# THERAPEUTIC & STIMULATING TORUS

Type LT-100

owner´s manual


CE 1014

# Apparatus for treatment, stimulation and medical rehabilitation

# by means of a pulsed magnetic field

manufactured by

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**Czech Republic**

## Product description

The LT-100 unit features an atypical design, where both the applicator and the generator (control unit) are integrated within one unit of a toroidal shape – a torus.

Power is supplied to the unit via a plug-in power supply adapter for medical application, which uses 100V to 240V, 50/60 Hz line voltage. Thus, the unit can be used in any country in the world.

Due to this approach, a solution was obtained for magnetic therapy with universal uses in medical and rehabilitation practice. The system generates a field with suitable biotropic parameters, contributing to a high therapeutic efficacy.

The product is based on proven technology of the LT-99 series units, including the NTS pulsed electromagnetic field generation method covered by a European patent.

In its "full version" the unit is equipped with an output for connecting an external applicator, which can be convenient for some therapeutic applications. The unit will accommodate any LT series applicator manufactured by 2EL.

The product can be used for the treatment of the diseases listed in the annex, as well as for preventing them and for strengthening the immune system and improving the body metabolism.

Owing to its toroidal shape, the system is well suited for the treatment of athletes who suffer from frequent bruises, oedema, extravasations, contusions and muscular fatigue. In injured patients the system will support the fracture/wound healing processes. The product's relaxation effect is significant as well.

Thanks to its easy portability in a special bag, the unit is ready to help its owner on trips and journeys.

**Major beneficial effects of the product:**

- Induces widening of the blood vessels (vasodilation) – better blood supply to the tissues
- Has anti-inflammatory effects (on both sterile and microbial inflammations)
- Acts as a painkiller (analgesic effects)
- Relieves muscle tension (myorelaxing effect)
- Speeds up healing processes
- Suppresses swelling
- Reinforces and stabilizes bone tissue
- Improves cell and tissue metabolism
- Strengthens and promotes the immune system
- As a result of all these effects, it reduces the use of drugs, speeds up the recovery process and reduces or eliminates symptoms in patients with chronic diseases

**Clinically tested and proven effects for the following conditions:**

- Fractures
- Oedema and inflammations
- Bruises and burns
- Post-injury condition
- Back pain
- Peripheral nerve injuries
- Metabolic disorders
- Headaches (migraines)
- Fibromyalgia
- Rheumatic diseases (arthritis, ankylosing spondylitis, arthrosis, spondyloarthrosis, gout etc.)
- Spondylosis
- Osteoporosis
- Tennis elbow, frozen arm
- Parodontosis, periostitis
- Chronic prostatitis

## ⚠ When should magnetotherapy be avoided?

Magnetotherapy should be avoided during pregnancy, although no clinical studies have given evidence of any unwanted effects of this treatment. This is just a precautionary measure.

In no case should the product be used by patients with any electronic implants (such as pacemakers or insulin pumps). The effects might be fatal.

Bleeding of any kind is also a condition in which magnetotherapy is not recommended because magnetic field slightly suppresses blood coagulation and promotes blood supply to the tissues, whereby bleeding is supported. Magnetotherapy is contraindicated in patients with bleeding into the digestive tract.

The use of the device should be stopped two days before, during, and two days after menstruation, although a pulsed magnetic field may help reduce menstrual pain if applied outside this time period.

Magnetotherapy is not recommended for patients with acute viral diseases, heavy fungous diseases, neurological seizures or severe atherosclerosis.

Do not use magnetotherapy in patients with adrenal hyperfunction, thyroid hyperfunction, active tuberculosis, venous thrombosis or embolism, hypothalamus or hypophysis disorders. All the above information is given as a precautionary measure.

Also as a precaution, avoid using the product to treat persons with existing or past malignant tumours, even if treated and supposedly eliminated.

Based on current knowledge, magnetotherapy does not have any side effects if the recommendations given here are followed.

In extremely sensitive individuals, use of the system can induce an appreciable temporary blood pressure drop, this response, however, usually vanishes after the first five applications.

**How should the device be used and for how long?**

The use of this system in patients with various diseases or disorders is described in the annex, which is provided to the user along with this manual.

The use of the system several times a day is absolutely safe; nevertheless, the total daily exposure should not exceed one hour.

