Content

Before using TENS eco 2 ................................................................. 3
Intended use ...................................................................................... 3
Safety instructions ........................................................................... 3
Contra-indications .......................................................................... 4
Side effects ...................................................................................... 4
Operating elements .......................................................................... 4

Technical information .................................................................. 5
Description of the symbols .............................................................. 5
Recycling ......................................................................................... 5
Technical specification ................................................................. 5

Operating the TENS eco 2 ............................................................. 6
Connecting cables and electrodes .................................................. 6
Switching ON the TENS eco 2 ......................................................... 6
Selecting a program ......................................................................... 7
Setting the intensity ......................................................................... 7
Terminating the stimulation .............................................................. 7
Interlocking the keypad .................................................................... 7
Switching ON/OFF the buzzer .......................................................... 8
Creating a user program (P13 – P24 only) ........................................ 8
Factory settings ............................................................................... 8
Switching OFF the TENS unit .......................................................... 8
Setting date and time (for memory query mode) .............................. 8
Memory Query Mode ...................................................................... 8
Resetting the memory .................................................................... 9
Charging the battery ....................................................................... 9

Description of the programs ......................................................... 10

General information ..................................................................... 15
Adjustments, modifications and repairs ........................................... 15
Warranty ......................................................................................... 15
Guarantee ....................................................................................... 15
Maintenance and cleaning ............................................................... 15
Classification .................................................................................. 15
Delivery content ............................................................................. 15

Accessories ..................................................................................... 16
Reference sheet for battery retraction and disposal ....................... 18

Examples of electrode placements ................................................ 19
Electrode placement for dynamic stimulation (P10, P11, P22, P23) .... 23
Overview pre-set programs .............................................................. 24
Overview free programs .................................................................. 26
Before using TENS eco 2

Intended use
The TENS eco 2 has been designed as a device for the generation of transcutaneous electrical stimulation of the nerves and muscles and may not be used for any other purposes.

Safety instructions

Please read the operating instructions carefully before using the TENS eco 2.
- The TENS eco 2 is only to be used for stimulation purposes on one patient at any one time.
- Only use the TENS eco 2 with original accessories.
- The size of the electrodes should to be not less than 2 cm².
- Advice that stimulation should not be applied across or through the head, directly on the eyes, covering the mouth, on the front of the neck, (especially the carotid sinus), or from electrodes placed on the chest and the upper back or crossing over the heart.
- Keep the TENS eco 2 away from water or other liquids. Do not drop the TENS eco 2, do not use it inappropriately or expose it to extreme temperatures or high levels of humidity (not less than 10 °C or more than 40 °C or a relative humidity of more than 90 %).
- Do not use the TENS eco 2 if it is not working properly or if it has been damaged in any way.
- Be careful when using the TENS eco 2 near or on children. Keep the unit away from children.
- Always store the TENS eco 2 in its case to protect it from damage and dust.
- To avoid reciprocal interference, the TENS eco 2 should not be operated in the vicinity of other electronic devices. If this is not possible, the various unit functions should be closely monitored during operation so that proper use in accordance with the regulations is ensured.
- The simultaneous connection to the patient of a high frequency surgical unit can lead to burning under the electrodes or around the probe.
- Operating close (for example 1m) to short wave and microwave units or mobile telephone systems can cause fluctuations in the output values of the electric current stimulation unit.
- Do not use the machine during the simultaneous operation of other machines, when driving or when asleep.
Contra-indications
Please check with your physician before using the TENS eco 2 if one of these apply to you:
- Patients with electronic implants such as heart pacemakers, defibrillators or pumps
- Patients with cardiac rhythm disorders
- During pregnancy
- Patients subject to seizure disorder / epilepsy
- Patients with skin disorders in the vicinity of the electrodes
- Patients with malignant diseases in the region of application

Side effects
- Pain caused by the stimulation: The stimulation can be perceived as uncomfortable/painful if the electric current is too intensive or if the electrodes have been positioned unfavorably. Unpleasant side effects can be avoided by adjusting the intensity, using another program with other parameters and the possible re-positioning of the electrodes.
- Skin intolerance which can result from the electrodes, the electrode gel or the electric current impulses. The physician should be consulted in cases of reddening, burning, itching or blistering under the electrodes or in the vicinity of the electrodes. Slight skin reddening of short duration in the area of the electrodes following stimulation is quite normal because blood circulation has been improved by the effects of the stimulation.
- Muscular pain: If the stimulation has been too intense or too long muscular aches in terms of sore muscle can occur. Shorten the treatment time and the intensity of stimulation at the beginning of muscle stimulation to avoid muscle ache.

Operating elements
1. Display
2. Menu key (Program choice)
3. Key to enter the programming mode
4. Modification keys to adjust parameters and to modify the intensity
5. ON/OFF key
6. Output sockets for the cables
7. Output socket for the battery charger
8. ON/OFF commutator
Technical information

Description of the symbols

⚠️ Attention: Read accompanying documents, especially user manual!

🔍 Follow instructions for use

👩‍⚕️ Type BF applied part

📅 Date of manufacture

🔍🔍🔍 Catalogue number

⓪SN Serial number

🚫Environment
Do not dispose of the appliance with the normal household waste at the end of its life, but hand it in at an official collection point for recycling. By doing this you will help to protect the environment.

♻️Recycling

 규정에 따라 CE 라벨링이 붙어 있으면, 제조업체는 해당 제품이 각 EC 지침에 해당하는 모든 관련 요구 사항을 충족시키고 있다는 것을 의미합니다. 이는 conformation assessment process가 성공적으로 완료된 것입니다. 해당 shaded number conformation assessment process의 id는 relevant notified body의 CE 라벨링에 준해 추정됩니다.

Technical specification

Two-channel nerve and muscle stimulator with electrically insulated channels, constant current characteristic, output short circuit control element (AKS), 12 integrated pre-set programs and 12 user programs.

- Output current: 100 mA (with an actual resistor of 1kΩ)
- Frequency range: 1-120 Hz
- Impulse width: 50-400 μs
- Nominal current: 15 mA
- Power supply: integrated rechargeable battery NiMH 4.8 V
- Dimensions: 11.4 x 5.9 x 2.7 cm
- Weight approx. 300 g
Pulse form with 1kΩ load real

With ANSI/AAMI standard load

Change in output current depending on load

Operating the TENS eco 2

The battery of new TENS eco 2 units need to be charged before first use. Please read the chapter “charging the battery” on page 10.

Connecting cables and electrodes
- Connect the electrodes with the cable(s) (always 2 electrodes per cable).
- Connect the cable(s) to the TENS eco 2 (no. 6).
- Place the electrodes on the desired area (see examples on chapter electrode placement).

Switching ON the TENS eco 2
- Switch the commutator (no. 8) to the ON position.
- Switch on the TENS unit by pressing the ⊗ key (no. 5)
The program shown on the display is the last which was used during the previous session. If the display shows a key symbol on the upper left side, the TENS eco 2 has previously interlocked a specific program (see chapter interlocking the key pad).

**Selecting a program**
Select a program by pressing the P key. To scroll through the programs, press the P key as often as necessary until you have selected the program of your choice. To return to the previous program, press one of the keys.
Selecting a program is only possible if the keypad has not been interlocked on one specific program (see chapter interlocking the keypad).

**Setting the intensity**
Start the stimulation by increasing the intensity with the key of the channel(s) connected to the electrodes.

- key to increase the intensity
- key to decrease the intensity

The intensity of each channel is displayed on the screen. The intensity can be set between 0 and 100 mA. By keeping the intensity keys pressed, the intensity will increase/decrease more rapidly.

**Terminating the stimulation**
You can terminate the stimulation at any time by pressing the P key. When the therapy time is completed the stimulation terminates automatically. If you press the key the stimulation stops and the TENS eco 2 switches OFF.

**Interlocking the keypad**
Choose the desired program by pressing the P key (see chapter choosing a program). Press and hold for 3 seconds the P key and the right keys to interlock the TENS unit on the chosen program. The TENS eco 2 can now only be used with the chosen program. A key symbol appears on the display adjacent to the program number. All keys except the intensity and the ON/OFF keys are interlocked into this mode. Use the same key combination to unlock the TENS unit.

**Switching OFF the timer**
You can use the TENS eco 2 with or without timer. All programs run for 30 minutes. Press and hold for 3 seconds the E key and the left key. The total therapy time appears on the display. Press the E key to switch off the timer. The symbol “---” appears on the display. Press the key to save the changes.
Switching ON/OFF the buzzer
Pressing the left key for three seconds, with keyswitching ON/OFF.

Creating a user program (P13 – P24 only)
Choose one program between P13 and P24. Press the E key to access the programming mode. The parameters to be changed flash. You can modify them by pressing the and keys. Switch to the next parameter by pressing the E key. The frequency, the pulse width and the time can be modified in the user programs.

