

# GLOBUS

ITALIAN EXCELLENCE

## MAGNETO THERAPY



User Manual

MAGNUM L



CE  
0476

# MAGNUM L

## **DEAR CUSTOMER**

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



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The device has been manufactured in compliance with applicable technical standards and has been certified, in compliance with Directive 93/42/EEC as amended by directive 2007/47 on medical devices, by the Notified Body Kiwa Cermet Italia, Via Cadriano 23, 40057 Granarolo dell'Emilia (BO) Italy (n. 0476), to ensure product safety.

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## TECHNICAL FEATURES

### Device

Size: 160x100x35mm

Weight: 260 g

Case: ABS food grade

Protection level: IP 22

Storage and transportation temperature: from -10°C to 45°C

Max. relative humidity: 30% - 75%

### Use conditions

Temperature: from 0°C to 35°C

Max. relative humidity: from 15% to 93%

Atmospheric pressure: from 700 hPa to 1060 hPa

### Power supply

Brand: Dongguan Shilong Fuhua Electronic Co

Model: UES24LCP-120200SPA

PRI: 100-240Vac 50/60Hz, 500mA

SEC: 12.0V  $\equiv$  2.0A, 24W

Polarity:  $\oplus$   $\ominus$   $\ominus$

**The magnetic intensity that can be emitted with flexible diffusers:** 120 Gauss on average per channel

**Output channels for solenoid connection:** 1 channel

**Adjustable frequency:** from 5 to 200 Hz

## STANDARD EQUIPMENT

The Magnetotherapy device equipment includes the diffuser; therefore, please check that the package contains the complete equipment.

If some elements are missing, contact your authorized retailer immediately.

Check that the device and the diffuser are intact.

- 1 flexible diffuser
- Power supply unit (see technical features)
- Operating manual
- Device and waterproof case IP 02
- Carrying case

### Description of the accessories

Magnum devices can be plugged in to Magnum optional accessories.

#### G5867 Magnum Test



The Magnum Test is used to verify the correct functioning of the solenoids. Once the solenoid is connected to the device and a program is started, place the box on top of a coil and check if there is a vibration.

In case you do not feel the vibration, contact the technical support.

**G0699 Battery pack** (Ni-MH 7.2V 1 Ah): by purchasing the optional battery pack, the device can operate for a short period without connection to the mains. The duration of the battery can vary depending on the treatment.

#### G1407 Flexible solenoid

Flexible solenoid with 2 coils. Comfortable cotton fabric with central elastic part to facilitate the positioning on the different anatomical districts. Dimensions: 30x10 cm.



## **G5988 Pocket Pro Solenoid**

Solenoid with 2 coils inserted into a soft cushion and placed inside a case with a zipper, easily cleanable and sanitizable (see chapter Maintenance and Cleaning). Dimensions: 15.5x9.5 cm. To use the device with more than 2 solenoids it is necessary to split the cables.



## **G4276 Soft mat 4 to be used with splitting cable**

Soft and comfortable mat, made up of 4 total coils, easily cleanable and sanitizable fabric. It is ideal for lumbar applications, hips, feet and hands. To use this soft mat it is necessary to split the cables. Size 25x25 cm



## **G1408 Flexible solenoid**

This solenoid contains 4 coils all oriented to the north towards the same side and it is particularly suited to cover a large surface, like the back of the femur. Dimensions 40x150 cm



These solenoids can be used individually by placing them directly in the treatment area or, by purchasing a pair of them, they can be used in the "Opposed solenoids" mode.

## **G4277 magneto splitting cable**

With this accessory, you can split the channels by using, for example, 2 single Pocket Pro solenoids on the same channel or two flexible solenoids.

Warning: the y splitting cable only works by connecting solenoids of the same type.



## **INTENDED USE**

The estimated useful life of the product is 5 years. We recommend the return of the product to the manufacturer and/ or authorized center every 2 years for maintenance and safety verification.

The Magnum L has been designed to be used in operational areas such as:

- domestic environment;
- clinics;
- physiotherapy centres;
- rehabilitation in general;
- treatment of pain in general.

Exploiting the principle of low frequency magnetotherapy, the device can represent a first-choice therapeutic method, especially in the inflammatory, traumatic and degenerative pathology of the osteoarticular and musculoskeletal system.

We list in summary what are the benefits of magnetotherapy on the musculoskeletal system:

- improves osteogenesis by stimulating the activity of osteoblasts, accelerating the formation of bone callus and mobilizing calcium ions;
- reduces inflammation;
- improves capillary flow and microcirculation;
- promotes the reabsorption of edemas and interstitial fluids;
- improves cellular exchange;
- relieves the pain.

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The use of this device is allowed to the patient himself (properly informed of the conditions of use of the apparatus) and to the medical staff.

CE0476 does not refer to non-medical treatments.

## INSTRUCTIONS FOR THE USE OF THE WATER-PROOF CASE

To ensure the IP 22 water-proof level in-home use, put the device into the water-proof case included in the equipment. Then pressure-close the zip and let the cables come out of the upper corner of the case. Use a twist tie to seal the closure on the corner. Complete the insertion as in the picture below.



## CONNECTIONS

### Device

Magnum L has to be connected to the mains. To connect the power supply to the connector, plug it in as shown below.



### Warning:

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

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## Connect the diffusers

To connect the diffusers to the device, plug them into the intended inlets on the top of the device (see picture). **Cables should be inserted with grooves downwards.**

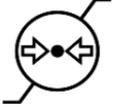


**WARNING:** do not unplug the solenoids (diffusers) if the unit is working.

## LABELLING AND SYMBOLS

	It refers to the manufacturer
	Warning
	This symbol on your device indicates that it complies with the directives on medical devices (93/42/EEC 47/2007EEC). The number of the notified body is 0476.
	It indicates that this is a class II device.
	It indicates that this device has BF-type applied parts.
	WEEE symbol (Waste of Electrical and Electronic Equipment). Recycling symbol. The WEEE symbol used for this product indicates that it cannot be treated as 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.

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	It indicates that the product has been produced in compliance with the directive 2011/65/EEC.
	It indicates the ideal 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.
IP20-IP02	It indicates water protection
	It informs the client of the 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 its accessories are used and stored
PRI	Mains voltage
SEC	Power supply voltage
Input	Input: it indicates the value of the mains voltage for the power supply
Output	Output: - indicates the output voltage of the power supply - indicates the maximum power of the magnetic field emitted by the device - indicates the frequency range of the magnetic field emitted by the device
Type	It indicates the device type
Power	It indicates the power supply model
Battery	It indicates the internal battery pack of the device
	It refers to the expiry date of the product
<b>LOT</b>	It refers to the production lot

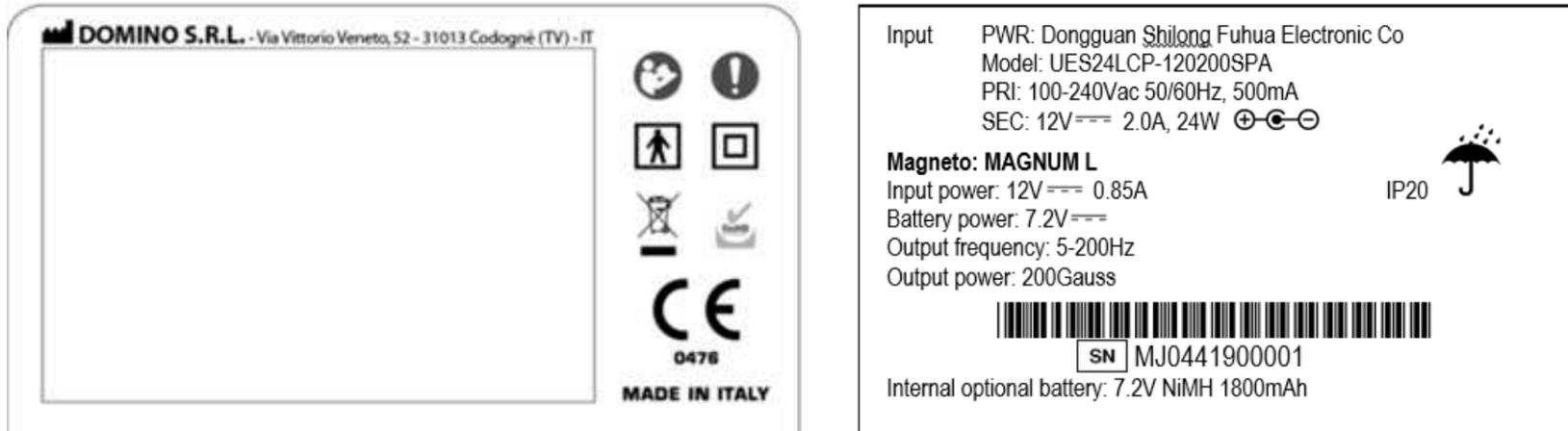
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**SN**

It indicates the serial number of the device

## Device

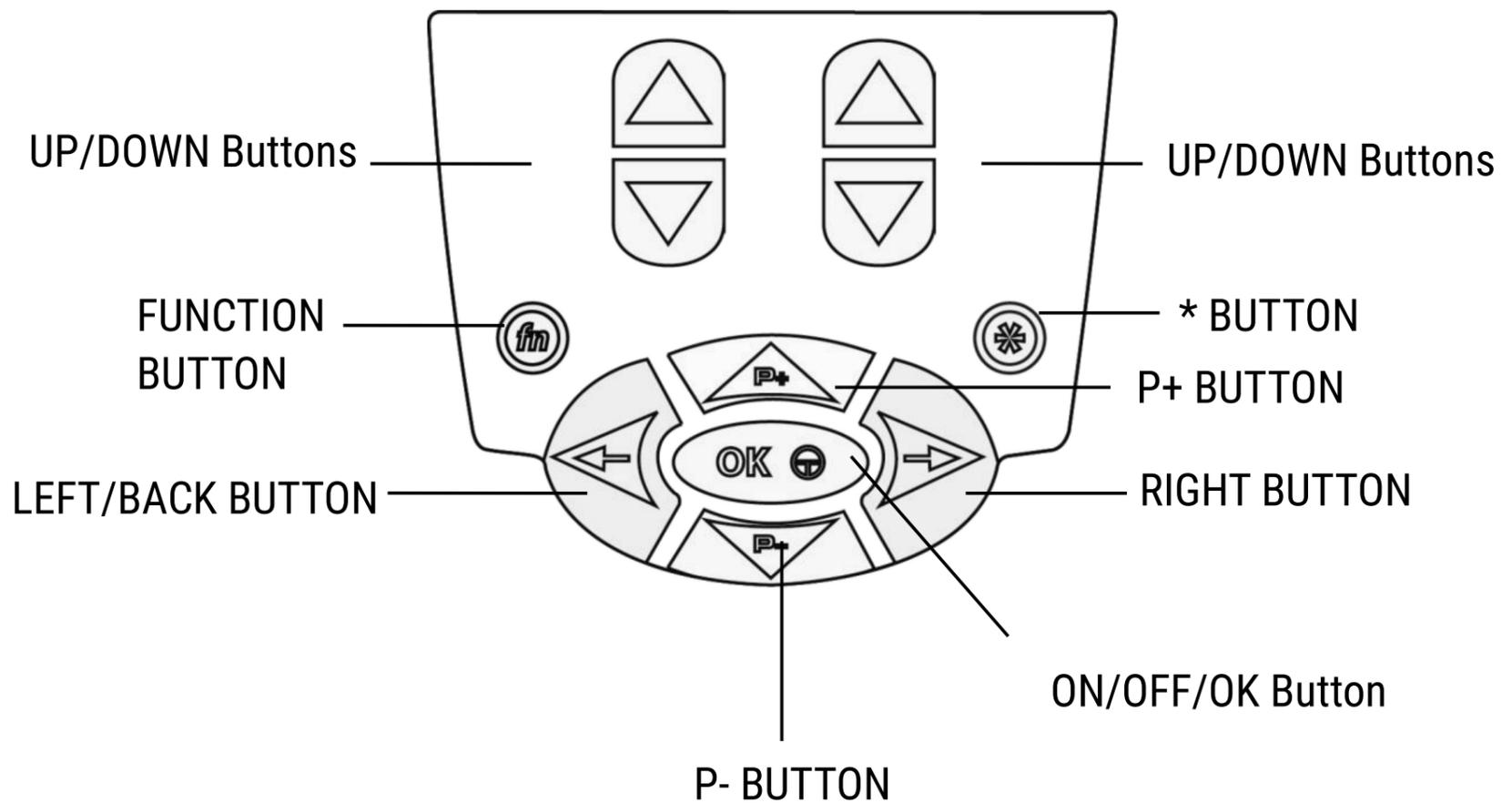
The image is just for indication. For technical data see the first chapter.



**SN**

The first 4 digits of the serial number indicate the week and year of manufacture of the device you purchased (for example, if the code is \*\*\* 2319 \*\*\*\*\*, it means that the device was manufactured in week 23 of 2019).

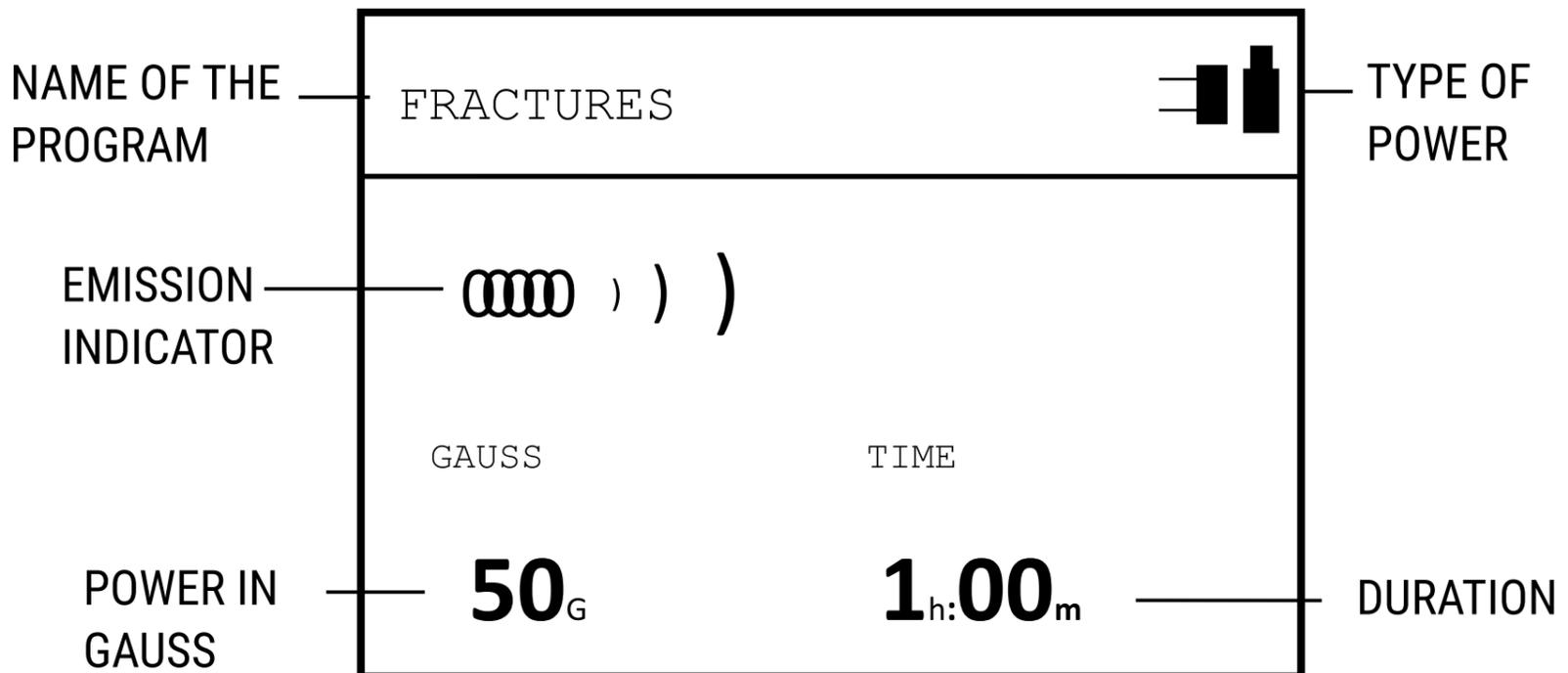
## DASHBOARD AND KEYBOARD



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<b>ON/OFF/OK Button</b>	It confirms the selection. It pauses the running program. 3" = Turn ON/OFF.
<b>LEFT/BACK Button</b>	To scroll the selection left. To go back to the previous selection.
<b>P+ Button</b>	It moves the selection upwards.
<b>P- Button</b>	It moves the selection downwards.
<b>RIGHT/USER button:</b>	It moves the selection to the right. 3" = It moves to the next phase, while a program is running
<b>Function (fn) Button</b>	To regulate the treatment duration (see chapter "INSTRUCTIONS FOR USE")
<b>* Button</b>	To modify the unit of measurement of the field (G=Guass, mT=Millitesla)
<b>Up/Down Button</b>	It changes the values displayed on the screen

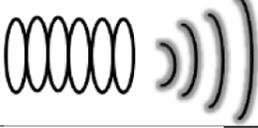
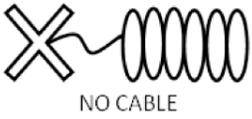
## Display/interface



## INFORMATION SIGNALS

### Compliance

The information signals comply with directive 60601-1-8.

	<p><u>Correct power emission</u> The treatment proceeds correctly.</p>
	<p><u>Cable not connected</u> Check that the cable is connected to the right output.</p>
	<p><u>Device in pause</u> Press OK to continue the treatment.</p>

## WARNINGS AND CONTRAINDICATIONS

### Mandatory behavior

For maximum safety, the device must be used following the rules and the limitations of the user manual.

If the packaging, the cable or the connector of the power supply unit shows signs of wear or damage, replace them instantly.

Before connecting the device to the mains by its power supply, ensure that the building wiring complies with the directives in force in your country. Make sure that the power supply will be easily unplugged from the mains.

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.

### Instructions before use

Consult your family doctor before use.

Do not use MagnetoVet combined with other electronic devices, especially if they maintain vital functions. Read the tables at the end of the present handbook for correct use of MagnetoVet 100. If the device is used nearby or on other devices, make sure it works properly.

-It is recommended to read carefully the entire operating manual before using the device;

keep this operating manual with care.

- The unit must be used only with the diffusers provided with the original equipment (or Globus brand) and according to the described therapeutic modalities;
- check the integrity of the device before every use, which is a fundamental condition to perform the therapy correctly. Do not use the device if its cables or buttons are defective or malfunctioning.

The device:

- it must be used only by people over 18 or applied on subjects from the age of 15 under the supervision of people aged less than 18 years and, in any event, who can understand and take action.
- it must be used following the indications and under the physician's or physiotherapist's control;
- it must be kept out of the reach of children;
- if there is any health problem, it must be used only after seeing a physician;
- once you have turned the device on, make sure that on the display the software version and the model of the device appears; it means that the device is working and it is ready to be used;

Otherwise, if all the segments appear on the monitor, shut down the device and restart it. If the problem persists, contact customer care and do not use the device.

## **Warnings during the use**

The device is intended for continuous functioning.

While using Magnum L, please comply with the following indications:

- in the case of damaged cables, they must be replaced with original parts and not used anymore.
- If the alert of not connected cable appears, check the functionality of the device using the Magnum test (refer to the reference paragraph).
- the device must be kept out of the reach of pets, which can damage it and contaminate it with parasites.
- the cables of the device, the diffusers, and the power supply should not be wrapped around people's necks to avoid any risk of strangulation and suffocation;
- the mobile and fixed radio communication devices could influence the functioning of the electromedical device: see the tables attached to this manual.

## **Side effects**

It has been pointed out: general intolerance to magnetic fields therapy such as

sleepiness, restlessness, insomnia, and nausea. According to our experience, these effects are extremely rare and were mainly observed during the treatment of the cervical spine. In case of the onset of the events, avoid sessions longer than 30 consecutive minutes.

## **Contraindications**

### **Absolute contraindication:**

- treatment of patients with heart pacemakers or other permanent electrostimulators (e.g., vertebral ones).

### **Relative contraindications:**

- patients with cardiac rhythm disorders;
- dermatitis and fungal infections;
- hemorrhagic tendency;
- severe ischemic diseases;
- during the menstrual cycle if particularly abundant;
- this treatment is not indicated for pregnant women, persons with electrical and/or acoustic prostheses, and intrauterine devices;
- do not execute this therapy simultaneously with TENS and/or HOLTER;
- do not use in areas with a metal prosthesis (screws, nails, etc..) made of ferromagnetic material and in areas with means of magnetizable endotissue synthesis. If you have any doubt, see your physician;
- do not use on children under fifteen;
- do not use on noble organs (ovaries, heart, head, etc.);
- do not use in the case of fever;
- in the case of tumor diseases, it is necessary to see your physician or oncologist before using magnetotherapy;
- in the case of severe imbalances of blood pressure;
- do not use in the case of tuberculosis;

## MAINTENANCE AND CLEANING

### Maintenance and cleaning of the device

- In case of real 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 environment and an open space (not wrapped in any material).

- 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.
- It is recommended to clean/disinfect the parts after every use unless otherwise indicated.

### Maintenance and cleaning of the diffusers (or solenoids)

- Handle the diffuser with care.
- Inappropriate handling may affect its features.
- Do not tie or twist the connection cable.
- For cleaning, disconnect the transducer from the device.
- Do not plunge the transducers into liquids and do not use liquids directly on them. Use a dampened cloth.
- Do not use sprays, liquids or solvents near the transducer.
- Avoid using aggressive solvents, alcohol, or detergents that may damage the case.

### Cleaning Mat Soft 4

For cleaning use only Amuchina or Quaternary ammonium salts diluted in distilled water in a percentage equal to 0.2 - 0.3%. At the end of cleaning, the mat must be perfectly dried with the use of a clean cloth.

In case of liquid penetration, do not use the mat and contact an authorized service center.

The cleaning process is expected to take place at the end of each use.

### Cleaning of Pocket Pro case

- Pocket Pro cases can be machine washed at 40 ° with mild soap. Do not put it in

the dryer.

Cleaning procedure:

- Remove the mat containing the coils from their case;
- After the washing and the drying of the case, insert the mat containing the 2 coils.

Pay attention to the two N (indicating the North) printed on the coils, they must be positioned on the corresponding side of the N printed on the case.

### **Cleaning of the flexible diffuser**

- Clean the diffuser using disinfectant with sodium hypochlorite or quaternary ammonium salt (percentage: 0.2 - 0.3%) diluted with distilled water. Allow the accessory to dry completely before using it again.
- Alternatively, sanitize the solenoid with steam appliances (steam gun, steam iron...) To have an antibacterial result, use a jet of at least 100 ° temperature, trying to maintain a distance of 10 cm from the accessory, for some seconds on each size.

### **Diffuser check**

At every cleaning of the diffuser and in any case after every treatment, it is necessary to check that it has no snatch or other forms of wear that could make it inefficient.

If the transducer is not intact, replace it immediately.

### **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 respect 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.

Correct waste separation and returning the end-of-life product contribute to avoiding negative impacts on the environment and health and promote the reuse and/or recycling of materials. The illegal disposal of the product entails the application of administrative fines by applicable regulations.

## INSTRUCTIONS FOR USE

### Turning on/off

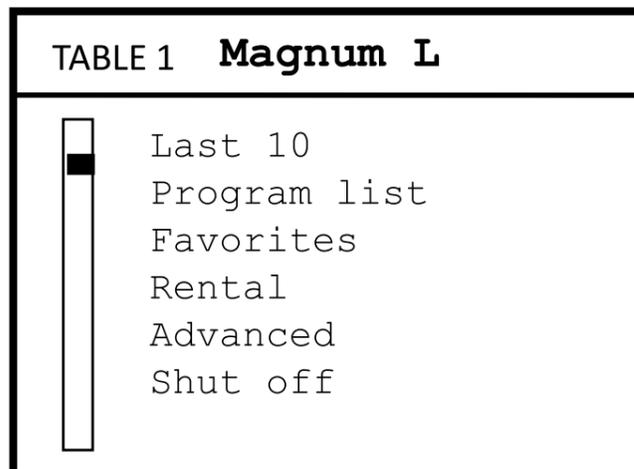
Connect the device to the electricity mains.

To turn on or off, press and hold the On/Off (OK) button until the acoustic signal is heard.

When turning the device on, the model will be displayed on the screen.

Confirm with OK to see the next menus.

### Program selection



Use P+ and P- buttons to select the Program List menu.

After highlighting the menu, confirm your choice by pressing OK.

### Program List menu

When confirming the Program List menu, the following areas are displayed:

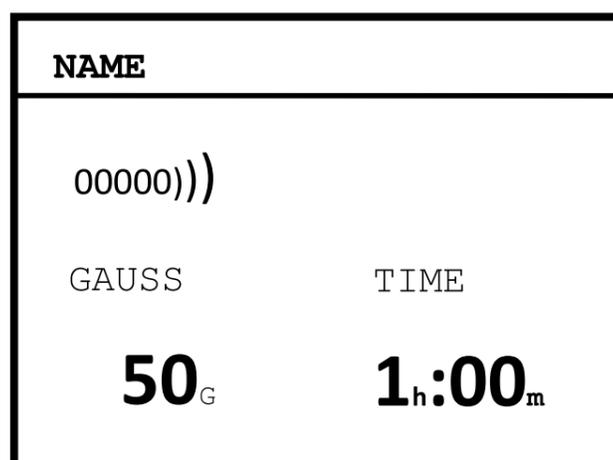
Use P+ and P- to select the program. Press Ok to confirm.

### Start the program

When the program is selected, the display will show the following entries:

- Start
- Save to Favorites (see Favorites Menu)
- Save for rental (Rental menu)

To launch the program, confirm with Start. You will see on your display the program name, the connected solenoids, the total time of the treatment, and the emitted Gauss (field).



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## How to pause the program

To pause the program, press the OK button on the joypad. The time stops. Press OK again to restart the program.

During the pause, the message PAUSE will appear on the screen.

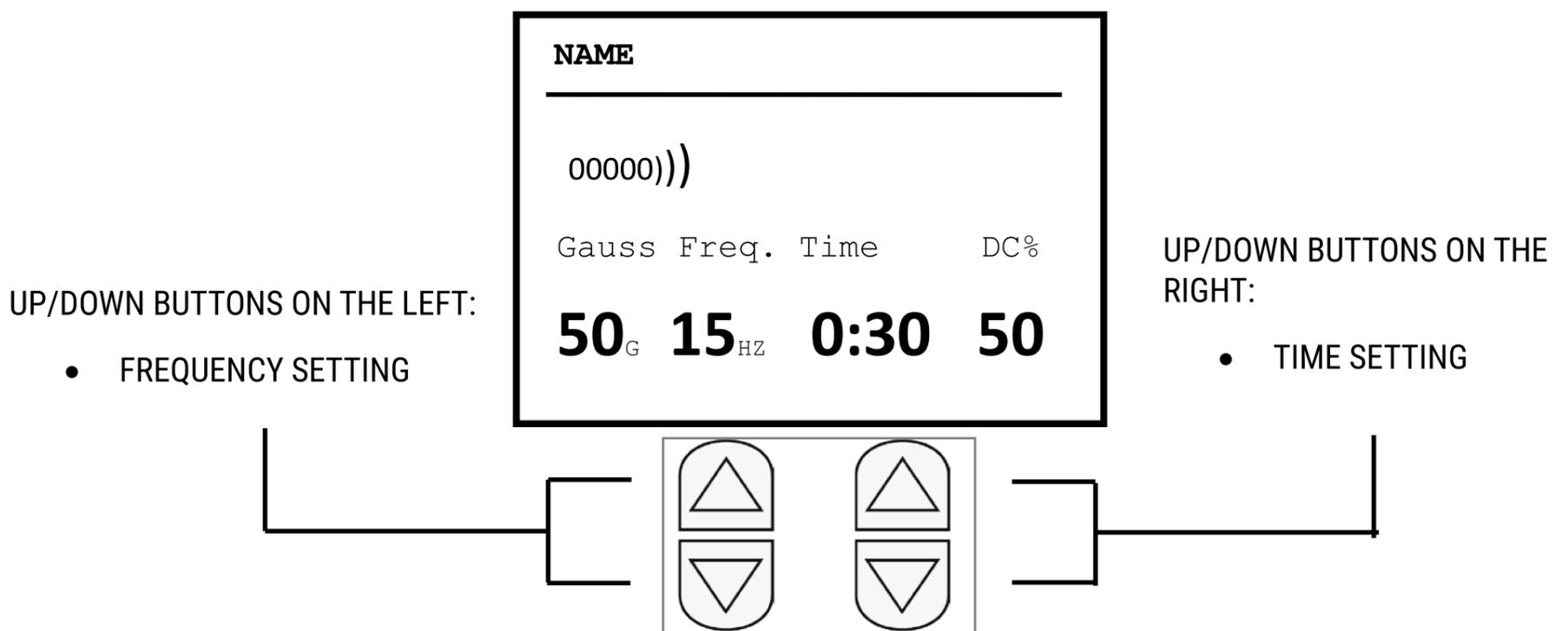
## How to stop the program

To stop the program before the end of the treatment hold down OK until you hear a continuous beep.

## How to modify treatment duration and frequency

To modify treatment duration, **press the asterisk button (\*)** to highlight the area and use increase/decrease buttons to modify hours and minutes. The maximum duration of the treatment is 9 hours 59 minutes.

After time adjustment, wait a few seconds until the area is deselected.



## Increase/decrease of the preset power

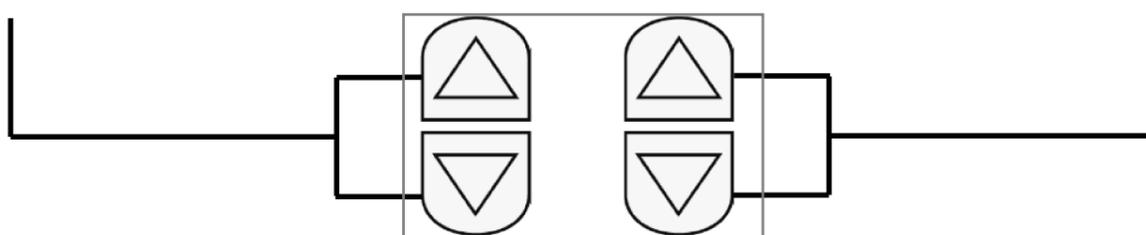
To modify the power, use the UP/DOWN power buttons on the left to change the units and the right buttons to increase or decrease the tens.

UP/DOWN BUTTONS ON THE LEFT:

- GAUSS VARIATION, STEPS OF 5

UP/DOWN BUTTONS ON THE RIGHT:

- GAUSS VARIATION, STEPS OF 10



## **“Last 10” Menu**

Magnum L stores the last ten programs executed. By doing so, you will find the programs available for quick and easy execution.

The programs are automatically stored at the end of the 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 2 entries will appear:

a - Start

b - Delete from the list

By placing the cursor on "Start" and pressing OK you can launch the selected program.

By pressing “Delete from the list”, the program will be deleted from the “Last 10” list.

**Important:** if during the execution of a program the duration of treatment and/or the emitted field is modified, the program stored in the “Last 10” will maintain duration and field setting changes.

This feature can be particularly useful if the user has to carry out a cycle of treatments with a program that has a longer duration than that preset one.

## **Quicksave of a program in the "Last 10 "**

Sometimes, there may be a need to change the duration and the output field of treatment and find the changes in the last 10 programs, but you don't have time to wait for the program to be finished. Pressing the Right button for a few seconds the program will end and will be stored in the last 10 along with the changes.

## **“Favorites” Menu**

The "Favorites" menu allows you to save the most used programs on a special memory. 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.

## **“Rental” Menu**

The “Rental” function lets the user lock the device to use only the treatments that have been saved through the special function “Save for rental” on the screen page before the execution of the program.

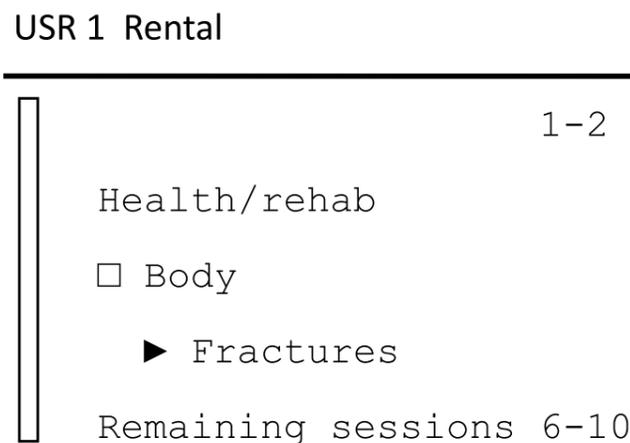
This feature is conceived for the rental of the device to inexperienced users and/or patients who have to perform only certain protocols determined by the professionals.

## How to save a treatment

Once you have chosen the program you want to run, you can select "Save for rental". Set the number of sessions to be programmed using P + and P-, then press the OK button. This way the program has been saved and can be found in the rental menu.

## Perform a treatment

Once you have selected the rental menu you will see a screen like this:



In the example image, the upper right corner displays treatment 1 (out of 2 stored treatments) for which 6 out of 10 planned sessions still have to be performed. Press the OK button to start the program or delete it from the list.

## Activation of Rent function

Press and hold the buttons fn + --> (RIGHT button) for at least 3 seconds until the area where treatments have been saved appears. After the rental function has been activated, the device will have a limited number of functions.

## Deactivation of the Rental function

Hold the fn + <-- (SX) buttons down for at least 3 sec. 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 "Rental" function is not on; try to deactivate it.

If the problem persists contact the customer care service.

## Customizing a preset program and storing it in the rental menu.

To store in the "Rental" menu a preset program to which you have made changes (on treatment duration or field intensity) you can act in two different ways:

- 1) let the program end;
- 2) press the RIGHT button for a few seconds. In this way, the device skips the working

phase and the program ends.

For both modes, once you have finished the program, the possibility to choose again will be displayed on the screen:

- Start
- Save to Favorites (see Favorites menu)
- Save for rental (Rental menu)

By choosing the option "Save for rental" you will be asked to enter the number of scheduled sessions.

The entered program will be stored in the Treatments with all its changes.

## **Advanced Menu**

In the advanced menu it is possible to choose among these options:

- User selection
- Setup
- System info

## **User selection**

It allows using the special menus ("Last 10", "Favorites") in a personalized way.

To access one's favorite programs and the "Last 10", 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.

## **Setup**

In the setup menu it is possible to edit the following fields:

- Lighting Time
- Contrast
- Auto Shut Off Time
- Language Selection
- Sounds of Service
- Battery Management

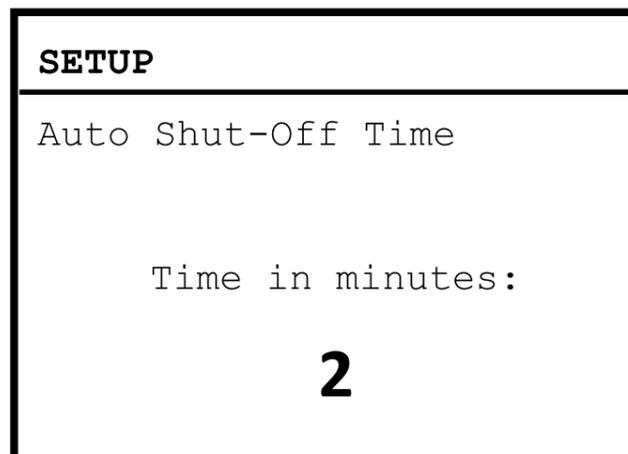
## **Lighting time and Contrast**

To increase or decrease the duration of the lighting or the contrast of the display press the P+ and P- buttons and confirm with OK.

## Auto Shut Off Time

It allows setting the time after which the machine, if not used, switches automatically off.

It is possible to select from 2 to 9 minutes. Use P+ and P- to select and confirm with the Ok button.



## Language Selection

It allows modifying the language of the different menus.

Press P+ or P- to select and press Ok to confirm.

It is possible to choose among the following languages:

1. Italian
2. English
3. Spanish
4. French
5. German
6. Portuguese

## Sounds of Service

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

## Battery Management (optional accessory)

The device has a menu that shows the status of the battery charge.

On the basis of the values, it is recommended to replace the battery when:

COD0 = 1 and COD5 < =600

COD1 = 1 and COD 3 < 7,4V

COD3-COD2 <2 and COD4 <600

COD6<5.8V.

Moreover, it is recommended to replace the battery pack after 3 months of non-use of the device; after that period batteries typically lose their charge capacity and the charging becomes dangerous.

## System info

Includes factory information about the device.

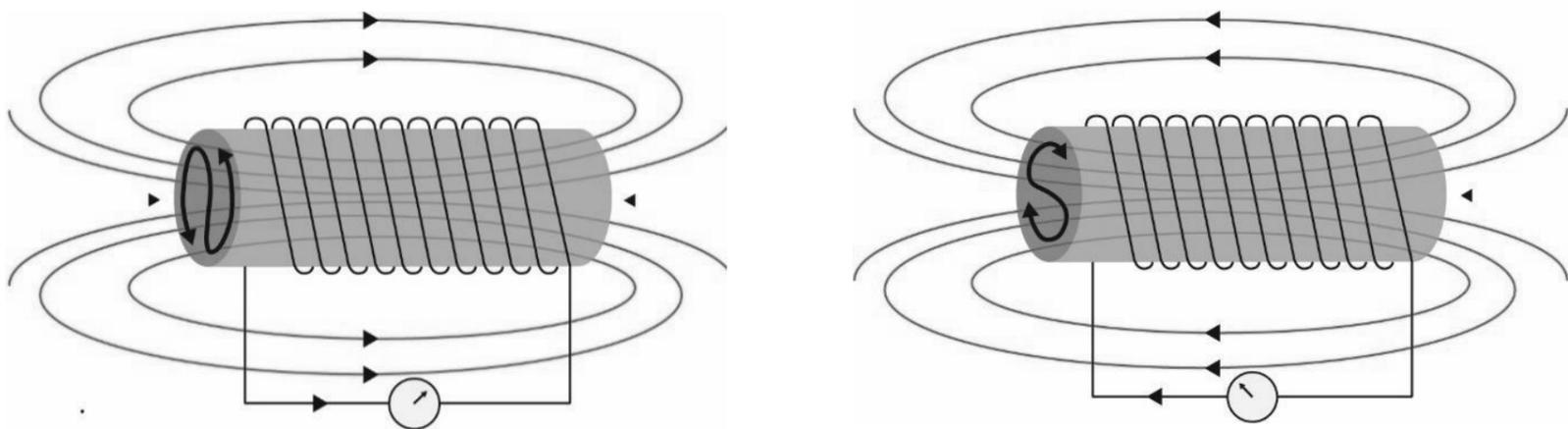
## ACTION PRINCIPLE AND APPLICATION METHODS

### What is magnetotherapy

Magnetotherapy is a form of physiotherapy that uses electromagnetic energy to stimulate tissue regeneration.

Magnetotherapy is a physical therapy based on low-frequency and low-intensity Pulsed Electro Magnetic Fields (PEMFs).

It avails itself of the action of a magnetic field generated by the electric current that goes through a coil (solenoid). The solenoid is composed of a metal conductor wrapped in a series of coils.

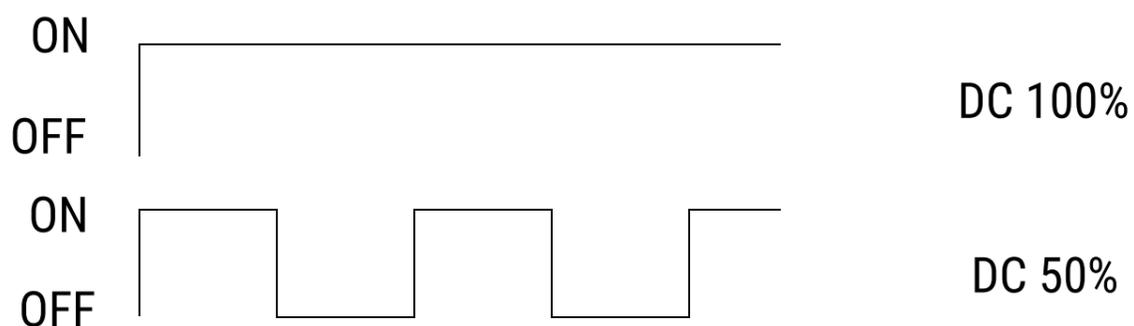


### The treatment parameters

The Globus devices for magnetotherapy emit low-frequency signals of the rectangular form (up to 100 HZ). The **frequency** corresponds to the number of pulses per second. The intensity of the magnetic field is measured in **Gauss** (G), whereas the activity time of the device, including both emissions and pauses, is referred to as **Duty Cycle** (DC). When the duty cycle is at 100% we talk about continuous emission, if it is less than 100% we say pulsed emission.

In our devices, the duty cycle is set to 50%.

As a general rule, the higher the frequency, the lower the duty cycle; this to avoid overheating of the tissues.



## **Effects of magnetotherapy**

Magnetotherapy facilitates the repairing processes of tissues and stimulates the natural organic defenses.

Based on biological effects, the therapeutic action of the magnetic fields can be resumed in two main functions:

1. Anti-inflammatory and anti-oedematogenous action;
2. Action stimulating tissue reparation processes.

Cellular membranes can be considered as "small batteries", whose output voltage has been measured. More precisely, healthy nerve cells have a potential difference of 90 millivolts between the inner nucleus and the outer membrane while in the other cells this tension measures approximately 70 millivolts.

When the tension within the cells tends to wind down, the organism feels the effects in the form of inflammatory processes, pain in the bones, in joints, back pain, wounds that do not heal.

When the cells "become ill" because of an infection, trauma, or other causes, they lose their energy stock. The tension of a sick cell corresponds to 50/55 millivolts, whereas the tension of a healthy cell is around 70 millivolts. When this tension drops below 30 millivolt necrosis occurs, which is the death of the cell.

Magnetotherapy aims to recharge and regenerate the cells which have lost their vital energy.

Musculoskeletal pathologies are the most specific field of application of magnetotherapy.

All the traumatic events, from a small sprain to a serious fracture may benefit from this therapy, at times even allowing remarkable recovery times. Bone pathologies have also shown shorter repair processes and recovery times when treated with magnetotherapy.

## **General Application Methods**

During magnetotherapy, the patient has no direct perception of the magnetic field being applied. The action is strictly connected to the ability of tissue components to react to the phenomenon of magnetic induction.

The duration of the exposition to the field gains an important role and it should be considered about the pathology that has to be treated. The gradual action and the effectiveness of the treatment can be fully observed over a long time. This treatment is especially indicated for chronic diseases, but severe traumas can benefit from it as well with a reduction of recovery time. In the symptomatic pain treatment during the acute phase, other physical therapeutic forms can be linked to a more immediate response (laser, TENS).

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## The solenoids

The solenoids at your disposal can be surfaced with a material of different types and can be single or double.

## Two-coil flexible solenoids



Pict. A



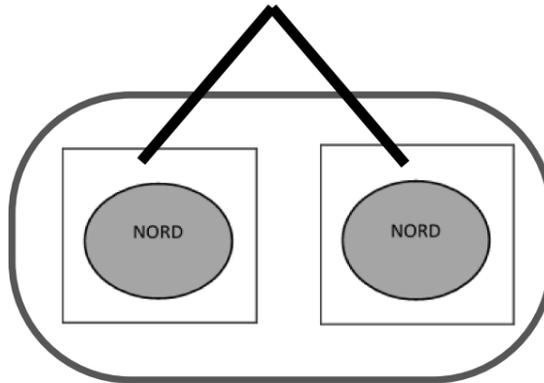
Pict. B

A two-spire flexible diffuser is shown in figure A. The same diffuser has been shown schematically in figure B to understand the arrangement of the coils inside. The side with the S stands for the South of the solenoid, while the N stands for the North. Flexible solenoids can be fixed over the area to be treated using the specific Velcro bands provided.

## Pocket Pro solenoids



Pict. C



Pict. D

A two-spire flexible diffuser is shown in figure C. The same diffuser has been shown schematically in figure D to understand the arrangement of the coils inside. The polarity is oriented as follows: the side with the S stands for the South of the solenoid, while the N stands for the North.

To fix the solenoid to your body insert the supplied elastic band under the buttonhole (horizontally or vertically), then close the band in on itself to keep the solenoid tight (Pic. E and F).

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Pict. E



Pict. F

On both sides of the case, the polarity is indicated, N (North) and S (South).

We suggest to use Pocket Pro solenoids always in pairs (where the anatomical seat allows it) In this case it is important that, in contact with the skin, there are two opposite poles (a solenoid with the N and a solenoid with the S both in contact with the skin). See Pict. G



Pict. G

### Application

Magnetotherapy can be applied by placing solenoids in two different ways:

- Adjacent solenoids
- Opposed solenoids

The application mode with **Adjacent solenoids** allows to exploit of the magnetic field generated by each solenoid. This area will affect the whole surface covered by the solenoid and the neighboring one, also expanding towards its perpendicular (and thus penetrating the tissues). In this way, it will be enough to place the solenoids on the area to be treated, making sure to attach the band so that the disks contained inside are near the painful area.

Concerning a central pain in the vertebral column, for example, it is important to place

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the solenoids in the vertical direction, while for a more widespread and lateralized lumbar pain it is preferable to place the solenoids in the horizontal direction.

Please refer to the images at the end of this manual for the proper positioning of the solenoids.

The flexible solenoid must be placed putting the Velcro outward. In this way, it is possible to use the black bands to fix the solenoid to the desired position.



Examples of side by side solenoids positioning



In the **opposed solenoids** mode, a single and concatenated magnetic field is obtained. It penetrates deeper into the areas to be treated. This method is particularly suitable for the problems in the joints, in the case of fractures and in all the musculoskeletal disorders where it is necessary to act in depth. To obtain a concatenated magnetic field it is necessary to pay attention to the correct positioning of the solenoids, which have to be oriented with the same polarity.

The flexible solenoid contains two coils with the polarity already inserted to be easily opposed. It will be sufficient to place the band around the area to be treated, making sure only to position the two coils in a parallel way. With other solenoids kindly pay attention to the polarity, making sure to contrast the Northside of one solenoid with the Southside of the other.

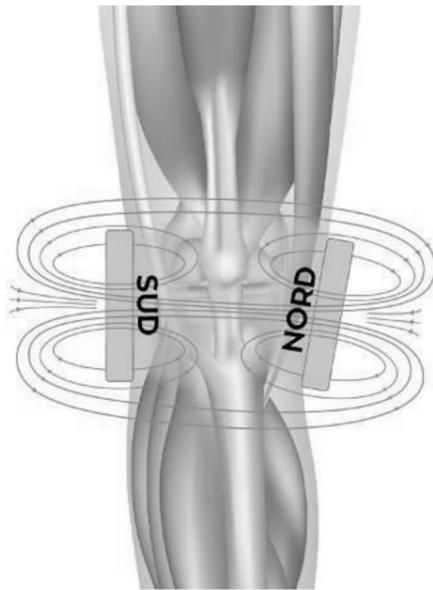


Example of opposed solenoids positioning



When using this mode, please check that the two coils inside the solenoid are as parallel as possible between each other, otherwise the two fields will not link up.

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### INDICATIONS ABOUT PROGRAMS

You will find some general guidelines about the programs in the various devices marked Magnum shown below.

**Warning:** as a general list that covers all the models of the Magnum, it is not said that the programs listed here concern the device in your possession. To know the programs of your device, refer to the chapter "Program List" in this manual.

**Fractures:** the programs for fractures can be used from the very first days after the traumatic event. The treatment can also be carried out over plaster casts and guards. In this case, we suggest increasing the recommended power by 50-60% since the thickness of the plaster cast increases the distance between the solenoids and the bone.

We remind you of the importance of the positioning of the solenoids in an opposed way (if possible according to the area to be treated) and in correspondence to the fracture. If you have two bands (supplied with the Magnum XL pro or, in the Magnum XL, buying the second band as an accessory) you can place both diffusers to have a more enveloping and intense magnetic flux. This is particularly useful when the treatment area has a large diameter, for example, a femur or above a plaster cast of the tibia.

**Delays of fracture consolidation:** this program can be used when a fracture is not healing in the appropriate terms. These fractures often affect people with osteoporosis or with vascular/metabolic alterations. If possible, the solenoids are placed in an opposed way and when the area to be treated is more extensive it is recommended to place them side by side. The daily treatment time can vary from a few hours to 10-12 hours. For a more precise and personalized protocol, we refer to the instructions of your doctor.

**Pseudoarthrosis:** the program is particularly suited when the delay in fracture consolidation is longer than 9 months. In this situation, the patient has often already undergone surgery and/or presents with plates, screws, or external fixators, which may

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compound the application of solenoids. This is why it is essential to consult your doctor who can give you more specific and targeted indications to the situation of the patient.

**Osteoporosis:** the program is indicated in cases of progressive weakening of the bone structure due to this pathology. Bone tissue is vital and during our life its mechanism of remodeling is continuous. In the presence of osteoporosis, this mechanism is altered and produces the progressive weakening of the bone.

The pulsed electric fields can activate the anabolic functions on the bone tissue, improving the balance between osteoblasts (cells that produce new bone) and osteoclasts (cells responsible for the erosion of the bone).

**Osteoarthritis, arthrosis, arthritis, joint pains:** in our devices, there are various programs to treat these diseases which, although very different regarding the causes, are all characterized by joint pain accompanied by stiffness. In these cases, magnetotherapy contributes to producing a local anti-inflammatory effect with analgesic action. Each program is set with the parameters recommended in the bibliography while at the end of this manual you will see all the signs for the correct positioning of the solenoids in various joints.

**Hip and knee prosthesis:** these specific programs are suitable for recovery after implantation. As a matter of fact, pulsed magnetic fields promote the engraftment of the prosthesis and any bone graft. Regarding the application time, the scientific bibliography suggests a treatment of at least 3-4 hours a day, but also in this case the doctor may prescribe different application times.

**Post knee surgery:** these are specific programs to use after surgery for the reconstruction of the anterior cruciate ligament (Post ACL) or after cartilage cleaning. In these cases, the use of pulsed magnetic fields, from the first days after surgery, reduces pain, swelling, and inflammation allowing a faster recovery.

**Carpal tunnel:** the program is indicated from the earliest symptoms of the disorder. It is in this phase that you can have more improvements. Carpal tunnel syndrome is a disease caused by compression of the median nerve, which descends from the forearm to the hand through a channel called the precisely carpal tunnel.

Magnetic fields will contribute to the reduction of pain, will have an anti-inflammatory effect, and allow an improvement in the mobility of the hand and fingers.

**Tendinitis, epicondylitis, rotator cuff:** these programs have been added to treat inflammations of tendons and insertional disorders. The solenoids are placed over the painful area and whenever possible it is preferable the opposed positioning. Treatment

with magnetic fields can be carried out during the acute phase, perhaps in combination with other physical therapies or medications prescribed by your doctor, as well as during the sub-acute phase as a conservative treatment.

**Edemas, contusions, ankle sprains:** in all these programs the main goal of the treatment with magnetic fields is to reduce edema of traumatic origin and the resulting pains due to inflammation. Pulsed magnetic fields regulate the permeability of the capillaries and therefore help to demobilize interstitial fluids allowing a much quicker recovery.

**Drainage, cellulite, tissue regeneration, etc ...:** aesthetic programs in our devices are conceived to be valuable support in the care and treatment of major aesthetic disorders. The pulsed magnetic fields improve the blood microcirculation and tissue oxygenation which have been submitted to treatment favoring the reabsorption of excess fluid.

## FAQ

### Solenoids

#### **Is it possible to place the solenoids over clothing?**

Of course, the positioning above the garment does not affect the treatment in depth.

#### **Is it possible to place the solenoids over a plaster cast?**

Of course, the plaster cast does not affect the emission of magnetic flux. We suggest using the specific program or to use the "fractures" program increasing the power to 20-30 Gauss.

#### **What to do if you feel too much heat?**

Place the solenoid above the garment and for the first sessions lower the magnetic flux of a few Gauss.

#### **Should the strap be cleaned after use?**

If it is well maintained it is not necessary to clean it.

#### **Should I feel a vibration and/or heat during the treatment?**

It is possible to feel a slight sensation of heat. The magnet does not emit any kind of vibration so it is quite normal not to feel anything during the treatment.

#### **How to check if it emits?**

Select a program, set the maximum power, approaching a staple in the middle of one of the two coils, you should feel a slight vibration.

## PROGRAMS

#### **Is it possible to enter a new program? (Magnum XL -XL PRO)**

Of course. Selecting "Programming" you can store the parameters prescribed by your

doctor and save the new program.

### **Is it possible to set more than 5 hours?**

Of course. The device allows being set until 9 hours and 59 minutes.

### **Is it possible to change the parameters in the preset programs?**

Certainly. With this device, it is possible to change the time and gauss. For further information, please consult the manual in the section "Instructions for use".

### **Once the treatment is completed, does the device turn off automatically?**

It is possible only if using the device with a battery. In the "setup" menu the "auto shutoff" parameter can be adjusted from 1 to 20 minutes.

## **USABILITY OF THE DEVICE**

### **Must the device be recharged?**

No, it doesn't. To ensure a proper emission for all the duration of the treatment, the device is powered exclusively by mains with a specific power supply.

### **I cannot turn the device on, what can I do?**

Connect the power supply and hold the "ok" button for 4 seconds.

### **Why it is not possible to set the gauss?**

To create a successful communication between the solenoids and the central unit, the device must be turned on after connecting the solenoids to input channels and then set the gauss.

### **Is it possible to use magnetotherapy in the presence of a prosthesis?**

Of course. However, we recommend that you consult your specialist.

### **However, we recommend that you consult your specialist.**

Yes, they are. To check the recommended duration, see the "Program list" in the manual.

### **Do the devices emit PEMFs at low frequency?**

Of course. The Magnum L /XL/XL Pro range emits pulsed electromagnetic fields at low frequency.

### **What is the Duty Cycle?**

The duty cycle indicates the period of emissions per second. If the duty cycle is set to 50%, the device emits in a pulsed way. In 1 second, the device emits for 0.5 seconds, and the remaining 0.5 seconds it does not emit.

### **What is the fn button?**

The "fn" button changes the unit of measurement of the field from Gauss to Millitesla.

### **Why are the characters not readable?**

In the Settings menu, select "Contrast" and with the appropriate keys set the quality of the reading.

## PROGRAM LIST

### Program list HEALTH – REHAB (medical treatments)

Following the last regulations of the Ministry of Health, medical treatments are presented in the list below.

<b>Treatment Name</b>	<b>Recommended Power</b>	<b>Recommended duration</b>
Small fractures	30 Gauss	8h* a day
Big fractures	30 Gauss	8h* a day
Cervical Osteoarthritis	25 Gauss	30'*
Back Pain	15 Gauss	From 20' to 45'*
Osteoporosis	50 Gauss	From 8 to 10 h*
Arthrosis	20 Gauss	30'*
Arthritis	20 Gauss	30'*
Epicondylitis	60 Gauss	30'*

\* or as indicated in the medical prescription

*Because of the presence of clinical programs, this product is a medical device. Therefore it is certified by the Kiwa Cermet Italia Body n. 0476 according to the 93/42/EEC EU directive for medical devices. The certification covers clinical applications.*

## **WARRANTY CONDITIONS**

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 supplied accessories subject to wear, such as batteries, power supplies, solenoids, etc.

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 the 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 to 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 the use of 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 recommend reading carefully the user instructions contained in the manual and visiting the Globus website.

If you have to return the product for repair, please contact your dealer or the Globus customer service.

## **EMC accompanying documents**

### Essential performance

<b>PERFORMANCE</b>	<b>CONDITION</b>		<b>ACCEPTED EVENT</b>
Magnetic field emission.	Balance outside the sonic circuit.	Display information is no longer readable.	The machine must stop the emission.  The machine must maintain the emission and accept the commands.
	Lack of internal power supply in the absence of external power supply.	Interruption of the treatment.	The machine must signal battery exhaustion and the interruption of the treatment.
	Lack of internal power supply in the presence of external power supply.	Interruption of the treatment.	In the presence of an external power supply, the machine must operate thanks to that source of energy and it has to recharge the battery as a source of internal energy.
	Lack of external power supply.	Interruption of the treatment.	The machine, if equipped with a battery, must continue the treatment signaling that operation is carried out in battery mode. If the machine turns off, it must not restart the treatment when the power supply is restored.
	Overheating of the emission solenoids/diffusers.	Burn.	The device must control the current flowing inside the solenoids and stop the operation if the current exceeds the

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			limits over which it can lead to a dangerous overheating of the solenoids.
Execution of pre-set programs.	Error in the loading of memory data, erroneous data inside the memory.	Improper execution of the treatment.	The machine must be equipped with safety systems aimed at verifying the correctness of the data inside the memory and the loading of data from the memory and allowing the execution of the treatment only if no errors are detected. If errors are detected, the machine must prevent the execution of the treatment and signal the anomaly.
Battery charge.	Battery overheating.	Damaging of the device, improper emission of the ultrasonic signal, display information no longer readable, explosion, fire.	A fuse must stop the battery connection in case of high temperature or intense current.

Warning: Radiofrequency communication devices (including accessories like antennas or antenna cables) must be used at least 3 meters away from every part (including cables and accessories) of the Magnum device. Otherwise, performance can be affected.

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# **GLOBUS**

**ITALIAN** EXCELLENCE

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