**Components of the LT-100 unit**

1. LT-100 generator-applicator
2. FW7555 Medical plug-in adapter
3. Magnetic indicator
4. Pad (optional)

**Technical data**

- Model: LT-100
- Classification: ⧈ - Class II, 🚶 - Type BF
- Power supply:
  FW7555M/12 plug-in power supply adapter (100 – 240V/12V=)
- Generator input current in the idle state: Maximum 50 mA
- Generator power demand: Maximum 25 VA
- Output for external applicators A1C, A4C, ASE, APE and B1C
- Magnetic induction on the surface of the integrated applicator:
  3.5 mT
- Magnetic induction on the surface of external applicators:
  2 to 10 mT
- Pulse frequency:
  1.3 to 72.7 Hz (depending on the operating mode selected)
- Admissible operating temperature range: 0°C to 40°C
- Admissible storage temperature range: -20°C to 65°C
- Torus size: Maximum 400 x 350 x 30 mm
- Weight, adapter included: 870 g

**Operating modes (programmes)**

The unit can be operated in three different modes, determined by the programme selected: ***P1***, ***P2*** or ***P3***.

In the ***P1*** programme mode the unit generates a pulsed magnetic field with a pulse frequency varying between 3.3 and 40.7 Hz. This mode is indicated by the symbol W (***W****obbling-s****W****eeping*) in the upper left segment of the display.

In the ***P2*** programme mode the unit generates a pulsed magnetic field at a random pulse frequency within the range of 1.3 to 72.7 Hz. This mode is indicated by the symbol R (***R****andom*) in the upper left segment of the display.

In the ***P3*** programme mode the unit generates a pulsed magnetic field at a single (preset) pulse frequency. The default frequency (preset by the manufacturer) is 12 Hz. This default frequency can vary from 2 Hz to 72 Hz during operation of the unit. This mode is indicated by the symbol S (***S****ingle frequency*) in the upper left segment of the display. The ***P3*** mode offers the option to change the selected frequency by ± 2.5 Hz. This can be achieved by simultaneous activation of the symbols S and W by a procedure which will be described later.

In each of the modes, NTS modulation is activated by default. This is indicated by the symbol M (***M****odulation*) in the upper left segment of the display. NTS is a patented technology that eliminates the body's tendency to become accustomed to the pulsed magnetic field and thus to benefit from the effects of the device to a lesser and lesser extent. The NTS function is very important for stimulation of the immune system, where the pulsed magnetic field is to be applied for a long time. NTS modulation can be disabled and enabled by a procedure that will be described later.

The 🔔 symbol in the upper right segment of the display indicates that each five-minute period of running the unit is signalled acoustically; a signal also announces the end of the application. This function can be disabled and enabled in each of the modes described.

The ♫ symbol (musical note) in the upper right segment of the display indicates that a system sound is allowed.

The default setting (preset by the manufacturer) includes the full power of the unit and a 20-minute application period. The levels, though, can be modified in each of the programmes.

**How to set up and control the unit**

The plug-in adapter should only be used in dry, indoor conditions. First, connect your Torus LT-100 to the power adapter: To do so, plug the adapter cable connector into the socket in the centre of the unit's control panel. Now, place the adapter plug in the wall socket. If the wall socket is connected to the grid and the interconnection between the adapter and the unit is all right, the green control light on the control panel and LCD display will illuminate. The unit is in its initial standby state. The display shows the text *PROG* and the letter ***P*** followed by the programme number. If you want to use a different programme, select it by pressing the double push-button in the point of the ▲ symbol or the ▼ symbol. To start the selected programme, briefly press the button with the symbol ∿.

During operation of the unit, the display shows the time (*TIME*) in minutes (*min*) remaining until the end of the application. The undulating curves in the bottom left corner of the display and the yellow flashing control on the control panel indicate that the instrument is generating a pulsed magnetic field. The presence of the magnetic field can be tested by holding the Magnetic Indicator, that is supplied with the unit, vertically above the surface of the applicator part of the unit. If you feel perceptible vibrations, the device is working correctly.

If the unit has been allowed to reach the end of cycle, a triple acoustic signal will be heard (unless disabled) and the ***EA*** (***E****nd of* ***A****pplication*) message will appear on the display. Press any button to put the unit in standby.

The default pulse repetition frequency in the ***P3*** programme mode is 12 Hz. This frequency, however, can be changed smoothly by the

user while the unit is running. To do so, briefly press the double push-button on the side of the ▲ or ▼ symbol. The display will show the text *FREQ* and the current frequency in *Hz*. Now, either press this button briefly in a sequence or press and hold it in order to initiate a stepless frequency change. Release the button after attaining the desired frequency. In two seconds, the time remaining until the end of the application will be displayed again.

Whenever you wish to suspend the application, press the ⏦ button briefly. Use the same button to resume the application. The idle suspension state differs from the initial standby state (which is the state in which the unit occurs either on connecting the unit to power or after reaching the end of application) in that the ***P*** programme indication is completed with the word *PAUSE* in the bottom segment of the display and the green control on the unit control panel is flashing. The programme number can be changed in this idle state. However, be aware that this new programme will be set to the standard time of 20 minutes again (or to the time preset by you).

