EMP 2 PRO

2-CHANNEL MUSCLE STIMULATOR

Item no. 104068

Instruction Manual Art. no. 101674

schwa·medico
MEDICAL EQUIPMENT

Contents

1 Intended use

The EMP 2 PRO has been designed as a device for the generation of transcutaneous electrical stimulation of nerves and muscles on humans and may not be used for any other purpose.
Please read the operating instructions carefully before using the EMP 2 PRO.

2 Safety instructions

Important safety hints
The EMP 2 PRO is only to be used for stimulation purposes on one patient at a time.
Use the EMP 2 PRO only with original accessories. The size of the electrodes should not be less than 2 cm^2. The electrodes should be positioned in such a way that the current flow will not cross the heart.
Keep the EMP 2 PRO away from water or other liquids. Do not drop the EMP 2 PRO, 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 EMP 2 PRO if it is not working properly or if it has been damaged in any way.
Be careful when using the EMP 2 PRO near or on children. Keep the unit away from children.
Always store the EMP 2 PRO in its case to protect it from damage and dust.
To avoid reciprocal interference, the EMP 2 PRO 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 surgery unit can lead to skin burning under the electrodes or around the probe. Operating close (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-indication

Check with your physician before using the EMP 2 PRO if one of these points applies to you:

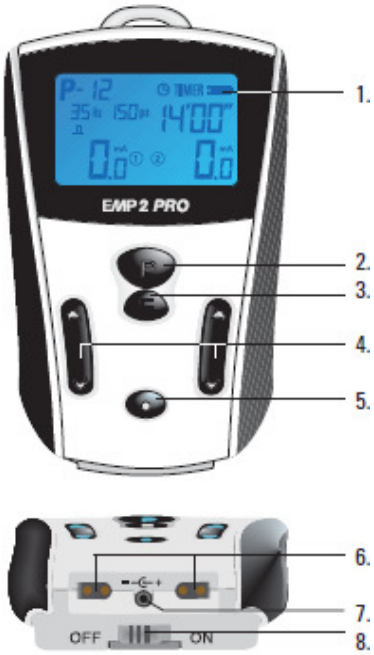
- Patients with electronic implants such as heart pacemakers, defibrillators or pumps
- Patients with cardiac rhythm disorders
- During pregnancy
- Patients subject to seizure disorder / epilepsy
- Patients with skin disorders in the vicinity of the electrodes
- Patients with malignant diseases in the region of application

Side effects

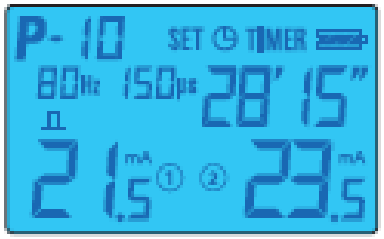
- Pain caused by the stimulation: The stimulation can be perceived as uncomfortable/painful if the electric current is too intensive or if the electrodes have been positioned unfavorably. Unpleasant side effects can be avoided by adjusting the intensity, using another program with other parameters and the possible re-positioning of the electrodes.
- Skin intolerance which can result from the electrodes, electrode gel or 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.

3 Operating elements

The EMP 2 PRO has been designed for the generation of nerve and muscle stimulation on human beings. All parameters can be adjusted via the press keys and are indicated on the large display.



1. Display
2. Menu key (Program choice)
3. Keys 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



The display shows :
- The program number: P 10
- The battery level: full
- The set parameters: 80 Hz, 150 µs
- The remaining therapy time: 28 minutes and 15 seconds
- The intensity used: 21.5 mA on channel 1
  and 23.5 mA on channel 2

4 Description of graphical symbols

Label symbols

Attention: Read accompanying documents, especially user manual!

CE 0197

By labelling with CE certificate, the manufacturer states that the product meets all active requirements of the regarding EU Directive. A conformation evaluation process has been successfully completed. The code number of the conformation evaluation process is given in accordance with the CE labelling of the involved notified body.

BF type application part. Protection against electric shocks.

SN

The serial number of the product follows this symbol.

REF

The article or order number of the product follows this symbol.

This equipment is marked with the recycling symbol. You must dispose of it separately at an appropriate collection point and not place it in the normal domestic unsorted stream.

This product works with a NiMH rechargeable battery. This battery is reusable. You must dispose of it properly depending on the laws and regulations of your country.

