GLOBUSVet
Yes, WE CARE

ELECTROSTIMULATORS

User Manual

STIMVET 2000

CE

DEAR CUSTOMER

THANK YOU FOR CHOOSING A GLOBUS PRODUCT. WE REMAIN AT YOUR DISPOSAL FOR ANY ASSISTANCE OR ADVICE YOU MAY NEED

The electrostimulators (StimVet 2000) are distributed by:

Domino S.r.l.
Via Vittorio Veneto, 52
31013 Codognè (Treviso) ITALY
Tel 0438.7933 Fax 0438.793363
Website: https://www.globusvet.it/
E-Mail: info@globuscorporation.com
infovet@globusitalia.com

The device was manufactured in compliance with the existing technical regulations which guarantee the safety of the product.
The dimensions, the features and the images reported in this manual are not binding. The manufacturer reserves the right to modify the products without prior notice.

TABLE OF CONTENTS

TECHNICAL FEATURES

Device

Size:	160x99x35.4 mm
Weight:	404 g
Case:	ABS
Protection level:	IP 20

Storage and shipping temperature: from -10°C to 45°C
Max. relative humidity: 30% - 75%

The values represent the limits allowed if the product or the accessories are not in their original package.

Conditions of use

Temperature:	from 0°C to 35°C
Max. relative humidity:	from 15% to 93%
Atmospheric pressure:	from 700 hPa to 1060 hPa

Technical features of the currents

EMS and TENS:

Channels available: channels	1-2-3-4
Constant current:	Yes
Intensity:	0-100 mA with 1000 Ohm load
Waveform:	rectangular, biphasic, symmetrical, compensated
Work frequency:	1-150 Hz
Recovery frequency:	1-150 Hz
Pulse range:	50-450 µs
Work time:	from 1 to 30 seconds
Recovery time:	from 0 to 1 minute
Frequency modulation range:	continuous variation from 1 to 150 Hz
Modulation minimum time:	3 seconds
Modulation range period:	continuous variation from 50 to 450 µseconds

MICROCURRENTS

Available outputs:	channels 1-3
Constant current:	Yes
Min. frequency:	5Hz
Max. frequency:	200 Hz
Min. intensity:	0 µA/1000 Ohm Step 10 µA
Max. Intensity:	800 µA/1000 Ohm
Period value:	between 1 and 250 µ seconds

DENERVATED MUSCLES:

Available outputs:	channels 1-3
Max. Intensity:	60 mA
Pulses:	triangular 1000 ms, rectangular/trapezoidal 500 ms

Battery charger

brand:	Dongguan Shilong Fuhua Electronic Co
model:	UES24LCP-120200SPA
Input:	100-240V~ 50/60Hz 500mA
Output:	12Vdc⎓ 2.0A
Polarity:	⊕-◉-⊖

Battery

Battery Pack:	Ni-MH 7.2V 1.8Ah

EQUIPMENT

The electrostimulation device is supplied with all the necessary cables and electrodes; therefore, when you open the package, check that the basic equipment is complete. If some elements are missing, contact your authorized retailer immediately.

- 4 colored cables for electrode connection (for EMS, TENS and DENERVATED treatments)
- 2 gray cables for electrode connection (for MICROCURRENTS treatments)
- Bag with 4 reusable silicon electrodes (50x50 mm): indicated for the treatment of small surfaces, e.g. the distal parts of the limbs.
- 4 reusable silicon electrodes(50 x 90 mm): they are indicated to treat large areas such as the back
- - Carrying bag
- Power supply (See technical features)
- Device
- Gel bottle

All the information provided can be subject to modification without previous notice.
The device can be used with a few optional accessories (it is possible to see the features on the website www.globusvet.com). Contact your retailer to purchase the accessories.

INTENDED USE

The product has an estimated usable life of 5 years. It is advisable to return the device to the producer and/or authorized center to perform security and maintenance checks every 2 years.
During the use, the number of treatments depends on the battery charge. The battery has an estimated usable life of 6 months. Thereafter, it is advisable to replace it.

StimVet 2000 has been conceived to be used in the following environments:
- veterinary offices;
- veterinary physiotherapy centers;
- veterinary rehabilitation;
- pain treatments (in the veterinary field);

The use of the device is permitted to veterinary doctors or physiotherapists or in the domestic environment by users who are duly instructed by professionals about the use of the device.

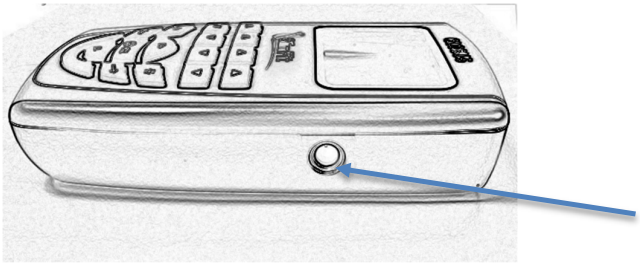
CONNECTIONS

Wall sockets for connection of the cables and power supply

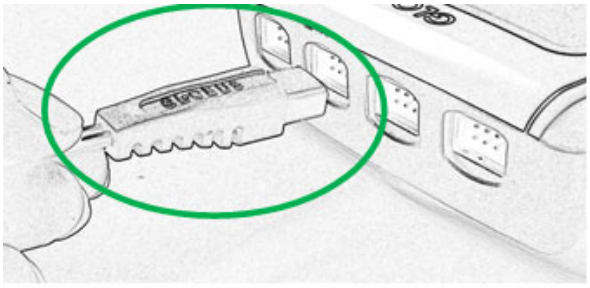
Warning:
If the package, the cable or the connector of the power supply show signs of wear or damage, replace it instantly.