After the unit has been idle for more than 10 minutes, the LCD display illumination and the display itself will switch off automatically. Pressing any button will illuminate it again and the previous status will be displayed.

If you hear a triple acoustic signal when pressing the ▲▼ double push-button, you are informed that no function can be set with that double push-button in the current condition or with the current setting of the unit.

The unit is equipped with an electronic memory owing to which the programme that was run last before switching off the unit will be automatically set on starting the unit again.

**User-defined setup**

The following parameters can be controlled in the three programme modes, ***P1***, ***P2*** and ***P3***: NTS modulation enabled/disabled, sound enabled/disabled, and intensity and application time setting. Frequency sweep can also be enabled in the ***P3*** programme mode.

Select the programme in the standby state. Now, press and hold the ∿ button and briefly press the double push-button at ▲. In this manner, the programme setup mode is activated. The display will show the word *SETUP* and a flashing parameter which can be changed using the ▲ or ▼ button. Press the ∿ button briefly to pass to the next parameter.

For instance, if the [M] symbol is flashing, this parameter can be set to ***0*** (modulation disabled) or ***1*** (modulation enabled) using the ▲ or ▼ button. Press ∿ briefly to pass to the next parameter.

If the 🔔 symbol is flashing, apply the same procedure to set this parameter to ***0*** (sound disabled) or ***1*** (sound enabled).

In the next step, the intensity of the magnetic field can be adjusted to 20%, 40%, 60%, 80% or 100% by setting the *INTEN* parameter to ***0.2***, ***0.4***, ***0.6***, ***0.8*** or ***1.0***. The intensity set is indicated by the number of curves (1 to 5) displayed in the bottom left corner of the display.

Set the *TIME* parameter (in minutes) to select the time of application (exposure) within the range of 5 to 60 minutes at 5-minute measures.

In addition, a pulse frequency sweep of 5 Hz (± 2.5Hz from the frequency set) can be selected in the ***P3*** programme mode. Set the [W] parameter to ***0*** to disable the sweep or to ***1*** to enable the sweep.

The setup mode can be exited at any time by pressing and holding the ∿ button and subsequently pressing the double push-button at ▲ briefly. The unit passes to idle mode with the setup accepted.

The unit can be switched to the single-programme mode where the functions of the ▲ ▼ double push-button are disabled and only the ∿ button serves to control the unit. First select the desired programme and then press and hold the ∿ button until an acoustic signal is heard (about 10 seconds) and the ✂ symbol (crossed arrow) appears above the programme number in the upper part of the display. This symbol indicates that only the selected programme can be run. To switch back, return to the idle state, and hold the ∿ button down until the ✂ symbol disappears.

To disable any sound (including pressing the button), bring up the symbol (crossed-out musical note) in the upper right corner of the display. To achieve this (in the idle state of the unit), press and hold the button and then briefly press the double push-button at ▼. Apply the same procedure to enable the sound again.

The complete setup of the unit remains stored in the system memory even after unplugging the unit/adapter. Thus, the setup procedure need not be repeated after switching the unit on again.

The unit should be delivered to the user in the default setup state defined by the manufacturer.To reset the unit to the default setup, unplug the unit, press and hold and subsequently connect the unit to power via the adapter. After releasing the button the system will be in the default state.

**Attachment of an external applicator**

The unit (in its full version) is fitted with an output for connecting LT series applicators that are used with the LT-99 system.

To gain access to this output, remove the plastic connector cover from the unit's control panel.

If an external applicator is attached, the programme selection is automatically extended to 9 programmes. The basic ***P1***, ***P2*** and ***P3*** programme choice remains intact. When any of these programmes is selected, a field of the same frequency is generated in the unit's internal applicator and in the external applicator. By contrast, if a programme from the extended range (higher than ***P3***) is selected, all variations of programmes ***P1*** through ***P3*** can be set consecutively. In other words, the internal and external applicators will work in different modes. For instance, the ***1.2*** mode in the extended range means that the internal applicator is controlled by the ***P1*** programme, whereas the external applicator runs under the ***P2*** programme. It will be clear from this example that the left digit refers to the internal applicator, whereas the right digit refers to the external applicator.

**Error signals and messages**

If the green control light on the universal power supply adapter stops shining, the unit is overloaded. In this case, unplug the adapter immediately.

The ***AF*** (*Applicator Fault*) message on the display in combination with the word *FAILURE* indicates a short circuit in the internal or external applicator. If this message persists after disconnecting the external applicator, the short circuit is in the internal coil of the system.

***OF*** (*Output Fault*) is a message that can appear if a fault occurs in the generator electronics output or if the unit is exposed to extremely intense external interferences. In this case, unplug the unit immediately.

**Product properties and handling**

The body of the unit is made of ABS copolymer, which meets the requirements for contact with the patient's skin.

