

# GLOBUS

ITALIAN EXCELLENCE

## MAGNETO THERAPY



User Manual

MAGNUM XL PRO





# 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), in order to ensure product safety.

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## TECHNICAL FEATURES

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### Device

Size: 160x99x35,4 mm

Weight: 404 g

Protection level: IP 20 + IP 02

### Storage and transport conditions

The storage and transportation of the device and its accessories, in their original packaging, are subject to the following limits:

Storage and transportation temperature: From -25°C to 70°C

Max. relative humidity: 0% -93%

If the accessories are not stored into the original package, please comply with the storage conditions of the single products.

### Use conditions

Temperature: from 0°C to 35°C

Maximum relative humidity: from 15% to 93%

Atmospheric pressure: from 700 hPa to 1060 hPa

### Magnetic intensity that can be emitted with flexible diffusers

200 Gauss on average per channel

400 Gauss on average on the whole (for 2 channels)

**Output channels for solenoid connection:** 2 channels

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

### Power supply

Brand: GLOBTEK

Model: GTM41060-2512

PRI: 100-240Vac 50-60Hz Max 0.6A

SEC: 12V  2.08A

Polarity: 

## EQUIPMENT

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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.

- 2 diffusers (see table 1 with different configurations)

- Power supply (see technical features)
- Operating manual
- Device and waterproof case IP 02
- Magnum test
- Carrying bag

The device can be used with some optional accessories. To purchase these accessories, please contact your dealer.

CODE	MODEL	SOLENOIDS
G3956	MAGNUM XL PRO	2 flexible solenoids
G4278	MAGNUM XL PRO (SOFT SOL.)	2 single SOFT solenoids
G6033	MAGNUM XL PRO (SOL.P.PRO)	2 Pocket Pro solenoids

Table 1

## Magnum Test



The Magnum Test is used to check that the solenoids work properly. Connect the solenoid to the device, start a program, put the box upon a coil and check that a vibration is felt.

## Accessories description

Magnum devices can be used with some optional accessories.

**G0699 Battery pack** (Ni-MH 7.2 V 1.8 Ah): if you purchase the optional battery pack, you'll be able to make the device operate for a short period without connection to the mains.

## G4275 Single soft solenoid

Soft and comfortable 1-turn solenoid, easily cleanable and sanitizable fabric. Size 12x12 cm.



### **G1407 Flexible solenoid**

Flexible solenoid with two coils, made by comfortable cotton fabric, with elastic central insert to facilitate positioning on the different anatomical areas. Size 30x10 cm.



### **G5988 Pocket Pro Solenoid**

Solenoid consisting of two coils inserted in a soft pad and stored inside a zip-up case that is easily washable and sanitized (see chapter on maintenance and cleaning). Dimensions 15,5x9,5 cm



### **G4276 Soft mat 4**

Soft and comfortable two-channel mat, made up of 4 total spires, whose material is easy to clean and sanitizable. It is ideal for lumbar applications, in the hips, feet and hands.

Size 25x25 cm



### **G1408 Flexible solenoid**

It contains 4 coils all north-oriented towards the same side, particularly suited to cover a vast surface, such as the back or the femur.

Size 40x15cm



These solenoids can be used individually by placing them directly on the treatment area or, by purchasing two, they can be used in opposed mode.

### **G4277 Magneto splitting cable**

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

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



### **Mats**

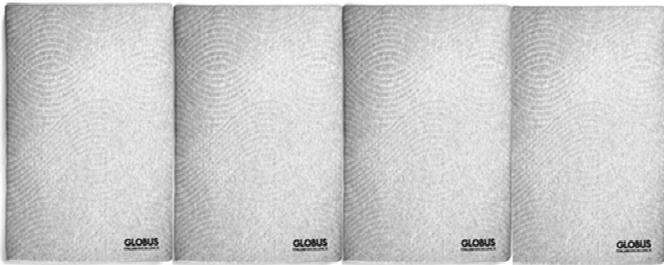
**G5944 100 Memory Foam Mat:** the new Globus mat with a double layer of Memory Foam and 4 solenoids inside. It's particularly suited for long treatments during which the user, though remaining in contact with the mat, is free to move without being tied to the device through the traditional solenoids.



**Total body memory Foam :** the new mat with two layers of Memory Foam, composed of four sections, each of which can contain up to 4 solenoids. The Memory Foam B-Mat memory is positioned above the traditional mat and it is particularly suitable for treatments during the night or for people with motor difficulties and bedridden. The Total body Memory Foam Mat is available in different versions:

**G5947 Total Body 200 Memory Foam Mat:** 2 of 4 active mats, total number of solenoids: 8

**G5948 Total Body 400 Memory Foam Mat:** 4 of 4 active mats, total number of solenoids: 16



For further information, visit our website [www.globuscorporation.com](http://www.globuscorporation.com).

In order to purchase these accessories, please contact your dealer.

## INTENDED USE

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The product has an estimated usable life of 5 years. We recommend returning the device to the manufacturer and/or authorized center every 2 years for maintenance and safety checks.

Magnum XL Pro was designed to be used in the following operating environments:

- domestic environment;
- clinics;
- physiotherapy centers;
- rehabilitation in general;
- pain treatments in general;
- for aesthetic and sport purposes;

The use of this equipment is allowed to the patient (appropriately informed of the conditions of use of the apparatus) and the medical staff.

CE0476 does not refer to non-medical treatments.

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

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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

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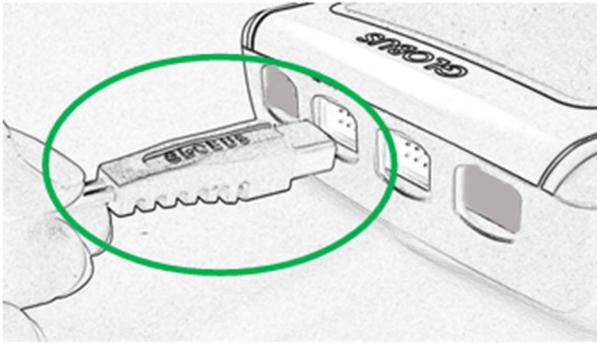
### Device

Magnum XL PRO operates connected to the mains. To connect the power supply to the connector, plug it as shown below.

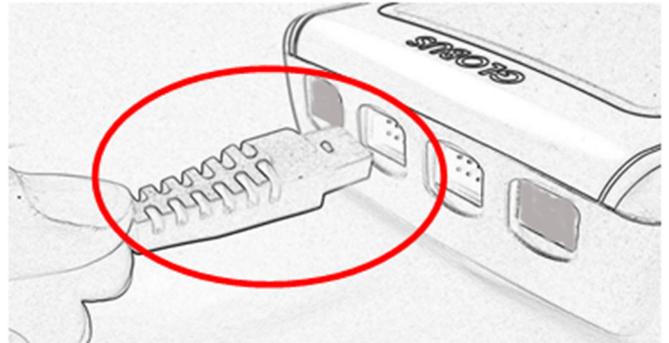
**Warning:** If the case, the cable or the connector of the power supply show signs of wear or damage, replace the product instantly.

### Connect the diffusers

To connect the diffusers to the device, plug the connectors to the specific inlets in the upper part of the unit (see picture). **Cables should be inserted with grooves downwards.**



OK



NO

### Accessories (connect the solenoids with a Y cable)

The Y cable allows to connect 2 diffusers of the same type to one output of the machine. The power established for the treatment will be divided between the two diffusers; the value of the emitted field displayed on-screen will be the actual field emitted by the 2 diffusers. It is possible to use a single Y cable on each output channel of the machine.

Plug the connectors of each one of the two diffusers into the inlets of the Y cable. Plug the connector of the Y cable into the specific output slot of the channel you want to use.

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

## LABELLING AND SYMBOLS

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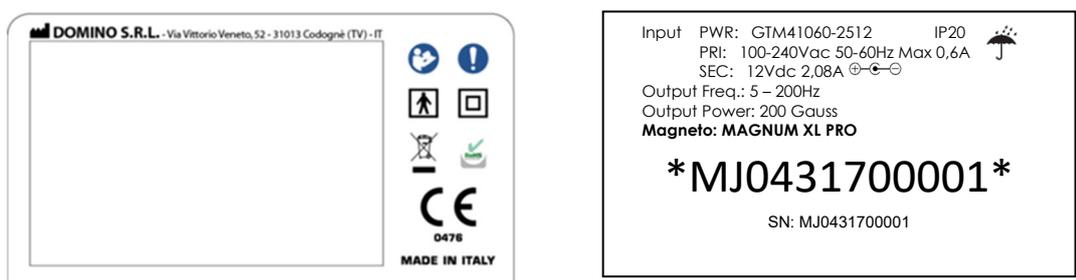
	It refers to the manufacturer
	Warning: the applied parts can reach temperatures that may cause redness or burns.

	Keep the device dry
	This symbol on your device indicates that it complies with the requirements of 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 the product 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.
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 the accessories are used and stored.
Model	It indicates the power supply model
PRI	Output electric features of the power supply
SEC	Output electric features of the power supply

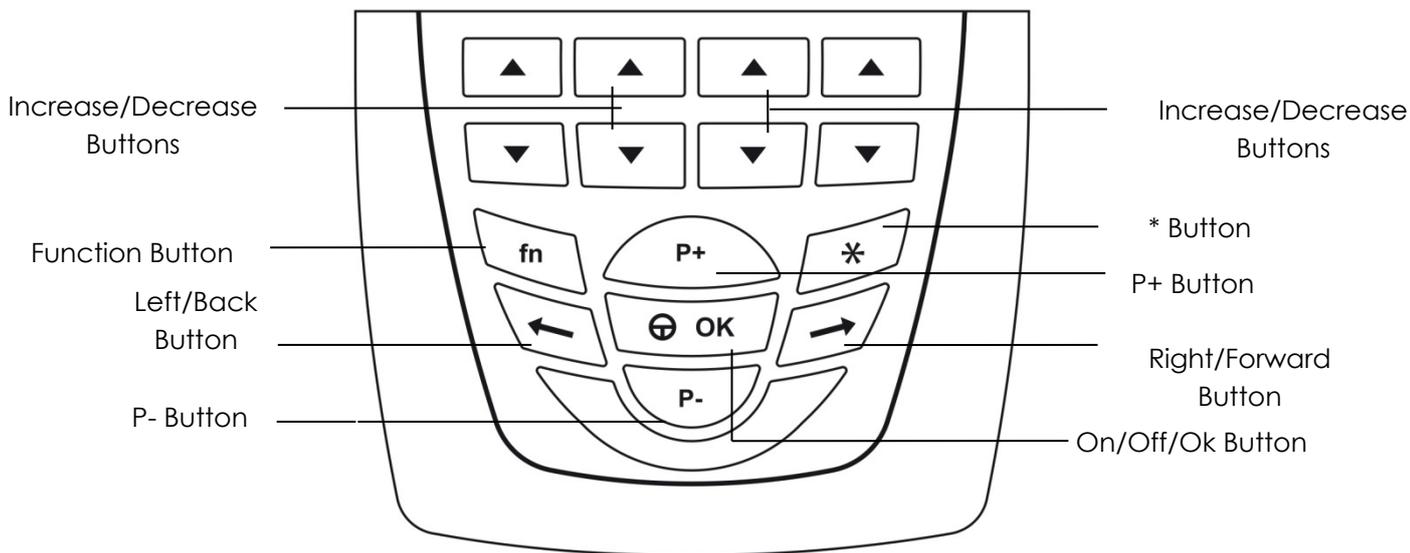
Input power	Input electric features of the device
Output freq.	It indicates the frequency range of the magnetic field emitted by the device
Output power	It indicates the maximum magnetic field emitted by the device
Type	It indicates the device type

## Device

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



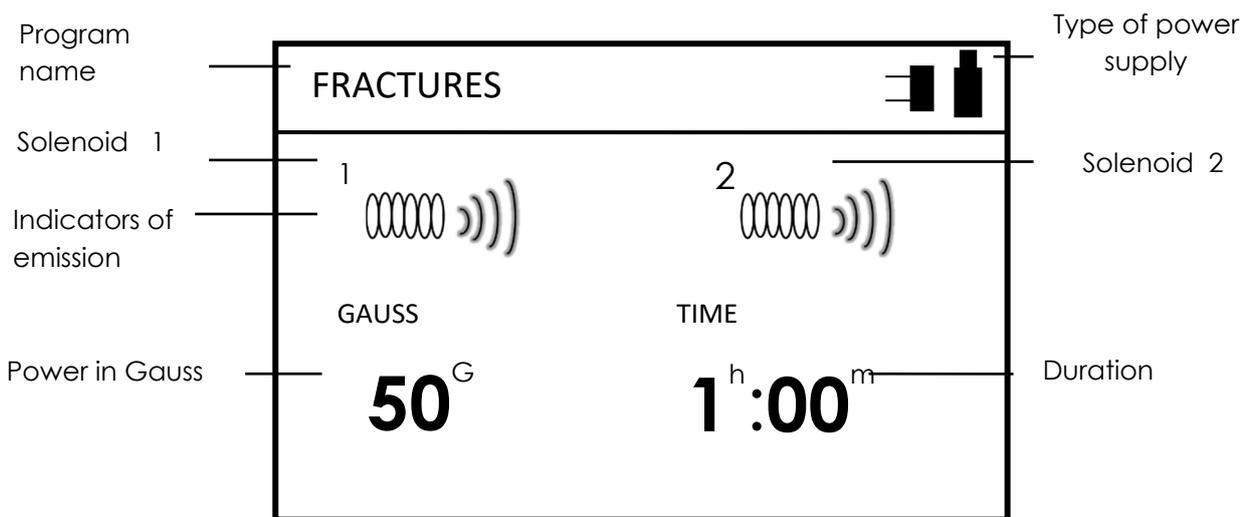
## DASHBOARD AND KEYBOARD



<b>ON/OFF/OK Button</b>	It confirms the selection. While a program is running, it activates the pause. 3" = On/Off.
<b>Back/left button</b>	Moves the selection to the left. To go back to the previous selection. If pressed for 3" while the program is running, it returns to

	the previous selection.
<b>P+ Button</b>	Moves the selection upwards.
<b>P- Button</b>	Moves the selection downwards.
<b>Forward/right button</b>	Moves the selection to the right. If pressed for 3" while the program is running, it goes to the next phase.
<b>* Button</b>	Display peak Gauss emitted by the machine
<b>Function (fn) Button</b>	To adjust treatment duration (see use instructions paragraph)
<b>Increase-decrease buttons</b>	They change treatment parameters To regulate the Gauss value of the magnetic field

## Display/Interface



## ALARMS

### Compliance

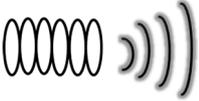
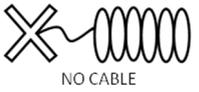
Certifications: CE MDD certificate

Acoustic signals comply with directive 60601-1-8.

### Open circuit

The device is equipped with a power-emission control system.

Before starting any treatment, it is therefore necessary to ensure that the diffuser is connected to the device and placed on the area to be treated.

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

**NOTE:**

If the unplugged cable message appears, verify that the device, the cables and the diffuser are intact and correctly used.

If the problem persists, please contact the customer care.

## WARNINGS AND CONTRAINDICATIONS

### Mandatory behavior

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

If the packaging, the cable or the connector of the power supply unit show 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 a 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 carefully this operating manual.
- The unit must be used only with the diffusers provided with the original equipment (Globus brand) and according to the therapeutic modalities described in this manual.
- 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:

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 are able to 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 appear, it means that the device is working and it is ready to be used;

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

## **Indications during use**

The device is intended for continuous functioning.

While using Magnum XL Pro some warnings should be followed:

- in the case of damaged cables, they must be replaced with original parts and not used anymore;

- the device must be kept out of the reach of any pet that could 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 neck 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.

- during the use the temperature of the diffusers can rise and cause an unpleasant sensation, redness or irritation. We suggest to:

- consult the doctor;

- put a sponge cloth (towel) in between;

- reduce the power emitted and prolong the treatment.

## **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 onset of the events, avoid sessions longer than 30 consecutive minutes.

## **Contraindications**

Absolute contraindication: treatment of patients with cardiac pacemakers or other permanent (e.g. vertebral) electrostimulators.

Contraindications:

- patient 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, wearers of electrical prosthesis, hearing aids and intrauterine devices;
- do not carry out this treatment together with TENS and/or HOLTER;
- do not use in areas with 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**

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### **Maintenance and cleaning of the device and the diffusers**

- In case of actual or alleged malfunctioning, do not tamper with the device and do not try to repair it by yourself.

Do not intervene on the device and do not 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 in 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.

### **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.

Correct waste separation or following the above-mentioned procedure contribute to avoiding possible negative effects on environment and health and promote the reuse and/or recycle of the materials that compose the device. The illegal disposal of the product entails the application of administrative fines in accordance with applicable regulations.

## USER MANUAL

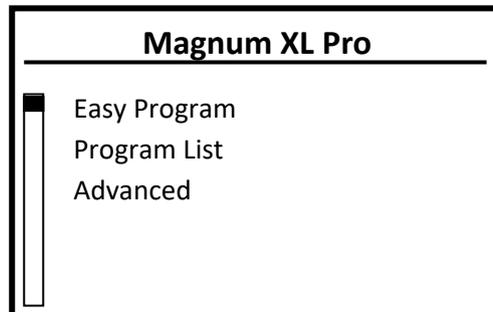
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### Turning on/off

To turn on or off, press and hold **OK** until the acoustic signal is heard.

### Homepage

Use **P+** and **P-** to make the selection and press **OK** to confirm your choice.

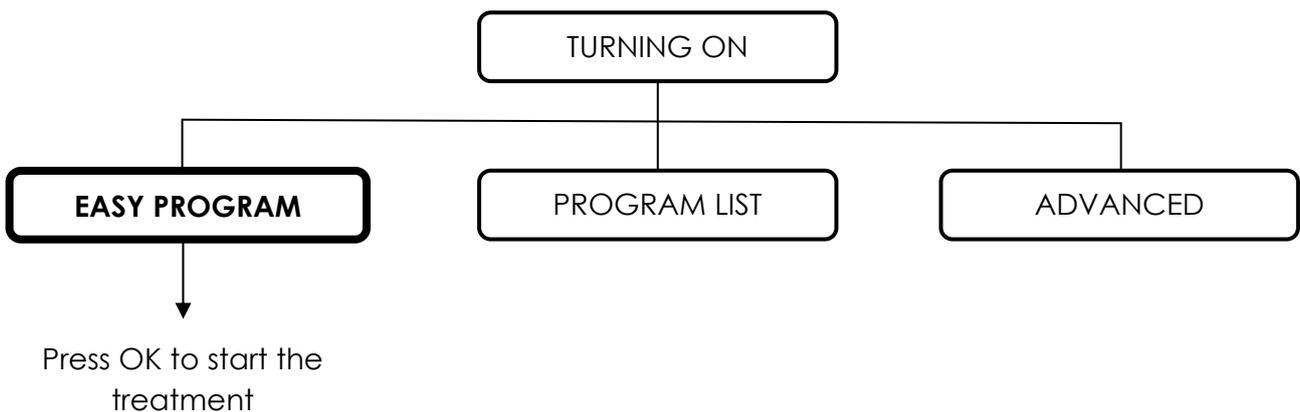


### EASY PROGRAM

This function allows to start a magnetotherapy treatment in few simple clicks.

The parameters can be edited quickly by pressing the increase and decrease buttons placed below each parameter.

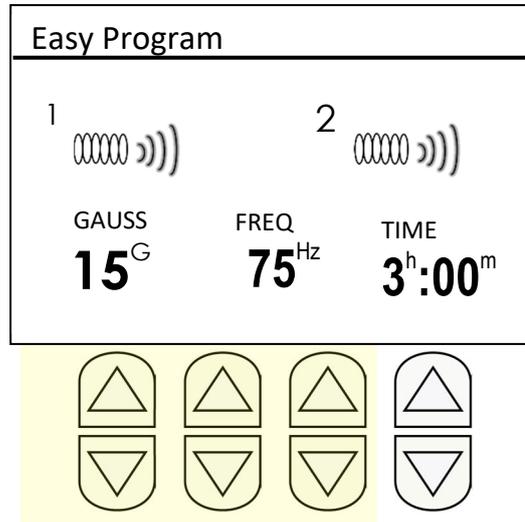
To start the treatment, just connect the solenoids and press OK.



At the first start, the program is set with the parameters of a generic anti-inflammatory program.

## EDITING THE PARAMETERS QUICKLY ON EASY PROGRAM

To change the Gauss, the frequency and the duration of the therapy, use the first three pairs of increase/decrease buttons (highlighted in yellow in the picture below). Each button edits the corresponding parameter on the screen.

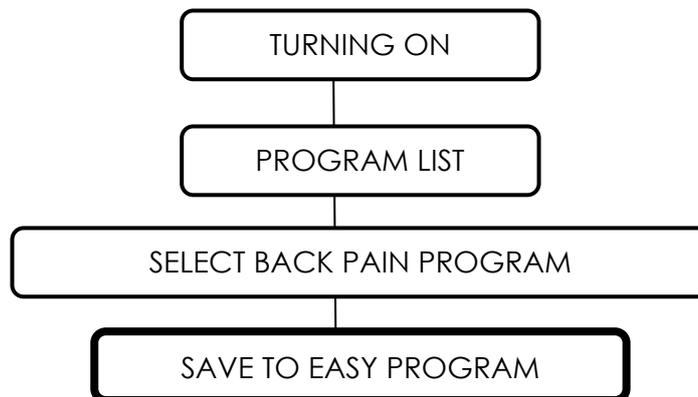


The new parameters will remain in memory even when the machine is turned off or the page is quit by pressing the back button: 

This allows an easy setting of the parameters indicated, for example, by the physician. After the first setup, every time the device is turned on, the treatment can start in two clicks.

## SAVING A PROGRAM QUICKLY FROM THE PROGRAM LIST TO EASY PROGRAM

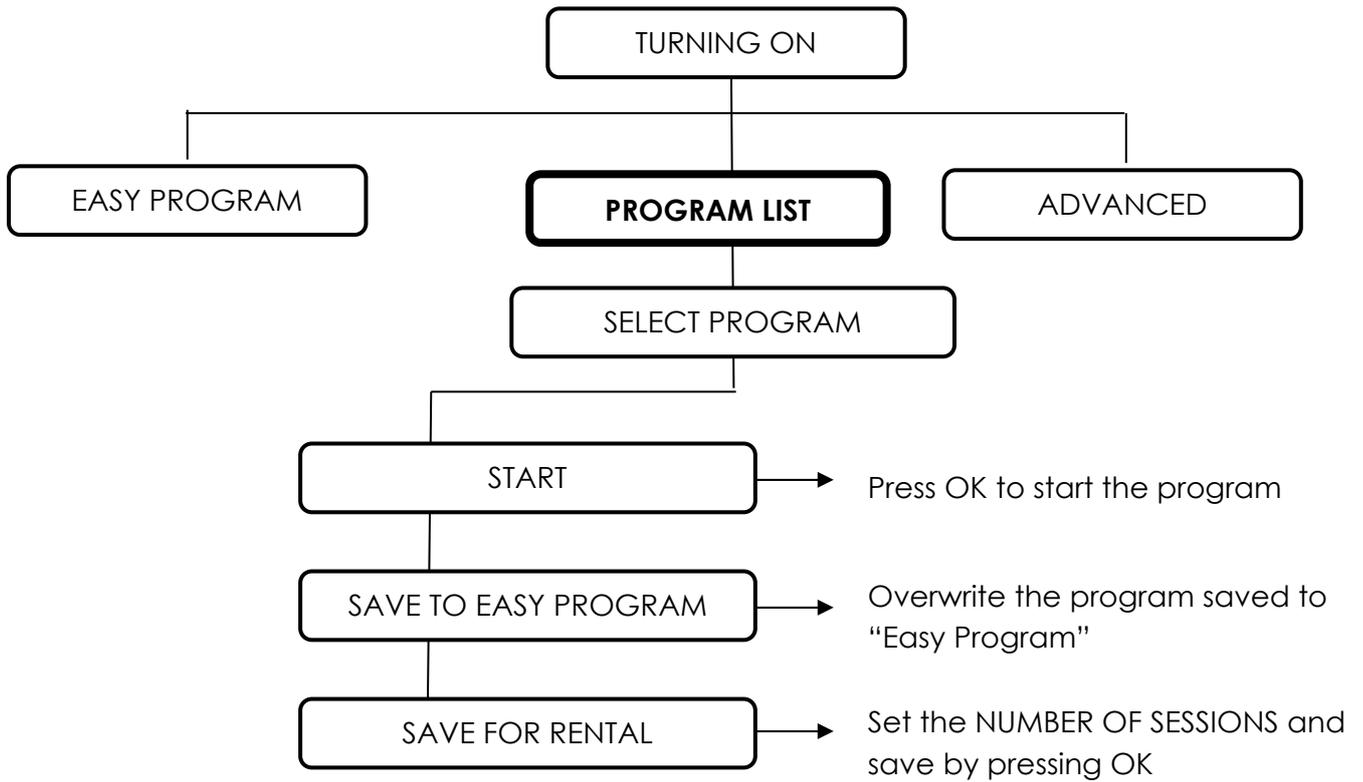
If the user needs to carry out a pre-set program (for example back pain), but the doctor has prescribed a duration and/or a power that is different from the pre-set one, follow these steps:



After choosing the program, press back to go to the starting menu and select Easy Program. Edit the parameters and make the treatment. The edited program will be always available on Easy Program.

## **PROGRAM LIST**

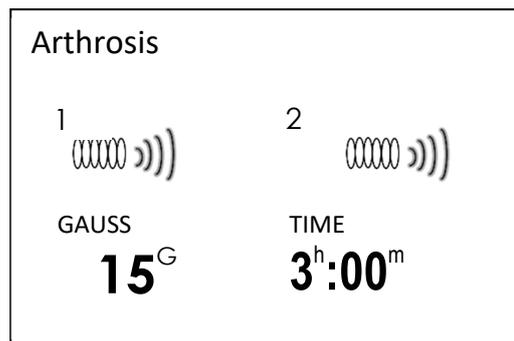
Use P+ and P- to select the program and press OK to confirm your choice.



## **START PROGRAM**

To start the program confirm your choice by pressing OK. You will see on your display the program name, the connected solenoids, the total time of the treatment and the emitted Gauss.

**Important:** the Gauss value refers to the intensity emitted for each channel and each coil. Therefore, if a 2-coil flexible solenoid is connected, the total emitted value must be multiplied by 2.



## **How to pause/stop the program**

To pause the program, press OK. Press OK again to go back to the program execution. During the pause, pause icons appear on the screen. To stop the program in advance, hold down OK until you hear a continuous beep.

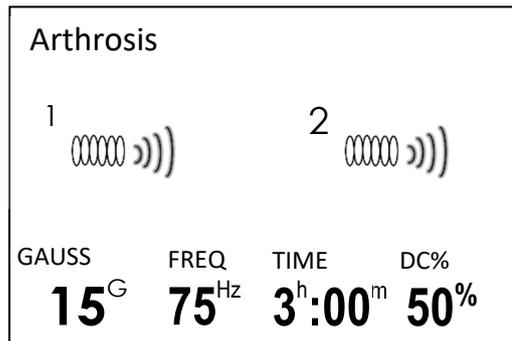
## Display peak Gauss

While the device is operating, it is possible to display the maximum intensity of the field by pressing \*. This value indicates the intensity peaks of the magnetic field.

## Adjustment of program parameters (Runtime function)

To edit default parameters in a program **press the FUNCTION (fn) button**. A screenpage summarizing Gauss, frequency, duration and duty cycle will appear.

To edit the values, use the buttons with the arrows on the keyboard; each arrow increases or decreases the value above.



The maximum duration of the treatment is 9 hours 59 minutes.

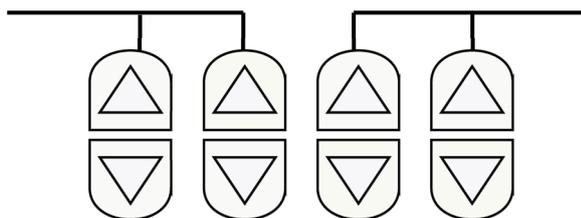
The duty cycle can be adjusted from 10% to 50% in steps of 5.

After adjusting the parameters, wait a few seconds until the area is deselected and the running program is displayed again.

## Increase/decrease default power

To edit the preset power (Gauss) press the increase/decrease buttons directly.

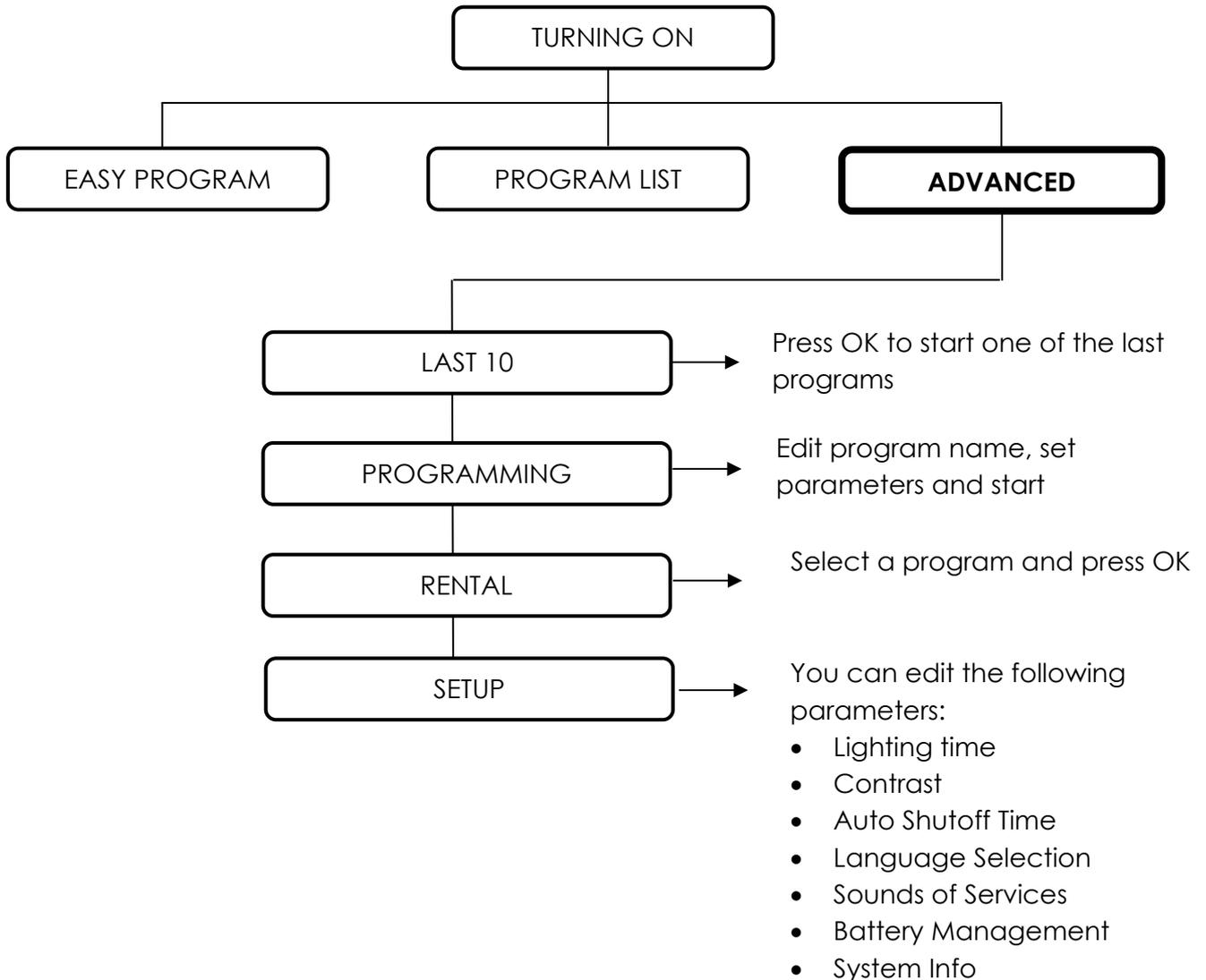
- Variation of Gauss units



- Variation of Gauss tens

## **ADVANCED**

Use P+ and P- to select the menu and press OK to confirm your choice.



### **“LAST 10” MENU**

Magnum XL Pro keeps track of the last ten executed programs. This way, these are available for a quick and very 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.

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 are modified, the program stored among the "Last 10" will maintain the duration and Gauss 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.

### Quick save of a program in the "Last 10 "

Sometimes, there may be a need to change the duration and the emission field of a treatment and find the changes made in the last 10 programs, but you don't have the time to wait for the end of the program. Pressing the right button for few seconds, the running program will end and will be stored in the last 10 along with the changes (duration and field, while duty cycle and frequency will remain those of the default program).

### "PROGRAMMING" MENU

Magnum XL PRO offers the possibility to create/edit new programs. This allows the device to be 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 "Edit program").

The programs created in the "Programming" menu will not be stored in the last 10.

### How to create a new program

With P+ or P- select the place (number) where you want to create the program and confirm with OK.

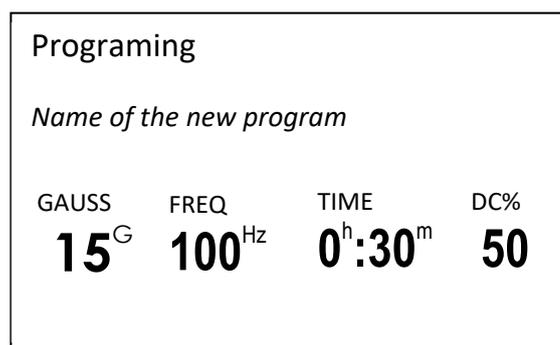
### How to type the name of the program

Use joystick buttons to select the letters and confirm with the OK button. In order to delete a letter select "Canc". After inserting the name of the program select "OK".

### Setting of the parameters

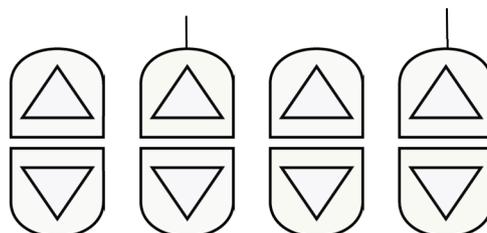
After performing these steps, a screen will appear to modify the four necessary parameters as needed: field (Gauss), frequency (Hz), time and duty cycle (in %).

After entering all parameters, press the OK button and confirm the saving.



EDIT FREQUENCY

EDIT DUTY CYCLE



EDIT GAUSS (FIELD)

EDIT TIME

**NOTE:** if the message "n.c." is displayed while programming, it means that the solenoid is not connected. Connect the solenoid to proceed with the programming.

### Execution

The programs that are created and saved during the programming can be executed choosing the "Start" option, that will be followed by these options:

- Start
- Save to Easy Program
- Save for rental

### 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.

### "RENTAL" MENU

The Rental function lets the user lock the device to allow only the treatments that have been saved through the special function "Save for rental" in the screenpage before the execution of the program.

This feature has been conceived for the rental of the device to inexperienced users and/or patients who have to perform only specific protocols decided by the professional.

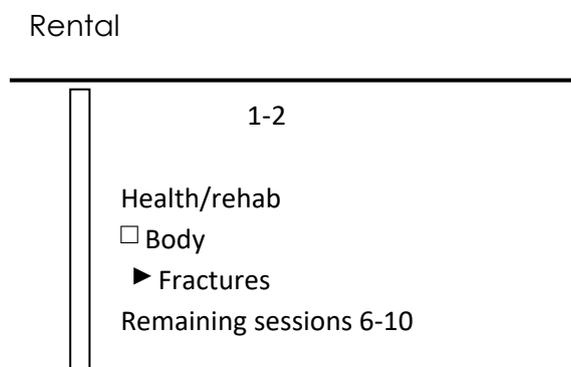
### How to save a treatment

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.

### Execute a treatment stored in rental

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 + <-- (left) buttons down for at least 3 seconds until the main menu appears.

**Warning:** if you turn the device on and the main menu does not appear: check that the Rent function is not on.

Try to deactivate it.

If the problem persists contact the customer 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 Easy Program
- Save for rental

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

The program will be stored in the treatment area along with changes (except for frequency and duty cycle, which remain as in the default program).

## **"SETUP" MENU**

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
- System info

## **Lighting Time**

It allows you to decide how long the display remains lit after the last command given to the device while it is in function.

## Contrast

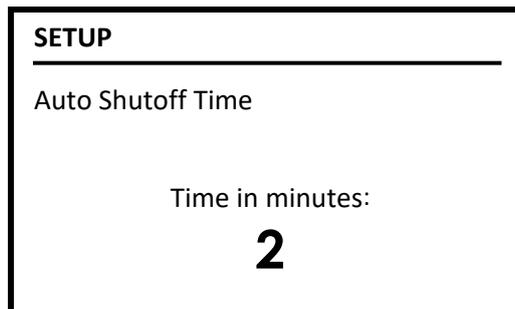
It allows you to adjust the contrast of the display for a better visualization of characters.

## Auto Shut Off Time

It allows to set 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.

This special function is activated only when the optional battery is used.



## Language Selection

It allows to modify 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 (where available):

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 values shown in this menu allow the manufacturer to verify the charge state of the battery, if the device has a one.

## System info

Contains information useful for the manufacturer.

## ACTION PRINCIPLE AND APPLICATION METHOD

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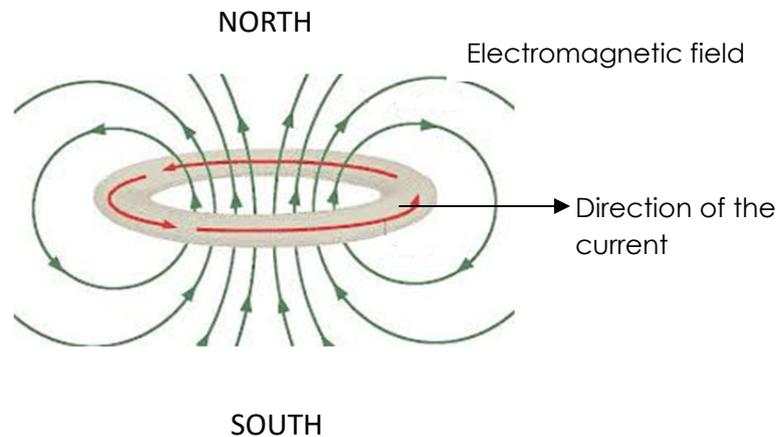
### What is magnetotherapy

Magnetotherapy is a form of physiotherapy that uses electromagnetic energy to stimulate the regeneration of biologic tissues.

Magnetotherapy is a physical therapy based on low-frequency and low-intensity

Pulsed Electro Magnetic Fields (PEMFs).

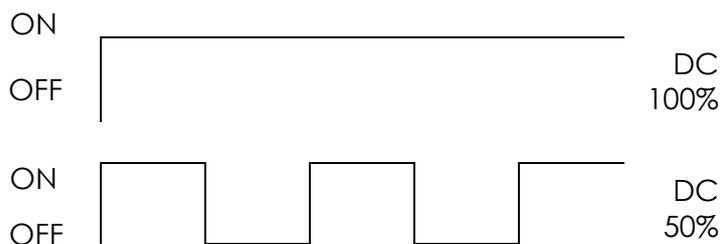
It avails itself of the action of a magnetic field generated by the electric current that goes through a coil (solenoid). The solenoid is composed of a metal conductor wrapped in a series of coils. The direction of the current determines a polarity, so each coil will have a North and a South pole.



### The treatment parameters

The Globus devices for magnetotherapy emit low frequency signals of rectangular form (up to 200 HZ). The frequency is the number of pulses per second. The intensity of the magnetic field is measured in **Gauss (G)**, while the **Duty Cycle** is the pulsed time (since we're talking about pulsed electromagnetic fields). 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%, but it can be edited to lower levels.



### Effects of magnetotherapy

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

On the basis of biological effects, the therapeutic action of magnetic fields may be synthesized in these main points:

- Modeling and regeneration of cellular microstructures
- Stimulating tissue reparation processes.
- Anti-inflammatory and anti-oedematogenous

Cell membranes are similar to "tiny batteries" and their tension can be measured. More precisely, in healthy nerve cells, the potential difference between the core and

the external membrane corresponds to 90 millivolts, whereas the tension in the other cells corresponds to about 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, a 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.

The aim of magnetotherapy is 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.

Magnetotherapy, through low frequencies, may be considered as a first-choice therapeutic method, especially in the treatment of inflammatory, traumatic and degenerative pathologies of the osteoarticular and musculotendinous system.

Let's see at a glance what are the benefits of magnetotherapy on the musculoskeletal apparatus:

- enhances osteogenesis stimulating osteoblast activity, accelerating the osseous callus formation and mobilizing calcium ions;
- reduces the inflammations;
- improves the flow of the capillaries and microcirculation;
- promotes the reabsorption of edemas and interstitial fluids;
- improves the exchange of the cells;
- relieves pain.

### **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 in relation with 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).

## 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



Fig. A



Fig. B

A two spire flexible diffuser is shown in figure A. The same diffuser has been shown schematically in figure B in order to understand the arrangement of the spires inside.

The side marked with S identifies the "south" of the solenoid and the side marked with N identifies the "north". The flexible solenoids can be fixed over the area to be treated using the specific Velcro bands provided.

### POCKET PRO SOLENOIDS



Fig. C

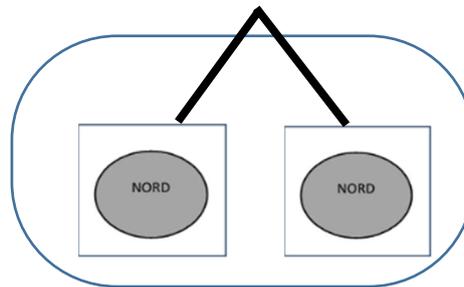


Fig. D

Figure C shows the Pocket Pro solenoid containing two coils. In figure D the same has been schematized to understand the orientation of the coil contained within it. The polarity is oriented as follows: the side with the writing **S** indicates south of the solenoid while the side with the writing **N** indicates north.

To fix the solenoid to the body, insert the supplied elastic band under the slot (either horizontally or vertically), then close the band on itself to keep the solenoid firmly (Fig. E and F)



Fig. E



Fig. F

The polarity, N (North) and S (South), is indicated on the two faces of the housing.

We suggest to always use Pocket Pro solenoids 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 in contact with the skin and a solenoid with the S in contact with the skin).

See Fig. G



Fig. G

### ONE-COIL SOFT SOLENOIDS



Fig. H

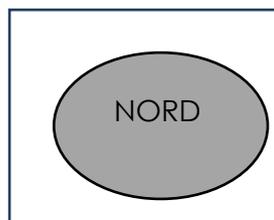


Fig. I

One-coil soft solenoid is shown in figure H, the same solenoid has been shown schematically in figure I in order to understand the orientation of the coil contained inside. The polarity is oriented as follows: the South corresponds to the smooth part of the solenoid, the North to the part where the buttonhole is. In order to fix the solenoid to your body insert the supplied elastic band under the buttonhole, then close the band in on itself in order to keep the solenoid tight.

## 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 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 into 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 the solenoids in the vertical direction while for a more widespread and lateralized 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 band with the solenoids is placed using 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. In order 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.

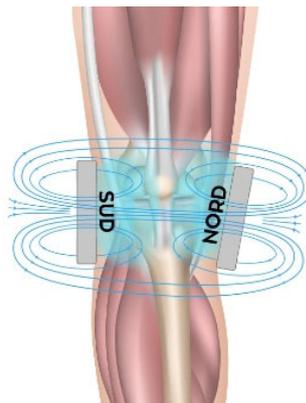
The flexible solenoids contain two coils with the polarity already inserted so as to be easily opposed. In fact, it will be sufficient to position the band around the area to be treated, taking care only to position the two coils in parallel. With the other solenoids it is recommended to pay attention to the polarity, making sure to contrast the North side of one solenoid with the South side of the other.



Examples of positioning with opposed solenoids



When using this mode, you need to check that the two coils inside the solenoid are as parallel as possible between each other, otherwise the two fields won't link up.



## 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 about fractures can be used from the early days after the traumatic event. The treatment can also be carried out over plaster casts and guards. In this case we suggest to increase 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 the importance of the positioning of the solenoids in an opposed way (if possible according to the area to be treated) and in correspondence of 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 in 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 placing 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 of the 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 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 when we are in the presence of a 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 are able to 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).

For the treatment of large areas of the body Mat 100 or B-Mat can be useful (pay accessories; for further information you can visit our [www.globuscorporation.com](http://www.globuscorporation.com)).

**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 produce 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 replacement:** these specific programs are suitable for recovery after an implant. As a matter of fact, pulsed magnetic fields promote the engraftment of the prosthesis and any bone graft. As far as application time is concerned, 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 be used after surgery for reconstruction of the anterior cruciate (Post LCA) or after a cleaning operation of the cartilage. 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. As a matter of fact, it is in this phase that you can have more improvements. The 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 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 inserted to treat inflammation of the 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 the edema of traumatic origin and the resulting pain caused by the 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 a valuable support in the care and treatment of the 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.

## PROGRAM LIST

### Program List **AESTHETICS – FITNESS** (non-medical treatments)

X = Program available in the device

Treatment Name	Recommended Power	Recommended Duration
Abdomen Drainage	40 Gauss	30'
Upper Limb Drainage	40 Gauss	30'

Drain. Thigh, Gluteus and Hip	40 Gauss	45'
Abdomen Cellulite	30-50 Gauss	45'
Upper Limbs Cellulite	30-50 Gauss	45'
Thighs, Gluteus and Hips Cellulite	30-50 Gauss	45'
Edematous States	40-60 Gauss	30'
Swollen Legs	50 Gauss	30'
Reactivating Treatment	50 Gauss	30'
Tissue Regeneration	40-60 Gauss	45'
Acne	20-30 Gauss	30'
Scars	20-30 Gauss	30'
Face Wrinkles	20-30 Gauss	30'
Stretch marks	30-50 Gauss	30'

CE0476 does not refer to non-medical treatments.

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

In accordance with 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>
Fractures	50 Gauss	From 1 to 3 h*
Rotator Cuffs	30 Gauss	From 1 to 3 h*
Carpal Tunnel	3 Gauss	From 1 to 3 h*
Knee Osteoarthritis	25 Gauss	From 1 to 3 h*
Cervical Osteoarthritis	15 Gauss	From 1 to 3 h*
Back Pain	15 Gauss	From 20' to 45'*
Hip Prosthesis	50 Gauss	From 1 to 3 h*
Delayed Fracture Consolidation	30 Gauss	From 4 to 12 h*
Osteoporosis	30 Gauss	From 1 to 3 h*
Scaphoid Fracture	30 Gauss	From 4 to 10 h*
Wrist Fracture	100 Gauss	From 10' to 30'*
Shoulder Fractures	30 Gauss	From 3 to 8 h*
Collarbone Fractures	30 Gauss	From 3 to 8 h*
Forearm Fractures	30 Gauss	From 3 to 8 h*
Hip Fractures	30 Gauss	From 3 to 8 h*
Tibial Fractures	30 Gauss	From 3 to 8 h*
Post ACL surgery	15 Gauss	From 1 to 4 h*
Cartilage Cleaning	15 Gauss	From 2 to 6 h*
Knee Prosthesis	15 Gauss	From 1 to 4 h*
Femoral neck fracture	30 Gauss	From 3 to 8 h*

Epitrochleitis	60 Gauss	From 10' to 30'*
Arthrosis	20 Gauss	From 10' to 30'*
Hand Osteoarthritis	20 Gauss	From 10' to 30'*
Hip Osteoarthritis	20 Gauss	From 10' to 30'*
Shoulder Osteoarthritis	20 Gauss	From 10' to 30'*
Spinal Osteoarthritis	20 Gauss	From 10' to 30'*
Epicondylitis	60 Gauss	From 10' to 30'*
Tendinitis	30 Gauss	From 1 h to 2h*
Edemas - Contusions	20 Gauss	10' 2-3 times a day*
Joint pains	100 Gauss	From 15' to 40'*
Ankle sprain	2 Gauss	30'*
Arthritis	20 Gauss	From 20' to 30'*

\* or as indicated in the medical prescription

The data in the Gauss and Treatment columns are taken from scientific literature and undergo clinical evaluation in compliance with the European directive on medical devices. Always check with your specialist physician in case of different dosage (according to the clinical specifications of the subject).

*Because of the presence of clinical programs, this product is a medical device. Therefore it is certified by the Kiwa Cermet Italia S.p.A. 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 purchase date against defects in material or workmanship (12 months if the user uses the device for professional aims), 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.

In order to take advantage of the warranty service, the user must comply with the following warranty clauses:

1. The 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 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 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.

## **FAQ**

### **SOLENOIDS**

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

Of course, placing them over one's clothes does not affect the deep treatment, indeed, it is advisable to always put a garment between the skin and the diffuser (solenoid).

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

Of course, the plaster cast does not affect the emission of magnetic flux. In this case, we suggest using a specific program.

#### **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?**

See maintenance and cleaning chapter.

#### **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, bringing the Magnum Test near the center of one of the two coils, you should feel a slight vibration.

### **PROGRAMS**

#### **Is it possible to create a new program?**

Of course. By selecting Easy Program it is possible to store the parameters prescribed by the doctor.

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

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

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

Certainly. The device includes the possibility of changing time, frequency, duty cycle (up to 50%) 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 for battery operation (optional). In the "setup" menu the "auto shutoff" parameter can be adjusted from 1 to 20 minutes.

**USABILITY OF THE DEVICE**

**Does the device need to 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 the 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 can't I 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 the input channels and then you can set the gauss.

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

Yes, 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 range emits pulsed electromagnetic fields at low frequency.

**What should I do if the characters are not readable?**

In the Settings menu, select "Contrast" and set the quality of the reading with the specific buttons.

## EMC accompanying documents

### Essential performance

PERFORMANCE	CONDITION	RISK	ACCEPTED EVENT
Magnetic field emission.	Disturbance outside the electronic circuit.	Display information 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 the 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 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 carry out in battery mode. If the machine turns off, it mustn't 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 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 of 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 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.

# **GLOBUS**

**ITALIAN** EXCELLENCE

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