Battery: how to charge the batteries

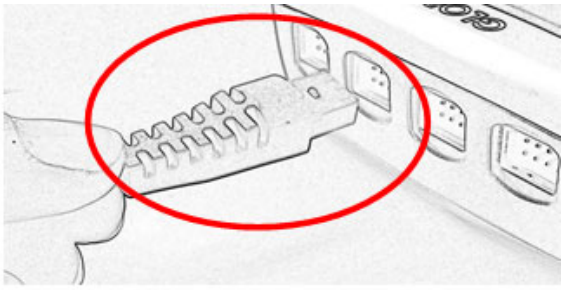
The device is equipped with a nickel-metal hydride rechargeable battery pack (7.2V, 1.8Ah), which has a high performance and no memory effect.
It is advisable to recharge the batteries when the battery light on the display indicates ¼. Turn the electrostimulator off and disconnect the electrodes, then connect the elctrostimulator to the power supply by inserting the plug in the appropriate inlet (see picture above). Do not use a power supply different from the one provided with the device. Contact the customer service to replace the battery pack.
To connect the power supply to the connector, plug it as shown in the picture.
Unplug the battery charger to disconnect it from the mains.



How to connect the cables



OK



NO

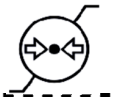
In order to connect the cables to the device, plug the connectors into the intended inlets on the top of the unit (see picture). **When plugging in the cable, the grooves of the cable have to be oriented downward.** The inlets are placed exactly above the corresponding channels.
NOTE: For EMS and TENS currents use indifferently the 4 channels with colored cables.
NOTE: use only channels 1 and 3 with colored cables for the programs with DENERVATED MUSCLES currents (rectangular, triangular and trapezoidal).

Application of the electrodes

Take the electrodes from the original packaging; all new electrodes have a sealed packaging. Ensure that the device is off. First, connect the two cable jacks to the electrodes, then disconnect the electrodes from

their slots and apply them on the shaved, clean and dry skin. Rub a lot of gel on the skin before placing the electrodes.
After the use, place the electrodes back in their specific place.
WARNING: do not unplug the electrodes if the device is operating.

LABELLING AND SYMBOLS

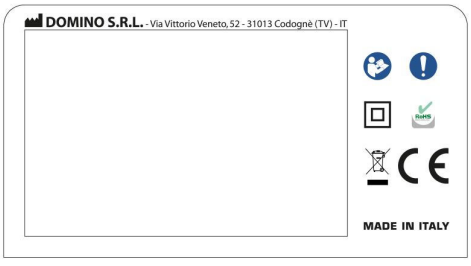
	Warning
	This symbol on your device indicates that it complies with the requirements of the directives on electrical and electronic devices.
	Indicates that this is a II class device.
	WEEE symbol (Waste of Electrical and Electronic Equipment). Recycling symbol. The WEEE symbol used for this product indicates that it cannot be treated as a household waste. The proper disposal of the product will contribute to protecting the environment. For further information on the recycling of this product, please contact the concerned office of your local body, the household waste management company or the store where the product was purchased.
	It indicates that the product has been produced in compliance with the directive 2011/65/EEC.
	It indicates the optimal temperature for the storage and transportation of the product.
	It informs the operator that it is compulsory to read the manual before using the device.
	It indicates a compulsory behavior
	It indicates the pressure of the environment in which the device and the accessories are transported and stored.
	It indicates the humidity of the environment where the device and the accessories are used and stored.
IP20	It indicates water protection

Model	Indicates the battery charger model
PRI	Input electric features of the battery charger
SEC	Output electric features of the power supply
Nerve and Muscle stimulator	It indicates the device type
Input power	Input electric features of the device for battery charging
Input battery	Features of the electric power supply from internal battery
Output	Output, indicates the maximum value of current emitted by the device
SN	It indicates the serial number of the device.
Internal battery	Indicates the features of the battery pack inside the device
	It refers to the expiry date of the product
	It refers to the production lot
RH	It indicates the percentage of storage humidity
	It refers to the manufacturing date.
	Symbol of polyethylene

Device

Input PWR: UES24LCP-120200SPA
PRI: 100-240V~ 50/60Hz 500mA
12Vdc 2.0A
Output 5,5 - 2,1 - 14 
Electrostimulator type StimVet 2000

MJ0471500001



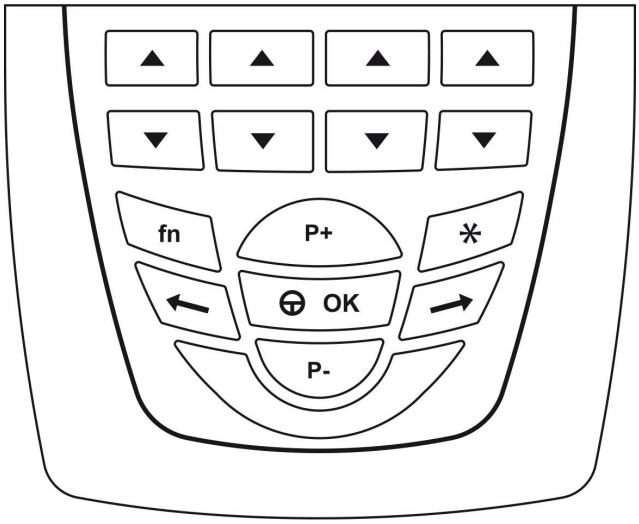
DASHBOARD AND KEYBOARD

Intensity increase/decrease buttons

Function button

Back/Left Button

P- Button



* Button

P+ Button

Right/User Button

ON/OFF/OK Button

NOTE: when the 3" message appears, it means that holding the button down for 3 seconds activates the function.

ON/OFF/OK BUTTON It confirms the selection. While a program is running, it activates the pause.
3" = Turning on/off.

LEFT/BACK Button It moves the selection to the left.
To go back to the previous selection.
3" = It returns to the previous phase while the program is running.

P+ Button It moves the selection upwards.
It increases the intensity of the 4 channels simultaneously, while a program is running.

P- Button It moves the selection downwards.
It decreases the intensity of the 4 channels simultaneously, while a program is running.

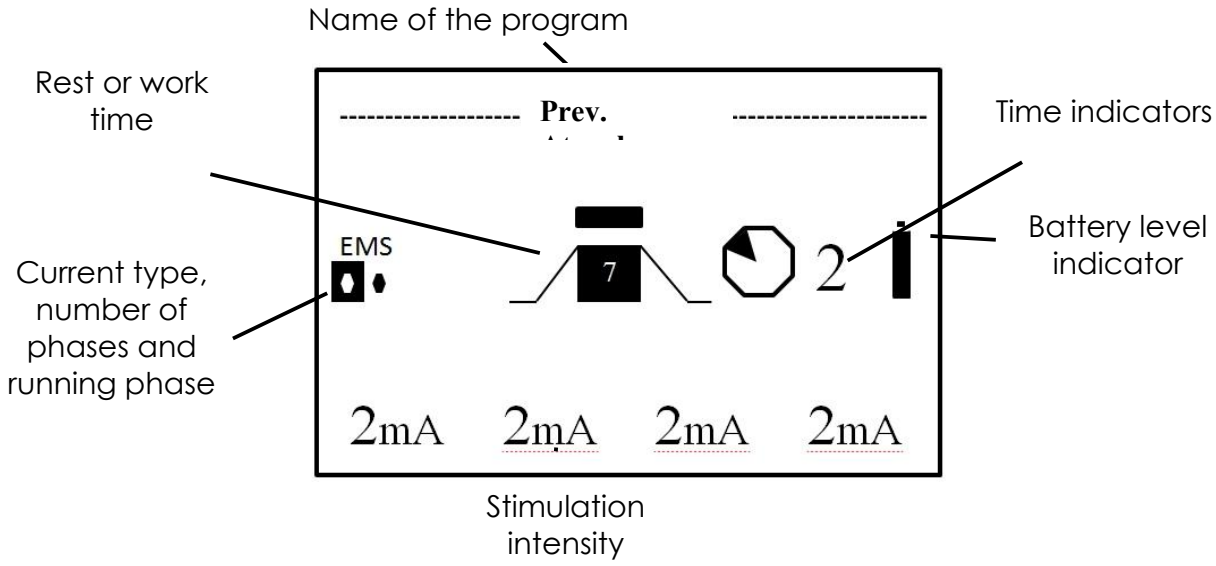
RIGHT/USER Button It moves the selection to the right.
3" = It moves on to the next phase, while a program is running.

*** Button** It starts and stops the contraction while "Action Now" programs are running (in the devices that have this option).

Fn (Runtime) Button If pressed together with other buttons, it modifies their function. If pressed alone during stimulation, it selects the Runtime mode (time, frequency and amplitude modification)

Intensity Button It increases/decreases the stimulation intensity of the corresponding channel.

Display and interface



ALARMS

Meaning of the warning "Electrode error"

If one or more cables are not duly connected to the mains, or if those for microcurrent are used to run a EMS program, the following alarm will appear on the display: "Electrode error".

WARNINGS AND CONTRAINDICATIONS

Mandatory behavior

For maximum safety, the device must be used respecting the rules and the limitations indicated by the user manual.

Treatments should not be performed in the presence of skin lesions. If the package, the cable or the connector of the power supply show signs of wear or damage, replace it instantly. The device should be connected to the mains with its power supply. Before doing this, make sure that power system specifications comply with the directives in force in your country. Make sure that the power supply is in a comfortable position and will be easily removed.

The manufacturer declines any responsibility for any use that differs from what is indicated and prescribed in this manual.

The full or partial reproduction in any form and by any electronic or mechanical means of the texts and/or pictures contained in this manual without the written authorization of the manufacturer is forbidden.

Warnings before the use

Do not use the device with other electronic devices simultaneously, especially if they maintain vital functions. Read the enclosed tables to operate the device correctly. If the device is used nearby or upon other devices, make sure that it works properly.

- It is recommended to read carefully the entire operating manual before using the device; keep carefully this operating manual.
- The device is capable of delivering current values exceeding 10mArms.
- Before each use always check the integrity of the device. This is a fundamental requirement for carrying out the therapy; do not use the device if the buttons or the cables are defective or malfunctioning.
- The device must be used with the transcutaneous neurostimulation electrodes suitable for this use.
- The device must be kept out of the reach of children.
- With its current, it can disturb ECG monitoring devices.
- It must not be used in a transthoracic mode as it could cause cardiac arrhythmia by superimposing its frequency to that of the heart. (Do not use the device on the chest and the back simultaneously).
- A simultaneous connection of a patient to a high frequency electrosurgical device can cause burns near the electrodes of the stimulator and therefore the stimulator may be damaged.
- Once you have turned the device on, make sure the display shows the software version and the device model: it means that the device is working and ready to be used;

If it doesn't, or the display does not show all the segments, turn it off and on again. If the problem persists, contact our help center and do not use the device.

- The sudden shutdown shortly after the starting indicates a low battery level. Recharge as reported in the section "HOW TO CHARGE THE BATTERIES".

Warnings during the use

While using the electrostimulator, please respect a few warnings.

- In the case of damaged cables, they must be replaced with original parts and not used anymore.
- It should not be used for purposes other than transcutaneous neurostimulation.
- particular attention has to be paid when using current densities above 2mA/cm² (effective value) for each electrode.
- Do not wrap the cables of the electrostimulator around patients' neck, since it may lead to strangulation and suffocation.
- Mobile and fixed radio communication devices may affect the functioning of the device: see the tables attached to this manual.

- The treatment is a medical-veterinary prescription: do not lend the stimulator to other persons.

Side effects
Skin irritation may occur in subjects with high skin sensitivity.
In case of allergic reaction to the electrode gel, suspend the treatment.
If the patient shows signs of tachycardia and extrasystole during the treatment, suspend the electrostimulation and contact the veterinary physician.

Contraindications
Use is not recommended in the following cases:
- Stimulation of the anterior neck (carotid sinus).
- Patients with pacemakers.
- Patients with tumor diseases (consult the oncologist).
- Stimulation of the brain region.
- Pains with unknown etiology.
- Sores and dermatological diseases.
- Acute traumas.
- Stimulation on recent scars.
- Pregnancy.
- It is strictly forbidden to use the electrostimulator on the ocular area.
- Near body areas with
metallic implants or infra-tissue metals (e.g. prostheses, osteosynthetic devices, coils, screws, plates), when using monophasic currents such as interferential and
continuous currents (ionophoresis).
It is also recommended to use the device with caution in case of capillary fragility, as excessive stimulation may cause the rupture of more capillaries.

MAINTENANCE AND CLEANING

Device
- In case of damaged packaging, the device should be replaced and no longer used.
- In case of actual or alleged malfunctioning, do not tamper with the device and do not try to repair it by yourself.
- Do neither intervene on the device nor open it. Only specialized and authorized centers can repair it.
- Avoid violent impacts that may damage the device and cause malfunctioning, also not immediately detectable.
- Use this device in a dry and open environment. Do not wrap the device.
- Clean the device only by using disinfectant with sodium hypochlorite or quaternary ammonium salt (percentage: 0.2-0.3%) diluted with distilled water. After cleaning/disinfecting the device, dry it perfectly with a clean cloth.
- It is recommended that you clean/disinfect the parts after every use, unless otherwise indicated.
- Always use the device and the accessories with clean hands.
- It is recommended to use the device and the accessories in a clean environment to avoid contamination with dust and dirt.- It is recommended to use the device in a ventilated, well-aired space.

Battery

Battery management

The device has a menu that allows to see the status of the battery charge, if the device has one. The values displayed in this menu enable the manufacturer and/or the authorized help center to check the status of the battery charge.

Accessories

Use and storage of the electrodes and the cables.

In case of damaged cables or electrodes, these should be replaced and not used anymore.
Before placing the electrodes on the skin, we suggest to clean it accurately.
After using the multi-purpose and/or single-use electrodes, they must be stored using their plastic film and placed in a clean closed plastic bag.
Electrodes should not touch each other nor overlie one over the other.
Electrodes must always be replaced if they are not perfectly in contact with the skin.
If using non self-adhesive electrodes it is suggested to clean their surface with proper cleansers that respect the requirements described in the manual.

Disposal of the device

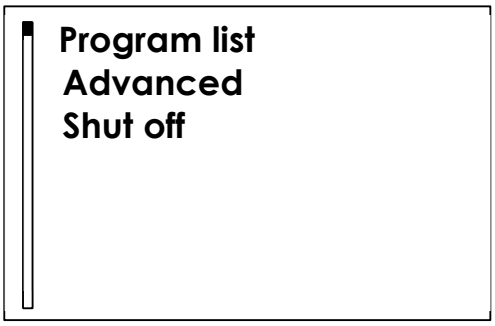
Do not throw the device or parts of it into the fire; dispose of the product in the specialized centers and respecting the regulations in force in your country. When the product has to be disposed of, the user can give it back to the retailer when purchasing a new device.
A correct separate waste collection or the compliance with the above-mentioned prescriptions contribute to avoiding possible negative effects on the environment and the health and promote the reuse and/or recycle of the materials of which the device is composed. The illegal disposal of the product entails the application of administrative fines according to applicable regulations.

INSTRUCTIONS FOR USE

For a correct use of the device, proceed as follows:
- plug the cables into their corresponding sockets in the device;
- connect the electrodes to their corresponding connectors at the end of the cables;
- place the electrodes on your clean and dry skin, then apply the gel.

Start up

To turn on, old the On/Off (OK) button down for about 3 seconds until a sound signal is heard.
The model name and software version will appear with a number on the lower right.
Depending on the model, different entries will appear. Use the P+ and P- buttons of the joypad to choose your function in the main menu:



"Program List" menu
When selecting "Program List" the following areas are displayed:
- CAT
- DOG
- HORSE

Use the P+ and P- buttons to select the desired area and press OK to confirm.

Selection of the current type (EMS/TENS/DENERVATED/MICROCURRENTS...)
Use the P+ and P- buttons to select the desired type and press OK to confirm.
Press the Left ← (Back) button to return to the previous screen.

Program selection
Use the P+ and P- buttons to select the desired program and press OK to confirm.
Press the Left ← (Back) button to return to the previous screen.

Select anatomic area:
Use the P+ and P- buttons to select the desired body area (upper, lower limbs) and press OK to confirm.
Press the Left ← (Back) button to return to the previous screen.

Start the program

When the program is selected, the display will show the following entries:
- Start;
- Electrode position.

To start the program press Start and increase the intensity of the channels in the screen that follows.

How to increase and decrease intensity
To increase/decrease the intensity of the single channels, press the Up ▲
or Down ▼ buttons of the corresponding channels.

Syncrostim Function

Press P+ or P- to increase or decrease the intensity of all the channels.

Runtime function (how to change the working phase parameters)

After starting the program, the following parameters can be edited:
- Time
- Frequency
- Amplitude

Press Function (fn) to edit these parameters for the phase in progress: a new screen appears and the phase time is displayed.
Press P+/P- to edit the time.
Press Fn or wait 5 seconds to confirm the new time settings.
To edit the next parameters move LEFT/RIGHT ←/→ with the buttons and repeat the above-mentioned procedure.

Display during program execution
During the treatment, the screen displays the name of the program (at the top), the number of phases and the phase in progress, the remaining time of the phase in progress and the type of the used wave (EMS, TENS). When performing an intermittent treatment, the screen displays the work or rest phase with time countdown.

How to pause the program

You can pause the program by pressing the OK button on the joypad. Press OK again to return to the program.
At the start of every treatment or after the interruption of a protocol, the device restarts from a 0 intensity value.

How to stop the program

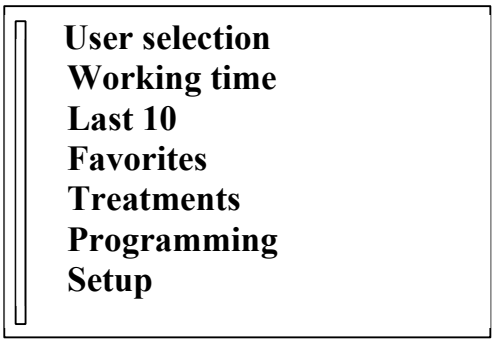
To stop the program in advance, it is possible to go back to the main menu by holding the Left (back) arrow down ←for about 2 seconds or turning the device off by holding OK down for about 3 seconds.

How to skip a phase

Hold the Right button down for 3 seconds to pass on to the next phase before the phase in progress ends.→
Hold Left (Back) for 3 seconds to return to the previous phase.←

Advanced Menu

The advanced menu includes the following entries:



Mode 2+2

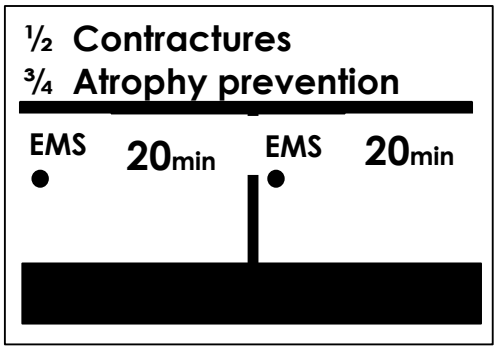
The device permits the simultaneous execution of two different programs (EMS or Tens), permitting the treatment of two patients or two muscular groups at once.

How to set multiple treatments:

There are two options to run two programs simultaneously:
a) Select the "2+2 mode" from the "Advanced" menu;
b) From the Program list menu;

a) Select "Advanced - 2+2 mode" from the main menu and press OK to confirm.
Select the area and the name of the first program. At this point, it is possible to select the area and the name of the second program.
b) from the menu "Program list" choose the area and the desired program. At this point, select "Continue with 2+2" and choose the second program.

Note: During the execution of the 2+2 mode, the following screen appears:



The program on the left side of the screen will work on channels 1 and 2, while the one on the right side on channels 3 and 4.

User selection

It allows to use the special menus (“Last 10”, “Favorites”) in a personalized way.
In order to gain access to favorite and "Last 10" programs, it will be sufficient to select one's USER. The programs stored in this area can be used only by that specific user.
NOTE: when you turn the device on you will see the last selected user.

Working time

It indicates the total time the device has been used for stimulation treatments.

“Last 10” Menu

The electrostimulator keeps track of the last 10 executed programs. Therefore, they are available for a rapid and very easy execution.
The programs are automatically stored at the end of their execution. If the memory is full, the "oldest" program is automatically deleted.
When you turn the device on, select “Last 10” and confirm with OK.
With the P+ and P- keys of the joypad, select the program you want to run (if there is no program in this menu you will read "EMPTY").

After confirming the selection 3 entries will appear:
a - Start
b - Electrode placement (electrode placement)
c - Delete from the list

a - After selecting "Start", it is possible to choose whether to run the program in automatic or normal mode. Press OK to activate the Automatic mode. Press any Increase Intensity button to run the program in Normal mode.
The message AUTO appears on the display when the "automatic" function is activated.

“Favorites” Menu

The "Favorites" menu allows you to save your most used programs on a special memory up to 15 for each user. In order to save a program, enter the “Program List" menu and choose the program you want to store. Before the execution, select "Save to Favorites" and confirm with OK.
The selected programs are easily available inside the "Favorites" menu.
NOTE: In Mode 2+2, it is not possible to store favorite programs.

“Treatments” Menu

The “Treatments" menu (Stim Lock) allows the user to lock the device and ensure that only treatments that have been saved through the appropriate function "Save to..." on the screen before the execution of the program will be performed.

This feature is conceived for the rental of the device to inexperienced users and/or patients who have to perform only certain protocols determined by the professional.

Stim Lock function activation

In the main menu, press and hold the buttons fn + --> (RIGHT button) for at least 3 seconds until the area where treatments have been saved appears.→
After Stim Lock has been activated, the device will have a limited number of functions.

Stim Lock function deactivation

Hold the fn + <-- (Left) buttons down for at least 3 seconds and in any case until the main menu appears.←
NOTE: If you turn the device on and the main menu does not appear
check that the Stim Lock function is not on.
Try to deactivate it.
If the problem persists contact the customer care service.

“Programming” Menu

The electrostimulator offers the possibility of creating and modifying new programs. This makes the device flexible and adaptable to your needs.
From the "Programming" menu you can create new programs (when the message "EMPTY" appears) and perform those already customized. These can be modified at any time (see "Program modification”).
The programs created in the "Programming" menu are unique for all "USERS" and are not stored neither in "Last 10" nor in "Favorites".

How to create a new program

With the P+ or P- buttons, select the spot where you want to create the program (from 1 to 10) and confirm with OK.

How to insert the name of the program

Use the Left and Right buttons to select the letters and confirm with the OK button.←→ In order to delete a letter select “Del”. After inserting the name of the program select “Continue”.

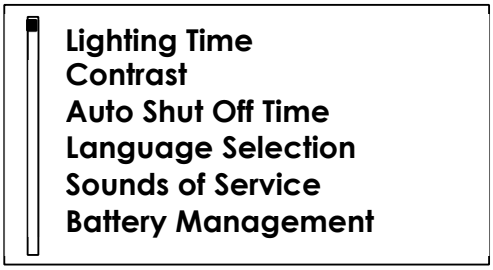
Setting of the parameters

STEP 1 Press "P+" or "P-" to select the stimulation type.
STEP 2 Press "P+" or "P-" to select the number of phases of the program.
STEP 3 After the number of phases is programmed, a series of screens will give the possibility of selecting the parameters. Use P+ and P- buttons to make your choice.
The previously described steps are the same for all the programs.
If the program presents more phases, the next required phase will be automatically proposed at the end of the insertion of a phase.
N.B. The programmed stimulation types vary according to the model.

Editing or deleting a program

In the "Programming" menu you can edit or delete programs that you previously stored in memory.
Press “fn” + “P+” to edit and “fn” + “P-“ to delete.
NOTE: it is not possible to program mixed multiphase programs (e.g. a EMS+TENS program).

Setup
By selecting the Setup menu, the following screen will appear:



- **Function "Lighting Time"**

Press P+ and P- to modify the backlight time in stand-by mode.

- **"Contrast" function**

Press P+ and P- to modify the display contrast.

- **"Auto shut off timer" function**

It permits the user to choose the inactivity period after which the device automatically shuts down. Press P+ and P- to set the time in minutes.

- **- "Language selection" function**

Press P+ and P- to choose one of the 5 available languages. Confirm the selection with OK.

- **"Service sounds" function**

It allows to enable (YES) or disable (NO) the acoustical beeps the device emits.

- **"Battery Management" Function**

Shut off
It allows to turn the device off.

ACTION PRINCIPLES

Muscular electrostimulation
Electrostimulation is a technique that, by means of electric pulses that act on the muscle motor points (motoneurons), causes a muscular contraction similar to voluntary contraction.
The muscle performs its functions through contraction.
When the electric signal reaches the motor plaque on the muscle surface, a depolarization of the muscle membrane is produced and Ca++ ions are released in it. The Ca++ ions, interacting with actin and myosin molecules, activate contraction, which leads to the shortening of the muscle.

Isotonic and isometric contraction
Isotonic contraction occurs when, during a movement, the muscles overcome external resistance and shorten, causing a state of constant tension at the tendon heads. When external resistance impedes the movement, instead, muscle contraction does not cause muscle shortening, but increases the intensity at

muscle heads: this condition is called isometric contraction. Isometric stimulation is normally used in electrostimulation because it generates a more powerful and effective contraction.

Tens

Transcutaneous Electrical Nerve Stimulation (TENS) is a selective stimulation of the large fibers of the peripheral nerves favoring the closing of the gate entrance for the pain pulses and increasing the release of endorphinic substances, reducing in this way the pain intensity. Therefore TENS is particularly indicated to treat the severe and chronic pain caused by the main musculoskeletal disorders.
TENS currents reduce pain thanks to the following factors:
a. Gate control theory
b. Endorphin secretion
c. Different sedative effects related to frequency

Gate theory

If the electric signals leading pain information to the brain are blocked, the perception of pain is eliminated. For instance, if we hit our head against an object, the first thing we do is to massage the traumatized area. In this way, we stimulate the receptors of touch and pressure. TENS in continuous mode and frequency modulation can be used to generate signals that are similar to those of touch and pressure. With sufficient intensity, their priority is so high that it prevails on pain signals. When the priority is obtained, the gate of sensory signals is opened and the pain gate is closed, impeding the passage of these signals to the brain.

Endorphin secretion

When a nervous signal proceeds from the pain area to the brain, it spreads through a chain of joined connections called synapses. The synapse can be seen as the space between the end of a nerve and the start of another. When an electric signal reaches the end of a nerve, it produces substances called neurotransmitters that pass through the synapse and activate the start of the following nerve. The process is repeated until the signal reaches the brain. The opioids involved in pain reduction have the task of sliding into the synapse space and impeding the propagation of neurotransmitters. In this way a chemical block of pain signals is obtained. Endorphins are opioids that are naturally produced by the body to tackle pain and they can act in both the marrow and the brain as effective analgesics. Tens can increase the natural production of endorphins; therefore they decrease the perception of pain .

Microcurrents

Unlike conventional electrotherapy, microcurrents use currents with intensity between 10 and 500 μA (microamperes, i.e. a millionth of an ampere). Several studies have proved that microampere currents actually increase ATP synthesis.
MENS therapy usually has two different phases: the first aims at reducing the pain sensation perceived by the patient, while the second promotes protein and ATP synthesis, accelerating tissue repairing processes. Usually, the treatment duration is of 15 to 30 minutes for the first phase and of 5 to 10 minutes for the second phase. MENS are an interesting instrumental therapy that can be used to treat a number of pathologies; in particular, the use of MENS combined with other instrumental therapies, such as laser and/or TENS, can provide excellent clinical results, otherwise unlikely to be achieved.

Denervated

The stimulation of denervated muscles differ from the stimulation of healthy muscles, since the activation of the muscle fibers requires particular currents.
In the presence of a traumatic lesion of the peripheral nerves, measuring the chronaxies allows to identify a low, partial or total denervation. Excitomotory treatment aims at maintaining muscle trophism and

limiting muscle sclerosis to ensure muscle efficiency at the end of the reinnervation process, which can last a few months. The effectiveness of the treatment depends on the correct setting of stimulation parameters, that must be clearly defined for each patient and adapted over time.

Rectangular current
Rectangular currents are characterized by one single rectangular pulse, varying rapidly from zero to the highest set intensity, from a contraction duration equal to the duration of the pulse, from a pause corresponding to the muscle recovery time. The rectangular pulse causes muscle contraction, the pulse duration determines a selective contraction of the denervated fibers and the average pulse value equal to zero (alternating polarity) avoids the ionization of the skin. Rectangular pulses are mainly used on totally denervated muscles. The program varies according to the pulse duration and the rest time.

Triangular current
Triangular currents reach the highest intensity value with a linear ramp up, which, if combined with sufficiently long pulses, determine an efficient contraction response of the denervated fibers (controlled by injured muscles) without stimulating adjacent innervated fibers. Being an excitomotor current, the triangular pulse contracting denervated fibers will be followed by a pause where the current value is equal to zero. Pulse polarity is alternate to avoid the ionization of the skin. Triangular currents are used to stimulate totally or partially denervated muscles, thanks to the accommodation capacity of nerve fibers to the slow intensity increase and the absence of ailment in the patient. The selective stimulation of the fibers does not involve innervated fibers, as sometimes happens with alternate rectangular currents, because of the rapid increase of the pulse. The program varies depending on pulse range and rest duration.

Trapezoidal current
Trapezoidal currents are mainly used on partially denervated muscles. The program varies according to the pulse duration and the rest time.

PROGRAM LIST

REHABILITATION Program List

	Cat	Dog	Horse
Recovery after ACL surgery	X	X	X
Contractures	X	X	X
Atrophy recovery 1	X	X	X
Atrophy recovery 2	X	X	
Muscle rebuilding 1	X	X	
Muscle rebuilding 2	X	X	
Strengthening 1	X	X	
Strengthening 2	X	X	
Motor point pen	X	X	X
Agonist - Antagonist	X	X	X

TENS Program List

	Cat	Dog	Horse
Endorphinic tens	x	x	x
Conventional antalgic tens	x	x	x
Anti-accommodation modulated tens	x	x	
Post-surgical pain	x	x	x
Fracture pain	x	x	x
Osteoarthrosis	x	x	x
Wobbler syndrome		x	
Discopathy	x	x	x
Spondylarthrosis	x	x	x
Lumbosacral stenosis	x	x	

SPORT Program List

	Cat	Dog	Horse
Forelimbs maximum strength		x	
Hindlimbs maximum strength		x	
Forelimbs endurance strength		x	
Hindlimbs endurance strength		x	
Forelimbs explosive strength		x	
Hindlimbs explosive strength		x	
Decontracting		x	
Cooling down		x	

DENERVATED Program List

	Cat	Dog	Horse
Triangular 1	x	x	
Triangular 2	x	x	
Triangular 3	x	x	
Rectangular 1	x	x	

Rectangular 2	x	x	
Rectangular 3	x	x	
Trapezoidal 1	x	x	
Trapezoidal 2	x	x	
Trapezoidal 3	x	x	

MICROCURRENT Program List

	Cat	Dog	Horse
Osteogenesis	x	x	x
Wound cicatrization	x	x	x
Cartilage	x	x	x

GENERAL USE PRINCIPLES

Before starting the therapy, take all the necessary precautions to avoid hurting the operator or the pets. Pets have to be muzzled and placed in the lateral decubitus position during the first phases of the treatment. If the animal is very anxious, it might be necessary to give him a light tranquilizer. It is advisable to perform treatments only under the supervision of qualified personnel.
Prepare the area by shaving the hair and cleaning the skin with alcohol. It is recommended to rub abundant gel on the skin to increase electric conductivity. Localizing the motor point - where the motor nerve enters the muscle - is fundamental to obtain an adequate contraction with the minimum level of current, to minimize patient's discomfort. The electrodes can be placed on a muscle to provoke a contraction and the consequent movement of the corresponding joint. Alternatively, they can be placed on opposed muscle groups to cause a co-contraction that simulates an isometric contraction and causes little or no joint movement.
The motor point can be localized by applying the gel on the skin and moving the electrode on the area of the muscle belly, since the motor point is usually on the median section of the muscle belly. While the device is working, the electrode can be shifted in the area until a proper contraction is obtained. Setting the frequency at 1 Hz will aid to localize the motor point, because the contraction will be clearer and stronger as the electrode approaches the motor point. Use a marker to draw the silhouette of the electrode to position the electrodes correctly in the following treatments.

GENERAL NOTES ON ELECTRODE POSITIONING

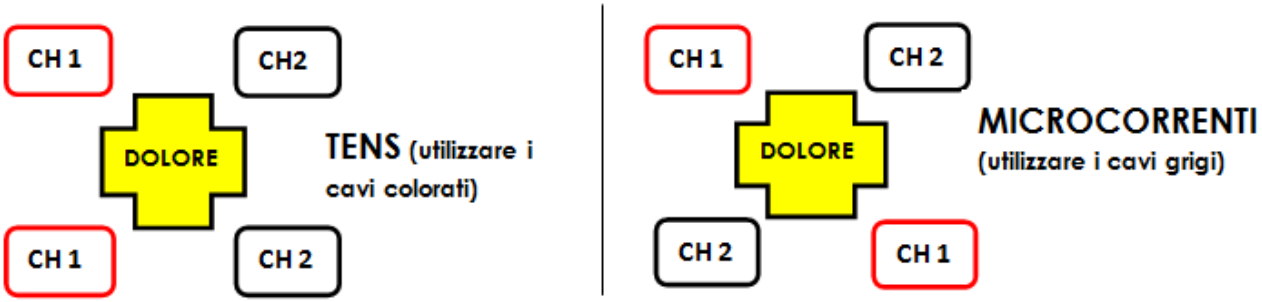
Correct electrode positioning and size choice are fundamental to assure the effectiveness of electrostimulation.
For all the programs that cause a big muscle contraction (e.g. strength programs) it is important to position the electrode on the muscle **motor point**, that is the most sensitive to stimulation.
If the electrode is not placed exactly on the motor point, the contraction might be weak and/or annoying. In this case it is necessary to shift the positive electrode of a few millimeters to feel an effective and comfortable muscle contraction.

Body position during stimulation

Body position during elctrostimulation depends on the body part involved and on the type of program that is being carried out.
During the execution of treatments with high intensities, we suggest blocking the limbs in order to work isometrically. For instance, if you want to treat the quadriceps with a strength program, we suggest to block the feet, in order to avoid involuntary leg extension during the contraction phase.
For all the programs that do not imply high intensity (massages, decontracting, drainage...) the body position is not important, as long as it is comfortable.

Electrode positioning for Tens and Microcurrent:

- Tens: use colored cables, following the positioning scheme below.
- Microcurrents: use gray cables and cross them on the treated area.



WARRANTY

The device is guaranteed to the first purchaser for 24 months from the purchase date against material or manufacturing faults (12 months if the device is used for professional purposes), provided that it is used properly and maintained under normal operating conditions.

Warranty coverage is limited in the following cases:
- six (6) months for accessories subject to wear, such as batteries, power supplies, electrodes, cables etc.

In order to take advantage of the warranty service, the user must comply with the following warranty clauses:
1. Products have to be sent for repairs by and at the expenses of the Customer in their original packages and with their full original equipment.
2. The product's warranty is subject to the production of a fiscal document (fiscal receipt, receipted bill or sale invoice), attesting the product's purchase date.
3. The repair work shall have no effect on the original expiry date of the warranty and shall neither renew nor extend it.
4. If no defects are found, during the repair work, the costs related to inspection times shall in any case be charged.
5. The warranty becomes void if the fault has been caused by: impacts, falls, erroneous or improper use of the product, use of non-original power supply or charger, accidental events, alteration, replacement/detachment of warranty seals and/or product tampering. Moreover, the warranty does not cover damages caused during transportation due to unsuitable packages (see point 1).
6. The warranty does not cover the inability to use the product, other incidental or consequential costs or other expenses incurred by the purchaser.

NOTE: before returning the device for repairs, we suggest reading carefully the user manual and consulting the Globus website.
If you have to return the product for repair, please contact your dealer or the Globus customer service.

GLOBUSVet
Yes, WE CARE

DOMINO S.R.L. - Via Vittorio Veneto, 52 - 31013 Codognè (TV) - Tel. (+39) 0438.7933

globuscorporation.com