The external applicators act on the treated body parts through clothing; do not apply them to bare skin. If application to the clothing is impossible for any reason, put a piece of cloth on the site to be treated.

No hazardous substances are contained in the product or used by the product during operation.

The apparatus is declared by the manufacturer as an active non-invasive medical device Class IIa.

When the service life has expired or the product is no longer usable, it should be handled as electric waste, i.e. either returned to the manufacturer/dealer for disposal free of charge or collected as special waste in compliance with applicable legislation.

**WARNINGS:**

⚠ Unplug the unit by disconnecting the adapter plug from the wall socket, not by disconnecting the power supply connector from the unit's panel.

⚠ The wall socket to which the power supply adapter is connected

should be accessible at all times to enable the unit to be unplugged at any moment.

⚠ The output connector on the control panel must be covered with the dedicated plastic cap at all times except when an external applicator is connected to the unit. In this manner, the electronics of the unit are protected from electrostatic discharge.

⚠ Do not connect an external applicator to the unit or disconnect it from the unit while the unit is running. Connect/disconnect an external applicator before starting the unit or while operation is suspended *(PAUSE)*. Otherwise, the output circuits of the system could be damaged.

⚠ The product meets the requirements for electromagnetic compatibility. Nevertheless, it can cause radio interference or affect the operation of electronic instruments in its vicinity. This can be mitigated by suitable separation of the instruments or by shielding them.

⚠ Remember that the system forms a magnetic field of one polarity and very low frequency, which can (similarly to a permanent magnet) affect some instruments and facilities located in the immediate vicinity (such as computer monitors and TV screens, classical watches, bank cards with magnetic strips etc.).

⚠ Put the system out of operation only by unplugging the power supply adapter from the wall socket.

**Maintenance and repair**

The system does not require any special maintenance (such as aligning, calibration, battery replacement etc.). You can make a tentative performance test by using the magnetic indicator supplied with the product.

Clean the torus with a cloth wet in water and detergent. Use vacuum cleaning or brushing to clean the external applicators. The unit components must not be submerged in water for cleaning.

Make sure that the adapter cable with the plug is well connected to the adapter body. Also, be careful not to damage the power supply

adapter (e.g. by dropping it on the floor). If the adapter has suffered mechanical damage, do not use it. Instead, obtain a new adapter of the same type from your dealer.

Report any product failure to your dealer's servicing department.

**Warranty**

The warranty only covers workmanship and material defects. The warranty on quality, good function and manufacturing is only valid provided that the product has been used in accordance with the recommendations given in this manual.

The warranty does not apply to defects caused by mechanical damage, transportation, improper operation, inappropriate external conditions or if dismantled by an unauthorized person.

Neither the manufacturer nor the dealer will be liable for any damage due to improper use of the product. To make any warranty claim, contact your dealer.

*Product:* **Torus unit Type LT-100** + plug-in adapter **FW7555M**

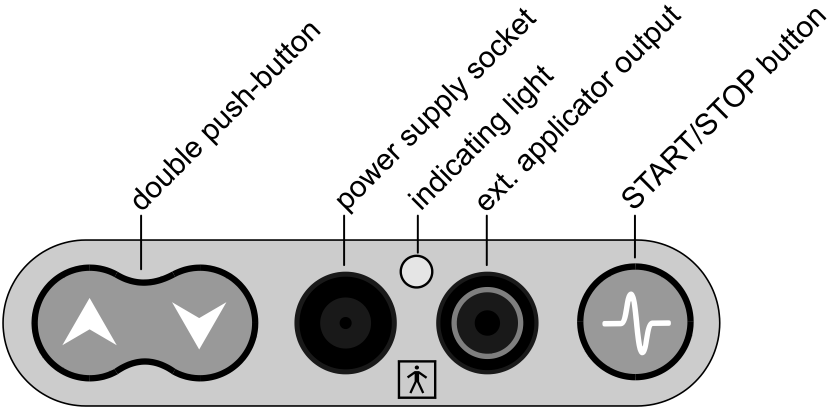
*with the applicator:* _____

*Warranty period:* _____ *from the date of sale*

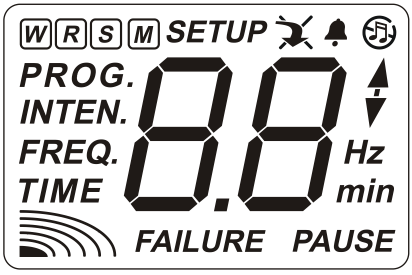
*Seller:* _____

*Date of purchase:* _____

**Unit´s control panel**
(full version)




**Display layout**




W – wobbling frequency
R – random frequency
S – single preset frequency
M – modulation NTS

NOTE: