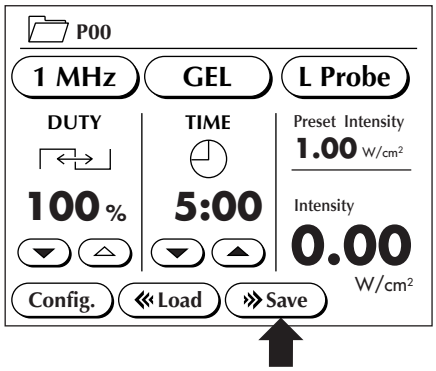
・Select a program to use by touching the screen, then touch (OK). The selected program is indicated in the upper section of the screen.

・Touch (BACK) to return to the previous screen.



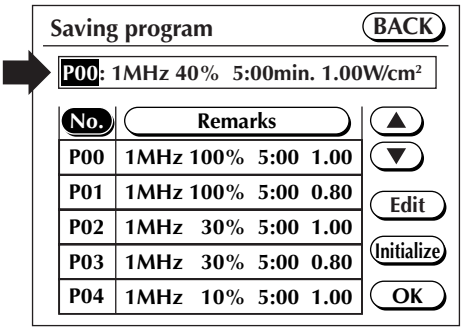
⑪ Save the changes in the program

・Touch the screen to display the Save Program screen.

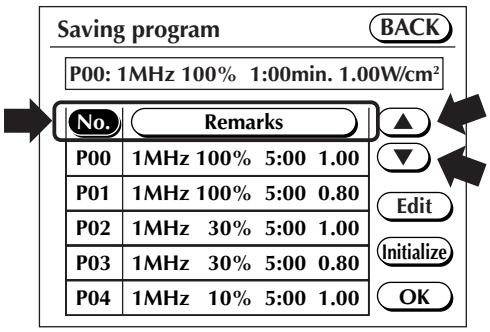


⑫ Save the program

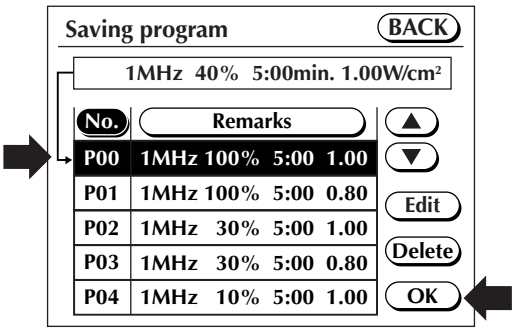
・If program settings have been changed, the program number on the screen is highlighted.



・Select the destination of the saved program by scrolling the program list or using the sort function.

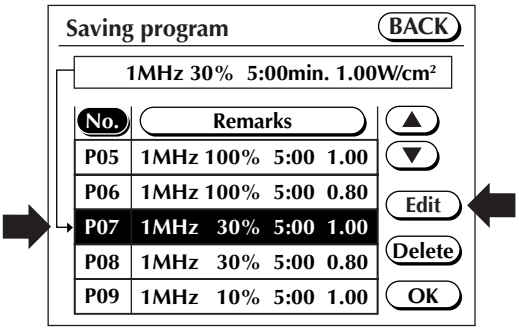


・After selecting the destination of the saved program by touching the screen, touch OK to save the program. Note that the program number changes.



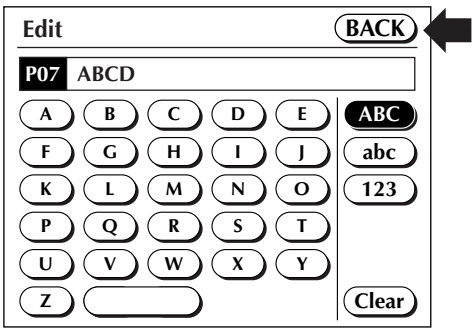
⑬ Change the name of program

・Select by touching the screen the program whose name is to be changed, then touch (Edit) to display the Edit screen.

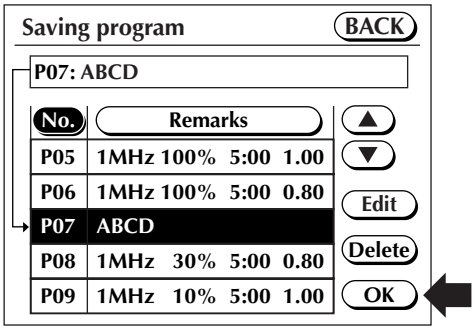


＊Information such as treatment objectives or patient names can be entered and stored up to 100.

・Enter new name of the program. After entering the name, touch (BACK) to return to the Saving Program screen.

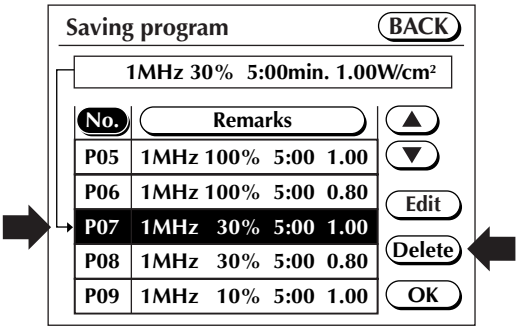


・The newly entered name will appear in the Input area. Touch (OK) to validate the change, and then the newly entered data is displayed in the program list.



⑭ Delete the program

・In the Saving Program screen, select the program you want to delete. Touch (Delete) to delete it.



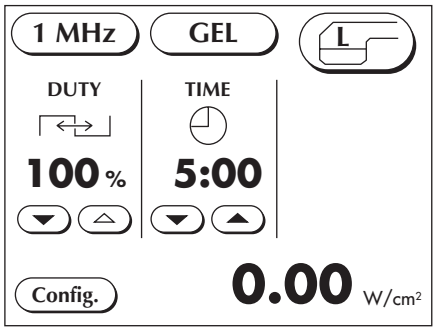
＊When a program is selected, (Initialize) will be changed to (Delete).

How to Use Brief Operation Mode

① Select the Brief mode in the configuration screen

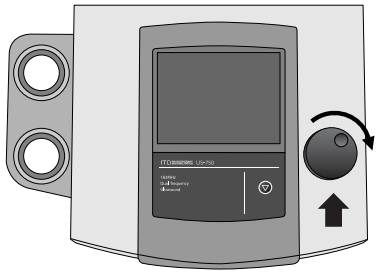
② Set the probe, frequency, coupler, output mode, and timer

・Refer to ① through ⑤ on pages 24 and 25.



③ Start ultrasound output

・Turn the output control dial to the right to start ultrasound output, then adjust the output level.



④ Changing settings during ultrasound output

・During ultrasound output, you can change the settings for each item on the display by touching the screen.

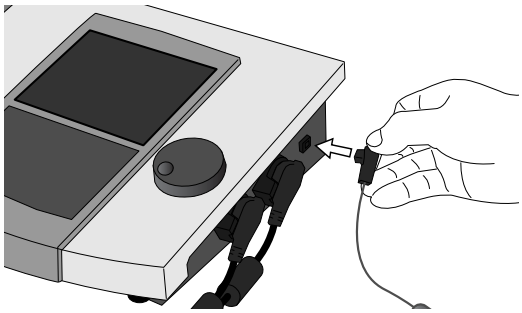
＊You can adjust or select frequency, output mode, timer, and ultrasound output.

⑤ The ultrasound output shuts off when the timer expires

Combination Therapy

① Connect the EST Cable to the Main Unit.

② Connect the other end of the EST Cable to the output port of an electrotherapy unit.



⚠CAUTION This product can be connected to the ES-320.

③ Attach the electrode to the pin plug and apply the electrode nearby the treatment area.

④ Connection confirmation

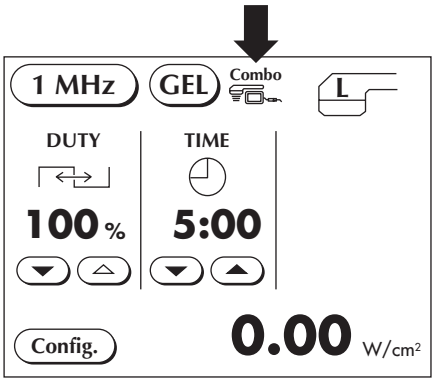
・The screen displays the following indication when an electrotherapy unit is connected.

⑤ Start therapy.

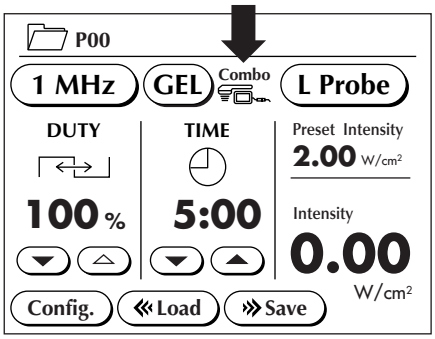
・Refer to pages 22 through 29 to learn about operating the ultrasound unit.

・Following the instructions in the operation manual provided with the electrotherapy unit to operate the electrotherapy unit.

⑥ The ultrasound output will stop when the timer expires.



Simple Mode screen



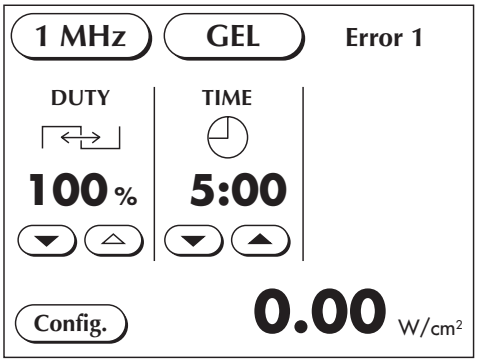
Full Mode screen

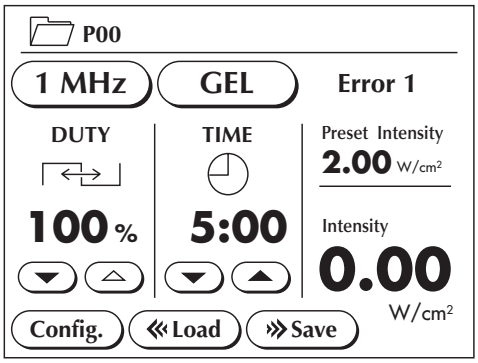
⚠CAUTION

- Avoid short-circuits between the electrode and the probe.
- For combination therapy mode, current amplitude and ultrasound output levels can be set in advance. Note that setting excessive output levels will result in a rapid increase in output. We recommend starting low, then gradually increasing output.
- Do not use combination therapy for under water treatment. Placing active electrodes under water causes a serious hazard to patient.
- Note that placing the electrodes should be done carefully and solidly, and that the use of small electrodes in combination with high intensities may cause skin irritation or burns.

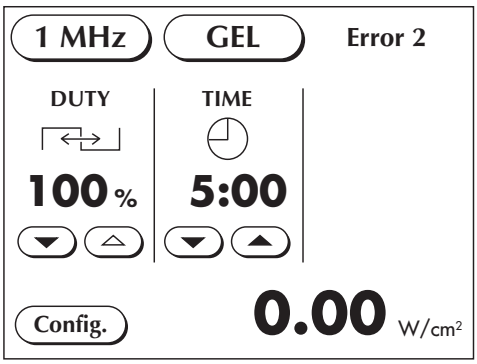
Error Display

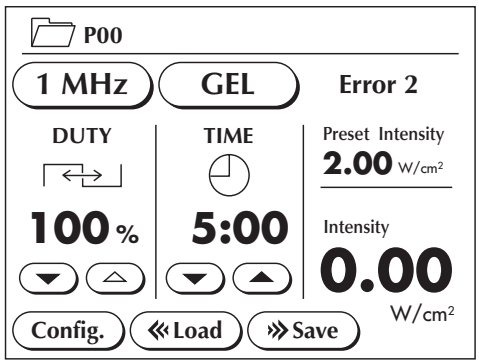
○ Error 1





○ Error 2





・If the display indicates Error 1 or Error 2, switch off power, connect the probe securely, then switch power back on. Hold the probe clear of contact with any objects when turning on power. If a gel residue is left on the probe or if the probe is immersed in water, the initial check will not proceed correctly.

・Contact your dealer or the manufacturer if the display continues to indicate Error 1 or Error 2 even after you perform the above procedure.

EMC

- Medical electronic devices are designed to ensure electromagnetic compatibility (EMC). These devices must be installed and used in accordance with the EMC information provided in the attached document.
- Portable and mobile RF communications devices may affect medical electronic devices.
- Cable length

  1) EST Cable (for combo use with ES-320): 1.50 m

  2) Power Supply Cord: 2.44 m

  3) Ultrasound Probe: 1.80 m

- If accessories other than those supplied as spare parts by the manufacturer are used, the emission of this device may increase and immunity may be reduced.
- Do not place this device next to or on top of another device when using it. If it has to be placed next to or on top of another device, check that they function properly before use.

Guidance and manufacturer's declaration - electromagnetic emissions

The US-750 is intended for use in the electromagnetic environment specified below. The customer or the user of the US-750 should assure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment—guidance
RF emissions CISPR 11	Group1	The US-750 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 CISPR 11	Class B	The US-750 is suitable for use in all establishments, including domestic establishments 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	

Guidance and manufacturer's declaration - electromagnetic immunity

The US-750 is intended for use in the electromagnetic environment specified below. The customer or the user of the US-750 should assure that it is used in such an environment.

Immunity test	IEC 60601-1-2 test level	compliance level	Electromagnetic environment - guidance
EIectrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 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 %.
EIectrical fast transient/burst IEC 61000-4-4	±1 kV for input/ output lines ±2 kV for power supply lines	±2 kV for power supply lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±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 sec		Mains power quality should be that of a typical commercial or hospital environment. If the user of the US-750 requires continued operation during power mains interruptions, it is recommended that the US-750 be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 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.

Guidance and manufacturer's declaration - electromagnetic immunity

The US-750 is intended for use in the electromagnetic environment specified below. The customer or the user of the US-750 should assure that it is used in such an environment.

Immunity test	IEC 60601-1-2 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 US-750. including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = 1.2\sqrt{P}$ $d = 1.2\sqrt{P}$ 80 MHz to 800 MHz $d = 2.3\sqrt{P}$ 800 MHz to 2.5 GHz 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 metres (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	3 V/m 80 MHz to 2.5 GHz	3 V/m	

NOTE 1 At 80 MHz and 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 US-750 is used exceeds the applicable RF compliance level above, the US-750 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the US-750.

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

Recommended separation distances between portable and mobile RF communications equipment and the US-750

The US-750 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the US-750 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the US-750 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 2.5GHz $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (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.

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C0a230815-1410 U1411SS-v

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