Factory settings
The parameters from P1 and P13 are identical in new devices, respectively for P2 and P14, P3 and P15, ... P12 and P24.

Switching OFF the TENS unit
Press the key to switch OFF the TENS eco 2. If the battery level is too low or if the TENS unit has not been used for the previous 2 minutes, it turns off automatically.

Setting date and time (for memory query mode)
Before you can use the memory query mode you need to set the date and time. Pressing and holding the E key for about 3 seconds leads you to the date/time mode. In date/time mode the LCD shows two figures: The left figure indicates the date, the right figure indicates the time.

Pressing the left key increases the date by one day (max. 30).
Pressing the left key decreases the date by one day (min. 1).
Pressing the right key increases the time by one hour (max. 23).
Pressing the right key decreases the time by one hour (min. 0).
Press the key to save all parameters and to leave the date/time mode again. Date and time are continuously updated.
The TENS eco 2 switches OFF automatically after two minutes if no key is pressed. In this case none of the adjusted parameters are saved.

Memory Query Mode
First set the date and time (see chapter setting date and time). The memory query mode is used to read out saved therapy data from patients. By pressing and holding the right key and E key for about 3 seconds you enter the memory query mode. If no values are saved, the display shows “null” for about 2 seconds and the device returns to standby mode automatically. If you have saved therapy data, the display shows the parameters of the last therapy session as shown below:
- Used program = P01
- Frequency = 100 Hz
- Pulse width = 200 μs
- Therapy duration = 0 min 44 s
- Day of therapy = 5 (fifth day)
- Therapy session no. = 3

You can save up to 90 therapy sessions respectively the last 3 of each day.
- With the left \( \uparrow \) key you can return to the values of the previous day (until you reach the first recorded day).
- The left \( \downarrow \) key lets you proceed to the next day (until you reach the current or last day).
- The right \( \uparrow \) key brings you to the parameters of the previous therapy session of the respective day (until you reach the first session of the respective day).
- The right \( \downarrow \) key shows you the parameters of the next therapy session (until you reach the last session of the respective day).

**Resetting the memory**
Enter the memory query mode (see above). Pressing and holding the \( E \) key for about 5 seconds will delete all saved data. The display shows “Clr” for about 2 seconds and the device can be used for stimulation again. The TENS eco 2 switches OFF automatically after two minutes if no key is pressed.

**Charging the battery**
The battery level is shown on the display with a battery symbol with 4 lines. If the battery level is too low the TENS unit switches OFF automatically and cannot be turned on again. The battery needs to be re-charged.
- Switch the commutator to the OFF position (no. 8).
- Connect the charger with the TENS eco 2 (socket no. 7).
- Connect the charger to the mains circuit. The diode on the charger illuminates in red.
- Charge the TENS unit until the diode on the charger illuminates in green.
- The battery is fully charged if the light on the charger appears in green. Plug OFF the charging cable from the mains circuit.

**Caution!** Do not charge the battery for more than 3 hours.

**Important!** Do not forget to switch the commutator ON again after charging.
Description of the programs

Program 1 + 13: Gate control 100 Hz
Both channels work with the same frequency and pulse width.
Frequency: 100 Hz
Pulse width: 200 μs
Therapy time: 30 min (1 to 99 min)
Indications: Acute nerve or joint pain
This program is used to treat acute neuropathic and joint pain. The effect is immediate.

Program 2 + 14: Gate control 80 Hz
Both channels work with the same frequency and pulse width (see illustration Program 1).
Frequency: 80 Hz
Pulse width: 150 μs
Therapy time: 30 min (1 to 99 min)
Indications: Acute nerve or joint pain
Program 2 is similar to program 1 but works with a lower frequency and may therefore be considered as more pleasant.

Program 3 + 15: Low frequency 2 Hz
Both channels work with the same frequency and pulse width (see illustration Program 1).
Frequency: 2 Hz
Pulse width: 250 μs
Therapy time: 30 min (1 to 99 min)
Indications: Diffuse nerve, joint or muscle pain, spasms, lower back pain, neck pain, fibromyalgia, chronic pain. This program is used to relax painful muscles and to achieve an endorphin release. Endorphins have an analgesic effect that lasts beyond stimulation, but you need to run program P3 to the end (30 min). To achieve particularly good effects use kaada electrodes placement (on the hand).

Program 4 + 16: Gate control (channel 1) + low frequency (channel 2)
The channels work with different frequencies but with the same pulse width.
Therapy time: 30 min (1 to 99 min)
Channel 1: Channel 2:
**Indication:** Joint pain  
This program combines the effects of program 1 and 3, in case the analgesic effect off program 3 is not strong enough.

**Program 5 + 17: Adaption**  
After phase 1 the program changes automatically to phase 2.  
Therapy time: 30 min (1 to 99 min)  

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency:</td>
<td>100 Hz</td>
</tr>
<tr>
<td>Pulse width:</td>
<td>150 μs</td>
</tr>
<tr>
<td>Duration:</td>
<td>10 min</td>
</tr>
</tbody>
</table>

**Indications:** Especially for lower back pain and sciatic pain syndrome  
Program 5 starts with high frequency stimulation for 10 minutes, to give you immediate pain relief. After 10 minutes it automatically changes to a 20 minutes low frequency stimulation with acupuncture type impulses to release endorphins and to retain the analgesic effect even beyond stimulation.

**Program 6 + 18: HAN stimulation**  
The device continuously changes between phase 1 and phase 2.  
Therapy time: 30 min (1 to 99 min)  

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency:</td>
<td>100 Hz</td>
</tr>
<tr>
<td>Pulse width:</td>
<td>150 μs</td>
</tr>
<tr>
<td>Duration:</td>
<td>3 s</td>
</tr>
</tbody>
</table>

**Indications:** All kinds of pain  
This program combines the analgesic effect of high frequency stimulation with endorphin release caused by low frequency stimulation. Every 3 seconds it changes between a “pins and needles” stimulation and a pulsing stimulation.
**Program 7 + 19: Burst 2 Hz**

This generates pulse packages (Burst).

- **Frequency:** 100 Hz
- **Pulse width:** 150 μs
- **Modulation:** Burst 0.5 s (0.25 s + 0.25 s)
- **Therapy time:** 30 min (1 to 99 min)

**Indications:** Diffuse nerve, joint or muscle pain, spasms, lower back pain, neck pain, fibromyalgia.

This program covers the same indications as program 3, but the stimulation is often considered as more comfortable and pleasant than the normal low frequency stimulation.

**Program 8 + 20: Modulation**

The frequency continuously changes within the frequency limits. The pulse width adapts accordingly.

- **Minimal frequency:** 2 Hz (Pulse width: 200 μs)
- **Maximal frequency:** 80 Hz (Pulse width: 100 μs)
- **Modulation duration:** 7.5 s (2 Hz $\rightarrow$ 80 Hz)
- **Therapy time:** 30 min (1 to 99 min)

**Indications:** Acute nerve or joint pain (as an alternative to P1 and P2)

If you feel that the analgesic effect of program 1 or 2 is decreasing, change to program 8. With frequency modulation the body does not become accustomed to the stimulation.
Program 9 + 21: Muscle stimulation
The intensity continuously changes according to the indicated parameters.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>50 Hz</td>
</tr>
<tr>
<td>Pulse width</td>
<td>250 μs</td>
</tr>
<tr>
<td>Rising ramp</td>
<td>2 s</td>
</tr>
<tr>
<td>Falling ramp</td>
<td>1 s</td>
</tr>
<tr>
<td>Working phase</td>
<td>5 s</td>
</tr>
<tr>
<td>Pause</td>
<td>12 s</td>
</tr>
<tr>
<td>Therapy time</td>
<td>30 min (1 to 99 min)</td>
</tr>
</tbody>
</table>

**Indications:** Prevention of muscular atrophy, muscle strengthening
This program is suitable to maintain the muscle volume, e.g. during injury or recovery, or to avoid muscle atrophy. In case of muscle atrophy, do not stimulate more than once a day for the first month. Certainly program 9 can also be used to strengthen a healthy muscle.

Program 10 + 22: Gate control dynamic slow
The intensity continuously changes. It increases within 1 s to the maximum intensity and decreases within 1 s to 50% of the maximum intensity. Both channels operate alternately (massage effect).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>80 Hz</td>
</tr>
<tr>
<td>Pulse width</td>
<td>150 μs</td>
</tr>
<tr>
<td>Intensity modulation</td>
<td>1 s rise, 1 s fall</td>
</tr>
<tr>
<td>Therapy time</td>
<td>30 min (1 to 99 min)</td>
</tr>
</tbody>
</table>

**Indications:** Especially for acute back pain, lower back pain, sciatic pain
This program is recommended for the treatment of back pain. The massage effect provides a comfortable and pleasant stimulation. The so called Gate Control reflex which is achieved through this kind of stimulation is a natural reflex that you achieve e.g. by rubbing a painful area with your hands to calm acute pain. To achieve the massage effect it is essential to use both channels of the TENS unit.
Program 11 + 23: Gate control dynamic fast
The intensity continuously changes. It increases within 0.25 s to the maximum intensity and decreases within 0.25 s to 50% of the maximum intensity. Both channels operate alternately (massage effect). See illustration program 10.
Frequency: 80 Hz
Pulse width: 150 µs
Intensity modulation: 0.25 s rise, 0.25 s fall
Therapy time: 30 min (1 to 99 min)

Indications: Heavy legs (venous return)
Program 11 is similar to program 10, but the movement of the massage waves is faster. It is used to improve the venous return for patients who suffer from heavy legs. To achieve the massage effect it is essential to use both channels of the TENS unit.

Program 12 + 24: Deep TENS
Program 12 works just like program 1. However, instead of just one pulse, four short pulse of 75 µs are generated with a pause of 200 µs between each pulse. 100 pulse packages are generated per seconds (carrier frequency = 100 Hz).
Frequency: 100 Hz
Pulse width: 75 µs
Modulation: four pulses in a group, duration of periods 275 µs
Therapy time: 30 min (1 to 99 min)

This program could be called the last recourse if none of the other programs give analgesic effect. However, because of the high frequency this program is often felt as less pleasant. Furthermore, high frequency stimulation needs more battery power.
General information

Adjustments, modifications and repairs
The manufacturer is only responsible for the safety and performance of the TENS eco 2 when readjustments, alterations and repairs are carried out by authorised persons and when the TENS eco 2 is used in accordance with the operating instructions.

Warranty
Legal right of warranty is applied according to German Civil Code.

Guarantee
The manufacturer issues a guarantee of 12 months from the date of purchase. The guarantee does not apply in the following cases:
- damage due to improper handling
- defects the customer is aware of on the date of purchase
- damage caused by the customer
- for wearing parts and consumable supplies like, for instance, electrodes, batteries and cables

Maintenance and cleaning
No special cleaning or care agents are required for the TENS eco 2. Clean the TENS unit with a soft, fluff-free cloth. Please ensure that no moisture permeates the TENS unit. If moisture does permeate the TENS unit, a technical check must be carried out before re-use.

Classification
In accordance with the Law on Medical Devices, the TENS eco 2 is classified as being a Class IIa medical device.

Delivery content
<table>
<thead>
<tr>
<th>Art.-No.</th>
<th>Article</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>104062</td>
<td>TENS eco 2</td>
<td>1</td>
</tr>
<tr>
<td>106351</td>
<td>Cable Type 5.15</td>
<td>2</td>
</tr>
<tr>
<td>283400</td>
<td>Self-adhesive electrodes 50x50 mm (4 pieces)</td>
<td>1</td>
</tr>
<tr>
<td>104776</td>
<td>Charger 3PN0508S EU</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Transportation bag</td>
<td>1</td>
</tr>
<tr>
<td>101446</td>
<td>Operating manual</td>
<td>1</td>
</tr>
</tbody>
</table>
Accessories

The following accessories can be combined with the TENS eco 2. The manufacturer cannot guarantee the security of the TENS eco 2 if it is not used with original accessories.

**Stimex self-adhesive electrodes**

<table>
<thead>
<tr>
<th>Art. No.</th>
<th>Article</th>
<th>Pieces</th>
</tr>
</thead>
<tbody>
<tr>
<td>281000</td>
<td>Stimex 32 mm round</td>
<td>4</td>
</tr>
<tr>
<td>282000</td>
<td>Stimex 50 mm round</td>
<td>4</td>
</tr>
<tr>
<td>283400</td>
<td>Stimex 50x50 mm</td>
<td>4</td>
</tr>
<tr>
<td>281032</td>
<td>Stimex 50x50 mm</td>
<td>20</td>
</tr>
<tr>
<td>283600</td>
<td>Stimex 50x90 mm</td>
<td>2</td>
</tr>
<tr>
<td>283000</td>
<td>Stimex 50x130 mm</td>
<td>2</td>
</tr>
<tr>
<td>283100</td>
<td>Stimex 80x130 mm</td>
<td>2</td>
</tr>
<tr>
<td>281027</td>
<td>Stimex sensitive 50x50 mm</td>
<td>4</td>
</tr>
</tbody>
</table>

**Silicone electrodes (to be used with contact gel)**

<table>
<thead>
<tr>
<th>Art. No.</th>
<th>Article</th>
<th>Pieces</th>
</tr>
</thead>
<tbody>
<tr>
<td>107090</td>
<td>Silicone electrode 20 mm round</td>
<td>2</td>
</tr>
<tr>
<td>107010</td>
<td>Silicone electrode 48x48 mm</td>
<td>2</td>
</tr>
<tr>
<td>107050</td>
<td>Silicone electrode 70x65 mm</td>
<td>2</td>
</tr>
<tr>
<td>107009</td>
<td>Silicone electrode 100x100 mm</td>
<td>2</td>
</tr>
<tr>
<td>108000</td>
<td>Contact gel for silicone electrodes (60 g)</td>
<td>1</td>
</tr>
</tbody>
</table>
MedicoBack: for the treatment of low back pain

Low back support bandage with pelotte and integrated electrodes to be used with pain management programs of the TENS eco 2.

MedicoBack P-type offers patients lumbar vertebrae stabilization and support as well as easy stimulation provided by the integrated electrodes. The pelotte with its massage nubs enhances the pain relieving effect. MedicoBack P-type may be used for slight or acute pain as well as for chronic pain in the lower back area.

<table>
<thead>
<tr>
<th>Art. No.</th>
<th>Article</th>
<th>Size</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>107034</td>
<td>MedicoBack P-type</td>
<td>S</td>
<td>80 - 90 cm</td>
</tr>
<tr>
<td>107036</td>
<td>MedicoBack P-type</td>
<td>M</td>
<td>90 - 100 cm</td>
</tr>
<tr>
<td>107037</td>
<td>MedicoBack P-type</td>
<td>L</td>
<td>100 - 110 cm</td>
</tr>
<tr>
<td>107038</td>
<td>MedicoBack P-type</td>
<td>XL</td>
<td>110 - 120 cm</td>
</tr>
<tr>
<td>107039</td>
<td>MedicoBack P-type</td>
<td>XXL</td>
<td>120 - 130 cm</td>
</tr>
</tbody>
</table>

Stimex garment electrodes: gloves and socks

The gloves and socks used in combination with the TENS eco 2 provide stimulation of the entire hand and/or foot and ankle and avoid the sometimes tiresome attachment of self-adhesive electrodes on the hand or the foot.

Gloves

<table>
<thead>
<tr>
<th>Art. No.</th>
<th>Article</th>
<th>Size</th>
<th>Pair</th>
</tr>
</thead>
<tbody>
<tr>
<td>107014</td>
<td>Stimulation gloves</td>
<td>S</td>
<td>1</td>
</tr>
<tr>
<td>107021</td>
<td>Stimulation gloves</td>
<td>M</td>
<td>1</td>
</tr>
<tr>
<td>107022</td>
<td>Stimulation gloves</td>
<td>L</td>
<td>1</td>
</tr>
</tbody>
</table>

Socks

<table>
<thead>
<tr>
<th>Art. No.</th>
<th>Article</th>
<th>Size</th>
<th>Pair</th>
</tr>
</thead>
<tbody>
<tr>
<td>107023</td>
<td>Stimulation socks</td>
<td>M</td>
<td>1</td>
</tr>
<tr>
<td>107024</td>
<td>Stimulation socks</td>
<td>L</td>
<td></td>
</tr>
</tbody>
</table>

Charger 3PN0508S EU (Art.-Nr. 104776)

Cables Type 5.15 (Art. No. 106351)
Reference sheet for battery retraction and disposal

In connection with the sales of products which contain batteries or rechargeable batteries, we are obliged by law (battery law § 18, section 1) to advise you of the following:

The dustbin symbol (🗑️) marks batteries with hazardous substances as well as the circumstance that batteries must not be disposed of in the household waste but professionally. The chemical term of the hazardous substance is below the dustbin symbol.

You are obliged by law to return used batteries.

You may render used batteries at municipal collecting points or in local trade. We are also obliged to take back used batteries, whereat our obligation restricts to those which are or were part of our product range.

Therefore, you may send back used batteries to us adequately stamped by mail or render these at our warehouse free of charge at the following address:

schwa-medico GmbH, Wetzlarer Str. 41-43, 35630 Ehringshausen, Germany

Please refer to the following figures to see the respective symbols of batteries with hazardous substances:

- 🗑️ Battery contains more than 0.002 % cadmium
- 🗑️ Battery contains more than 0.0005 % quicksilver
- 🗑️ Battery contains more than 0.004 % plumb
Examples of electrode placements

Back pain

Shoulder pain
Epicondylitis radialis

Epicondylitis ulnaris

Arthrosis (hip)

Kaada stimulation (1 channel only)

Sciatic pain
Gonarthrosis/knee pain

Ankle joint pain

Trigeminus neuralgia

Migraine

Tension headache
Polyarthritis

Polyneuropathy

Carpal tunnel syndrome

Pain of achilles tendon/heel pain
Electrode placement for dynamic stimulation (P10, P11, P22, P23)

The stimulation is not administered simultaneously on both channels. The current flows from one electrode to the other just like a wave undulating on the body. This kind of stimulation is far more comfortable than traditional neuro-muscular stimulation. Dynamic stimulation can be used with high frequency parameters for improved pain control or with low frequency parameters for optimized muscle stimulation. This treatment method also has an enhanced effect on lymphatic drainage stimulation.

The placement of electrodes for dynamic stimulation depends on the direction of stimulation (rising/falling stimulation or sideways stimulation)

Rising or falling stimulation for back or legs

Sideways stimulation for gluteus or stomach muscle

Rising and falling wave:  

Right left wave:
### Overview pre-set programs

<table>
<thead>
<tr>
<th>Program no.</th>
<th>Program name</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>P 1</td>
<td>Gate control 1</td>
<td>Nociceptive pain, acute pain, neuropatic pain</td>
</tr>
<tr>
<td>P 2</td>
<td>Gate control 2</td>
<td>Alternative to program 1</td>
</tr>
<tr>
<td>P 3</td>
<td>Low frequency</td>
<td>Chronic nociceptive pain, improvement of blood circulation, Kaada stimulation</td>
</tr>
<tr>
<td>P 4</td>
<td>Gate control + low frequency</td>
<td>Combination of high and low frequency stimulation</td>
</tr>
<tr>
<td>P 5</td>
<td>Adaptation</td>
<td>Muscular pain</td>
</tr>
<tr>
<td>P 6</td>
<td>HAN</td>
<td>Suitable for almost all kinds of pain program</td>
</tr>
<tr>
<td>P 7</td>
<td>Burst</td>
<td>Alternative to program 3 (more comfortable)</td>
</tr>
<tr>
<td>P 8</td>
<td>Modulation</td>
<td>Alternative to the other programs in case of therapy resistance</td>
</tr>
<tr>
<td>P 9</td>
<td>Muscle stimulation</td>
<td>Atrophy prophylaxis, muscle strengthening</td>
</tr>
<tr>
<td>P 10</td>
<td>Gate control dynamic 1</td>
<td>Muscle relaxation</td>
</tr>
<tr>
<td>P 11</td>
<td>Gate control dynamic 2</td>
<td>Muscle relaxation, venous return</td>
</tr>
<tr>
<td>P 12</td>
<td>Deep TENS</td>
<td>Muscular pain, deep seatted pain</td>
</tr>
<tr>
<td>Description</td>
<td>Frequency/Hz</td>
<td>Pulse width/µs</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Both channels with the same parameters</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>Both channels with the same parameters</td>
<td>80</td>
<td>150</td>
</tr>
<tr>
<td>Both channels with the same parameters</td>
<td>2</td>
<td>250</td>
</tr>
<tr>
<td>Channel 1: 100 Hz, Channel 2: 2 Hz</td>
<td>Channel 1: 100</td>
<td>200</td>
</tr>
<tr>
<td>First 10 min 100 Hz, then 20 min with 2 Hz</td>
<td>100/2</td>
<td>150/200</td>
</tr>
<tr>
<td>3 s 100 Hz, then 3 s 2 Hz etc.</td>
<td>100/2</td>
<td>150/200</td>
</tr>
<tr>
<td>100 Hz for 0.25 s</td>
<td>100</td>
<td>150</td>
</tr>
<tr>
<td>Automatic frequency run from 2 Hz to 80 Hz within 7.5 s</td>
<td>2 - 80</td>
<td>200 - 100</td>
</tr>
<tr>
<td>Increase 2 s, working time 5 s, decrease 1 s, pause 12 s, automatic intensity adaption</td>
<td>50</td>
<td>250</td>
</tr>
<tr>
<td>Intensity within 1 s to maximum, then within 1 s reduced to 50%. Both channels in alternating operation</td>
<td>80</td>
<td>150</td>
</tr>
<tr>
<td>Intensity within 0.25 s to maximum, then within 0.25 s reduced to 50%. Both channels in alternating operation</td>
<td>80</td>
<td>150</td>
</tr>
<tr>
<td>Impulse packages of 4 impulses with a carrier frequency of 100 Hz. 200 µs pause between each impulse</td>
<td>100</td>
<td>75</td>
</tr>
</tbody>
</table>
## Overview free programs

<table>
<thead>
<tr>
<th>Program no.</th>
<th>Program name</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>U 1</td>
<td>Gate Control 1</td>
<td>Acute nociceptive pain, acute pain, chronic neuropathic pain</td>
</tr>
<tr>
<td>U 2</td>
<td>Gate Control 2</td>
<td>Alternative to program 1</td>
</tr>
<tr>
<td>U 3</td>
<td>Low frequency</td>
<td>Chronic nociceptive pain, improvement of blood circulation, Kaada stimulation</td>
</tr>
<tr>
<td>U 4</td>
<td>Gate Control + Low Frequency</td>
<td>Combination of high and low frequency</td>
</tr>
<tr>
<td>U 5</td>
<td>Adjustment</td>
<td>Muscular pain</td>
</tr>
<tr>
<td>U 6</td>
<td>HAN</td>
<td>For nearly all pain indications</td>
</tr>
<tr>
<td>U 7</td>
<td>Burst</td>
<td>Alternative to program no. 3 (more comfortable)</td>
</tr>
<tr>
<td>U 8</td>
<td>Modulation</td>
<td>Alternative to other programs if resistant to therapy</td>
</tr>
<tr>
<td>U 9</td>
<td>Muscle Stimulation</td>
<td>Prophylaxis treatment of muscle atrophy</td>
</tr>
<tr>
<td>U 10</td>
<td>Gate Control Dynamic slow</td>
<td>Muscle relaxation</td>
</tr>
<tr>
<td>U 11</td>
<td>Gate Control Dynamic fast</td>
<td>Muscle relaxation</td>
</tr>
<tr>
<td>U 12</td>
<td>Deep TENS</td>
<td>Muscle pain, pain in deep areas</td>
</tr>
<tr>
<td>Description</td>
<td>Frequency/Hz</td>
<td>Pulse width/µs</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Both channels with the same parameters</td>
<td>1-120</td>
<td>50-400</td>
</tr>
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<td>1-120</td>
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</tr>
<tr>
<td>Both channels with the same parameters</td>
<td>1-120</td>
<td>50-400</td>
</tr>
<tr>
<td>Channel 1 and channel 2 work with different parameters</td>
<td>Channel 1: 4-120</td>
<td>50-400</td>
</tr>
<tr>
<td>First 10 min.: 100 Hz Then 20 min.: 2 Hz</td>
<td>First frequency 1-120</td>
<td>50-400</td>
</tr>
<tr>
<td>alternating 3 s 100 Hz 3 s 2 Hz</td>
<td>First frequency 1-120</td>
<td>50-400</td>
</tr>
<tr>
<td>0.25 s long impulse with a frequency to be set</td>
<td>50-120</td>
<td>50-400</td>
</tr>
<tr>
<td>Automatic frequency run from one frequency to another within 7.5 s</td>
<td>First frequency: 1-50</td>
<td>First pulse width: 100-400</td>
</tr>
<tr>
<td>Increase 2 s, working time 5 s, decrease 1 s, pause 12 s, frequency to be set, automatic intensity adaption</td>
<td>1-120</td>
<td>50-400</td>
</tr>
<tr>
<td>Intensity within 1 s to maximum, then within 1 s reduced to 50%. Both channels in alternating operation</td>
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<td>50-400</td>
</tr>
<tr>
<td>Intensity within 0.25 s to maximum, then within 0.25 s reduced to 50%. Both channels in alternating operation</td>
<td>50-120</td>
<td>50-400</td>
</tr>
<tr>
<td>Impulse packages of 4 impulses with a pulse width to be set working with a frequency carrier to be set.</td>
<td>1-120</td>
<td>50-400</td>
</tr>
</tbody>
</table>