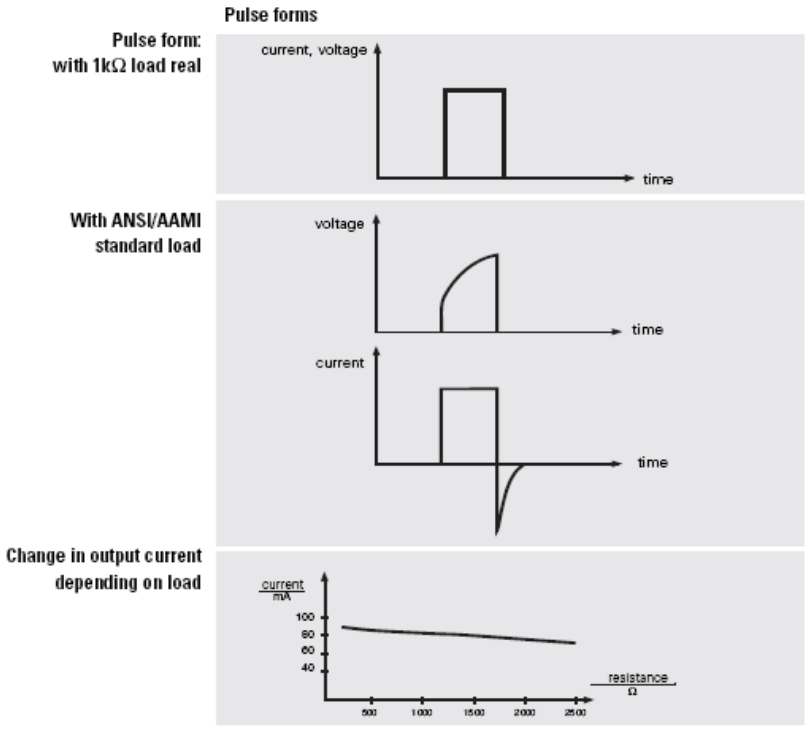
NiMH

5 Technical specification

Two-channel nerve and muscle stimulator with electrically insulated channels, constant current characteristic, Output Short Circuit for skin protection (AKS), 21 integrated pre-set programs and 21 user programs.

- Output current : 100 mA (with an actual resistor of 1 kΩ)
- Frequency range: 1-120 Hz
- Impulse width: 50-500 µs
- Nominal current: 3 mA
- Power supply: integrated rechargeable battery Ni-MH 4.8 V

- Dimensions/Weight: 115 x 65 x 28 mm/ approx. 145 g



6 Operating the EMP 2 PRO

Switching-ON the EMP 2 PRO

Charge the battery of the EMP 2 PRO before first use. Switch the commutator (no. 8) to the ON position. Switch on the 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 EMP 2 PRO has previously interlocked a specific program (see chapter locking the key pad).

Selecting a program

Select a program by pressing the **P** key (no. 2). 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 the left ▼ key (no. 4). Selecting a program is only possible if the keypad has not been locked on one specific program (see chapter locking the key pad).

Connect cables and electrodes

Connect the electrodes with the cable(s) (always 2 electrodes per cable). Connect the cable(s) to the EMP 2 PRO (no. 6). Place the electrodes on the desired area (see examples on chapter Electrode placement). Always follow the recommendation of the therapist.

Starting the stimulation and setting the intensity

Start the stimulation by increasing the intensity with the ▲ key (no. 4) 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.

Caution!
The stimulator automatically locks the intensity to the set level after 5 seconds. To adjust the intensity you firstly need to decrease the intensity. The intensity can then be increased again.
If electrodes are connected not or not correctly to the stimulator, you will not be able to set the intensity to more than 10 mA. The same result will occur if electrodes are old or the cables broken.

Terminating the stimulation

You can stop the stimulation at any time by pressing the **P** key or the ● key for 2 seconds.
When the therapy time is completed the stimulation terminates automatically.
If you press the key ● for one second the EMP 2 PRO switches off.

Lock the key pad
Choose the desired program by pressing the **P** key (see chapter **select a program**). Press simultaneously for 3 seconds the right ▼ key and the **P** key to lock the stimulator on the chosen program before starting the stimulation. The EMP 2 PRO can now only be used with the chosen program. A key symbol appears on the display next to the program number. All keys except the intensity and the ON/OFF keys are locked into this mode. Use the same key combination to unlock the stimulator.

Switch-OFF the buzzer
Press the left ▼ key and the **P** key to enter the buzzer mode. Press the E key to switch the buzzer OFF. Press the E key a second time to turn it ON again. Press the ● key to exit the buzzer mode.

Switch-OFF the stimulator
Press the ● key for one second and release the key just after it to turn the EMP 2 PRO OFF. If the battery level is too low or if the stimulator has not been used for the previous 2 minutes, it turns off automatically.

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 stimulator switches off automatically and cannot be turned on again. The battery then needs to be re-charged.

- Switch the commutator to the OFF position (no. 8)
- Connect the charger with the EMP 2 PRO (socket no. 7)
- Connect the charger to the mains circuit. The diode on the charger illuminates in red.
- Charge the EMP 2 PRO until the diode on the charger illuminates in green. The battery is fully charged if the light on the charger appears in green.
- Plug the charger off the mains circuit and plug off the unit from the charger.
- Do not forget to switch the commutator ON again after charging.

Important! Do not charge the EMP 2 PRO for more than 4 hours.

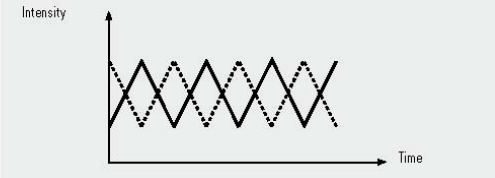
7 Description of the programs

Factory settings
The parameters from P1 to P21 are identical in new devices to respectively U1 to U21

Program P1 and U1	**Low back pain**		
Stimulation type	Slow dynamic stimulation		
Frequency channel 1 and 2	80 Hz	Pulse width	150 µs
Rising ramp	1 s	Falling ramp	1 s

Therapy duration 20 min
Description Both channels are working with the same frequency. Each channel is working time delayed to the other. The intensity increases within 1 s from zero to the set level and decreases within 1 s from the set level back to zero. Since both channels work in phase, channel 1 reaches its maximum intensity level when channel 2 is at its lowest intensity level. Dynamic stimulation offers a comfortable massage-effect and pain relief when electrodes are placed in the right position in the pain area. Please see the special electrodes settings for dynamic stimulation in the chapter electrode placement.

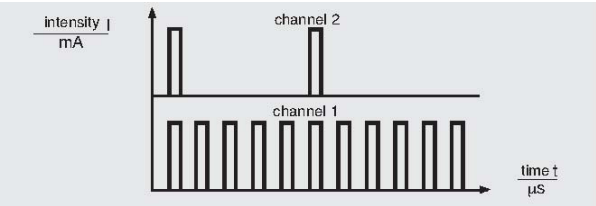
Symbols on the display during stimulation:
Rising ramp: Falling ramp:



Program P2 and U2	**Lumbosciatica**		
Stimulation type	Channel 1: Gate control 80 Hz Channel 2: Endorphin release 2 Hz		
Frequency channel 1	80 Hz	Pulse width	200 µs
Frequency channel 2	2 Hz	Pulse width	200 µs
Therapy duration	20 min		

Description: Program 2 works with 2 different frequencies on each channel. Channel 1 works in gate control mode and channel 2 in endorphin release mode.

Symbol on the display during stimulation:



Program P3 and U3	**Cervico-brachial neuralgia**		
Stimulation type	Fast dynamic stimulation		
Frequency	80 Hz	Pulse width	150 µs
Rising ramp	0.2 s	Falling ramp	0.2 s
Therapy duration	20 min		

Description: Both channels are working with the same frequency. Each channel is working time delayed to the other. The intensity increases within 0.2 s from zero to the set level and decreases within 0.2 s from the set level back to zero. Since both channels work in phase, channel 1 reaches its maximum intensity level when channel 2 is at its lowest intensity level. Dynamic stimulation offers a comfortable massage effect and pain relief when electrodes are

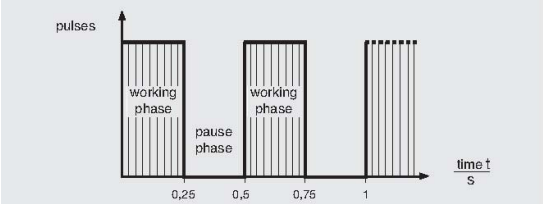
placed in the right position in the pain area. Please see the special electrodes settings for dynamic stimulation in the chapter “electrode placement”.

Symbols on the display during stimulation:
Rising ramp: ◢ Falling ramp: ◣
See illustration program no. 1

Program P4 and U4	**Chronic pain**		
Stimulation type	Burst		
Frequency	100 Hz	Pulse width	150 µs
Working phase	0.25 s	Pause	0.25 s
Therapy duration	20 min		

Description: Program 4 produces a series of impulse packages with 100 Hz for 0.25 s and then pauses the stimulation for 0.25 s. The high frequency impulses (100 Hz) are produced in a low frequency rhythm (2 Hz carrier frequency). Program 4 is a good alternative for chronic pain patients who want to try other kinds of parameters.

Symbols on the display during stimulation:
Working phase: ▬ Pause: ▬



Program P5 and U5	**Gate control + endorphin release**		
Stimulation type	Channel 1: Gate control Channel 2: Endorphin release		
Frequency channel 1	100 Hz	Pulse width	200 µs
Frequency channel 2	2 Hz	Pulse width	200 µs
Therapy duration	20 min		

Description: Program 5 works with 2 different frequencies on each channel. Channel 1 works in gate control mode and channel 2 in endorphin release mode.

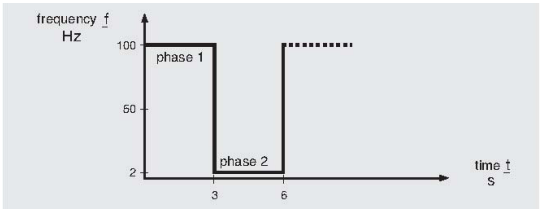
Symbol on the display during stimulation: ▬
See illustration program no. 2

Program P6 and U6	**Gonarthrosis / Coxarthrosis**	
Stimulation type	HAN	
	Phase 1:	Phase 2:
Frequency	100 Hz	2 Hz
Pulse width	200 µs	200 µs

Working phase	3 s	3 s	
Therapy duration	20 min		

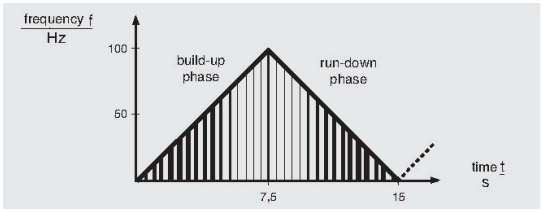
Description: Program 6 alternates between 3 s of high frequency stimulation and 3 s of low frequency stimulation. This program combines the effect of gate control with the effect of endorphin release. Program 6 shows good relief for arthrosis pain but can also be used for any other kind of pain.

Symbols on the display during stimulation:
Phase 1: ▬ Phase 2: ▬



Program 7 and U7	**Epicondylitis**		
Stimulation type	Modulation		
Minimum frequency	2 Hz	Maximum frequency	80 Hz
Pulse width	178 µs	Pulse width	100 µs
Modulation duration	7.5 s		
Therapy duration	20 min		

Description: The frequency continuously changes within the modulation range: it increases from 2 Hz to 80 Hz in 7.5 s and decreases from 80 Hz to 2 Hz in 7.5 s. The pulse width adapts automatically within the range of 200 µs at the lowest frequency and 100 µs at the highest frequency. Program 7 suits well for patient with chronic epicondylitis but also patients who are using TENS for a long time and need an alternative to the previous parameters.
Symbols on the display during stimulation:
Rising ramp: ◢ Falling ramp: ◣



Program 8 and U8	**Algodystrophy**		
Stimulation type	Modulation		
Minimum frequency	2 Hz	Pulse width	148 µs
Maximum frequency	80 Hz	Pulse width	70 µs
Duration of the modulation	7.5 s		
Therapy duration	20 min		

Description: The frequency continuously changes within the modulation range: it increases from 2 Hz to 80 Hz in 7.5 s and decreases from 80 Hz to 2 Hz in 7.5 s. The pulse width

adapts automatically within the range of 148 µs at the lowest frequency and 70 µs at the highest frequency. Program 8 and program 7 differentiate in the pulse width range.

Symbols on the display during stimulation:
Rising ramp: ◢ Falling ramp: ◣
See illustration program no. 7

Program 9 and U9	**Gate control anti-adaptation**		
Stimulation type	Dynamic stimulation		
Frequency	80 Hz	Pulse width	150 µs
Rising ramp	0.5 s	Falling ramp	0.5 s
Therapy duration	20 min		

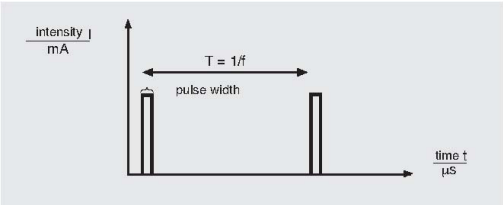
Description: Both channels are working with the same frequency. Each channel is working time delayed to the other. The intensity increases within 0.5 s from zero to the set level and decreases within 0.5 s from the set level back to zero. Since both channels work in phase, channel 1 reaches its maximum intensity level when channel 2 is at its lowest intensity level. Dynamic stimulation offers a comfortable massage effect and pain relief when electrodes are placed in the right position in the pain area. Please see the special electrode positioning for dynamic stimulation in the chapter electrode placement.

Symbols on the display during stimulation:
Rising ramp: ◢ Falling ramp: ◣
See illustration program no. 1

Program 10 and U10	**Classic gate control**		
Frequency	120 Hz	Pulse width	150 µs
Therapy duration	20 min		

Description: Program 10 works with the same frequency and pulse width on both channels. It suits best for acute pain (nerve pain as well as joint pain).

Symbol on the display during stimulation: ■



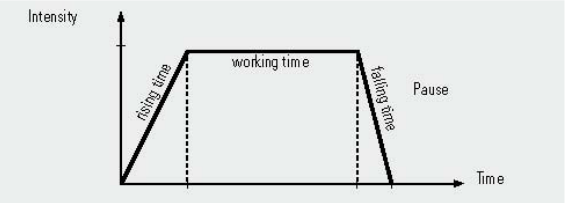
Program 11 and U11	**Treatment of contractures**		
Frequency	1 Hz	Pulse width	150 µs
Therapy duration	20 min		

Description: Program 11 suits well for the treatment of contractures as well as for the treatment of chronic pain.

Symbol on the display during stimulation: ■
See illustration program no. 10

Program 12 and U12	**Atrophy upper extremities**
Stimulation type	Muscle strengthening

Frequency	35 Hz	Pulse width	150 µs
Rising ramp	2 s	Working phase	3 s
Falling ramp	1 s	Pause	9 s
Therapy duration	20 min		
Rising ramp: ◢	Falling ramp: ◣	Pause: ▬	



Program 13 and U13 **Atrophy lower extremities**

Stimulation type	Muscle strengthening		
Frequency	35 Hz	Pulse width	300 µs
Rising ramp	2 s	Working phase	3 s
Falling ramp	1 s	Pause	9 s
Therapy duration	20 min		
Rising ramp: ◢	Falling ramp: ◣	Pause: ▬	

See illustration program no. 12

Program 14 and U14 **Muscle strengthening upper extremities**

Stimulation type	Muscle strengthening		
Frequency	65 Hz	Pulse width	250 µs
Rising ramp	2 s	Working phase	4 s
Falling ramp	1 s	Pause	8 s
Therapy duration	20 min		
Rising ramp: ◢	Falling ramp: ◣	Pause: ▬	

See illustration program no. 12

Program 15 and U15 **Muscle strengthening lower extremities**

Stimulation type	Muscle strengthening		
Frequency	65 Hz	Pulse width	300 µs
Rising ramp	2 s	Working phase	4 s
Falling ramp	1 s	Pause	8 s
Therapy duration	20 min		
Rising ramp: ◢	Falling ramp: ◣	Pause: ▬	

See illustration program no. 12

Program 16 and U16 **Venous reflux**

Frequency	35 Hz	Pulse width	250 µs
Rising ramp	3 s	Working phase	5 s
Falling ramp	1 s	Pause	10 s
Therapy duration	20 min		
Rising ramp: ◢	Falling ramp: ◣	Pause: ▬	

See illustration program no. 12

Program 17 and U17 **Urge incontinence**

Frequency	10 Hz	Pulse width	180 µs
Therapy duration	15 min		

Description: The urge to pass water often occurs when only minimal amounts of urine are present in the bladder; this can lead to premature release. The cause of urge incontinence is an over-active bladder musculature, usually triggered by the nervous system.

Symbol on the display during stimulation: ▬
See illustration program no. 10

Program 18 and U18	**Mixed incontinence**		
Frequency	20 Hz	Pulse width	180 µs
Rising ramp	2 s	Working phase	4 s
Falling ramp	1 s	Pause	4 s
Therapy duration	15 min		

Description: Mixed incontinence is a mix of stress and urge incontinence.

Symbols on the display during stimulation:
Rising ramp: ◢ Falling ramp: ◣ Pause: ▬
See illustration program no. 12

Program 19 and U19	**Stress incontinence**		
Frequency	50 Hz	Pulse width	180 µs
Rising ramp	2 s	Working phase	3 s
Falling ramp	1 s	Pause	6 s
Therapy duration	15 min		

Description: Stress-related incontinence is caused by a disorder in the urethral closure system, for the most part by untrained or over-elongated pelvic floor muscles, for example as a result of difficult child-births. For women, an age-related lack of hormones can be a contributory factor.

Symbols on the display:
Rising ramp: ◢ Falling ramp: ◣ Pause: ▬
See illustration program no. 12

Program 20 and U20	**Dynamic stimulation slow**		
Stimulation type	Dynamic stimulation		
Frequency	120 Hz	Pulse width	150 µs
Rising ramp	2 s	Falling ramp	2 s
Therapy duration	20 min		

Description: Both channels are working with the same frequency. Each channel is working time delayed to the other. The intensity increases within 2 s from zero to the set level and decreases within 2 s from the set level back to zero. Since both channels work in phase, channel 1 reaches its maximum intensity level when channel 2 is at its lowest intensity level. Dynamic stimulation provides a comfortable massage effect and pain relief when electrodes are placed in the right position in the pain area. Please see the special electrode positioning for dynamic stimulation in the chapter **electrode placement**.

Symbols on the display during stimulation:
Rising ramp: ◢ Falling ramp: ◣
See illustration program no. 1

Program 21 and U 21	**Agonist / Antagonist**		
Stimulation type	Dynamic stimulation ; channel 1 and channel 2		
Frequency	40 Hz	Pulse width	300 µs
Rising ramp	2 s	Falling ramp	1 s
Work phase	3 s	Pause	6 s
Therapy duration	20 min		

Description: channel 1 stimulate the agonist and channel 2 the antagonist time delayed

Symbols on the display:
Rising ramp: ◢ Falling ramp: ◣ Pause: ▬

8 User programs (U1 – U21)

Create a user program

Switch ON the EMP 2 PRO. Select a USER program with the **P** key (U1 – U21). Press the **E** key to access the editing mode. The parameters to be changed are flashing on the display. Adjust the flashing parameter with the ▼ and ▲ keys. Press the **E** key to save your changes and to access the next parameters. Repeat the operation for all parameters (frequency, pulse width, therapy duration and ramp/pause time). Press the **E** key at the end to save your changes.

Description of user program possibilities

Program U1, U3, U4, U9, U20: Dynamic stimulation

Frequency:	20 Hz -120 Hz
Pulse width:	70 µs - 500 µs
Stimulation time:	1 - 99 min.

Program U2, U5: TENS
Channel 1: gate control / Channel 2: Endorphin release

Frequency channel 1:	80 Hz, 90 Hz, 100 Hz, 110 Hz, 120 Hz
Frequency channel 2:	2 Hz, 5 Hz, 10 Hz
Pulse width:	70 µs - 500 µs
Stimulation time:	1 - 99 min.

Program U6: HAN

Stimulation time:	1 - 99 min.

Program U7, U8 : Modulation

Max. frequency:	10 Hz - 120 Hz
Min. frequency:	2 Hz, 3 Hz, 4 Hz, 5 Hz, 6 Hz, 7 Hz, 8 Hz
Pulse width:	70 µs - 180 µs
Stimulation time:	1 - 99 min.

Program U10, U11, U17: TENS

Frequency:	20 Hz - 120 Hz
Pulse width:	70 µs - 500 µs
Stimulation time:	1 - 99 min.

Program U12, U13, U14, U15, U16, U18, U19,U21: Muscle stimulation

Frequency:	20 Hz - 120 Hz
Pulse width:	70 µs - 500 µs
Rising ramp:	1 - 4 s
Work phase:	1 - 25 s
Falling ramp:	1 s
Pause:	1 - 25 s
Stimulation time:	1 - 99 min. (Fig. 12)

9 General information on intensity settings

Do not try to achieve a too high level of intensity. Set the intensity in such a way that you get a comfortable feeling during the stimulation. Increase the intensity carefully to a tolerable maximum, and then reduce it slightly step by step to a comfortable level. Please note that the intensity settings change depending on the stimulation area and time. This is normal and can be explained as follows:

Resistance of the skin: Dry skin has a lower conductivity level than wet skin (due to sweating). The skin does not show the same resistance to linear current on all parts of the body. For example, the resistance level of horny skin can be twice that of the skin in the hollow of the knee. The innervation differs greatly according to the area of the body. This results in a difference of sensitivity.

Volume of the muscle mass: If you stimulate muscles with a high volume you will automatically need to set a higher intensity than for the stimulation of small muscles.

Muscle fatigue: A tired muscle will only tolerate a lower intensity.

Age of electrodes: Self-adhesive electrodes do not last forever. The number of use depends on the quality of the electrodes but also on the skin of the user. Old electrodes have a higher resistance and their conductivity levels decline. It is important to replace electrodes regularly.

Adaption to the current: The nerves adapt rapidly to the current. It is normal to feel “less current” after a few minutes of stimulation with specific parameters. In such a case feel free to increase the intensity in order to get the best results.

Frequency and pulse width: Frequencies and pulse widths differ depending on the program. Therefore the intensity cannot be set at the same level for all the programs even if the electrodes are placed in the same position. The higher the frequency is set, the lower you will be able to set the intensity. The higher the pulse width is set, the lower you will be able to set the intensity.

10 General information

Adjustments, modifications and repairs

The manufacturer is only responsible for the safety and performance of the EMP 2 PRO when readjustments, alterations and repairs are carried out by authorized persons and when the EMP 2 PRO 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, battery, cables and electrodes.

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

Classification
The EMP 2 PRO has been designed as a class IIa product in accordance with appendix IX of the Medical Device Directive 93/42/EEC.

Technical check
We recommend a technical check on the EMP 2 PRO every 24 months. This includes:
1. Confirming that user instructions have been included in the accompanying documentation.
2. Checking the equipment for completeness.
3. Visual check:
    - for mechanical damage
    - for damage to all cables and plugs / sockets
4. Functional Safety
    - Checking the output signals with a load resistance of 1 kΩ real current and voltage
    - Checking the frequency
    - Checking the pulse width

These technical checks may only be performed by suitably qualified persons. The results must be documented with the date and name of the person carrying out the check.

11 Delivery Content

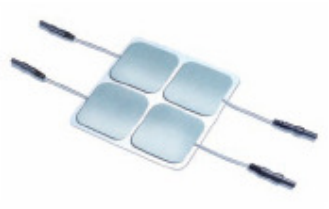
Art. no.	Article	Quantity
104068	EMP 2 PRO	1
450781-0025	Integrated battery	1
106351	Cable type 5.15	2
283400	Self-adhesive electrodes 50x50 mm (4 pieces)	1
101062	Charger WK 112	1
101674	Instruction manual	1

12 Accessories
The EMP 2 PRO may only be used together with all accessories named below. The manufacturer cannot guarantee the security of the stimulator if not used with original accessories.

Stimex self-adhesive electrodes

Art. No.	Description	Quantity

281000	Stimex 32 mm round	4
282000	Stimex 50 mm round	4
283400	Stimex 50x50 mm	4
281032	Stimex 50x50 mm	20
283600	Stimex 50x90 mm	2
283000	Stimex 50x130 mm	2
283100	Stimex 80x130 mm	2
281027	Stimex sensitive 50x50 mm	4



Silicone electrodes (to be used with contact gel)

Art. No.	Size	Quantity
107090	20 mm round	2
107011	38x45 mm	2
107010	48x48 mm	2
107050	70x65 mm	2
108000	contact gel (tube, 60 g)	1

Garment electrodes: gloves and socks

Stimex electrode gloves and socks used in combination with a schwa-medico electrotherapy unit are ideal for home treatment. They provide stimulation of the entire hand and/or foot and ankle and avoid the sometimes tiresome attachment of self-adhesive electrodes to the hand or foot.

Gloves

Art. No.	Article	Size	Pieces
107014	Stimulation gloves	S	1 pair
107021	Stimulation gloves	M	1 pair
107022	Stimulation gloves	L	1 pair

Socks

Art. No.	Article	Size	Pieces
107023	Stimulation socks	M	1 pair
107024	Stimulation socks	L	1 pair

MedicoBack P-Type

Low back support bandage with pelotte and integrated electrodes to be used with the EMP 2 PRO.

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

Art. No.	Article	Size	Length
107034	MedicoBack P-type	S	80-90 cm
107036	MedicoBack P-type	M	90-100 cm
107037	MedicoBack P-type	L	100-110 cm
107038	MedicoBack P-type	XL	110-120 cm
107039	MedicoBack P-type	XXL	120-130 cm

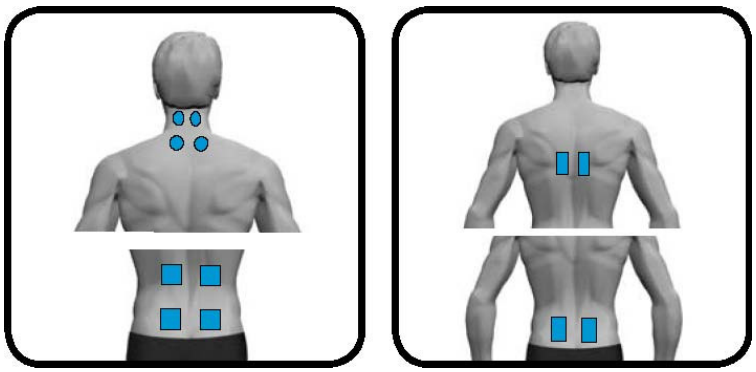
MedicoBack P-Type is including:

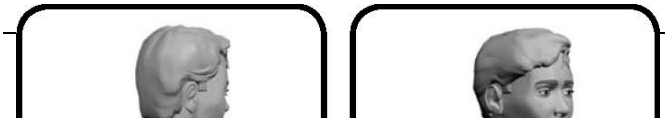
1 low back support bandage
1 pelotte
1 cover for the pelotte
with integrated electrodes
1 cover for the pelotte
without integrated electrodes
8 gel pads

13 Electrode placement

Electrode placement for pain treatment

Back pain



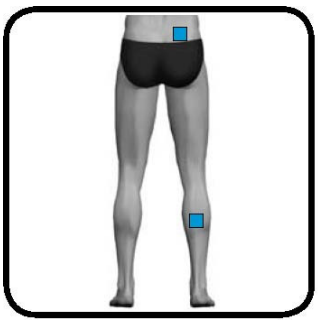


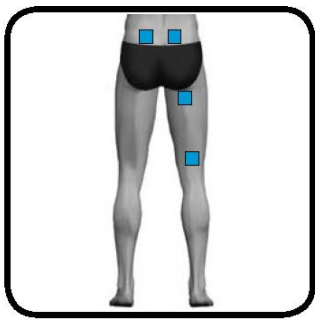
Shoulder pain

Epicondylitis ulnaris **Epicondylitis radialis**

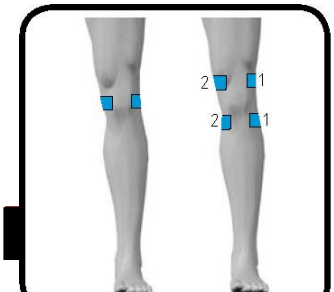
Arthrosis (hip) **Kaada (one channel use)**

Sciatic pain





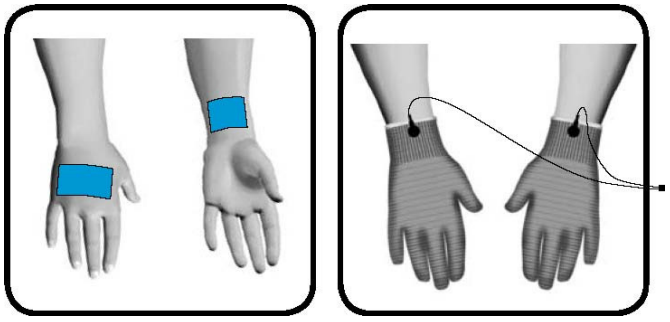
Gonarthrosis/Knee pain **Ankle joint pain**

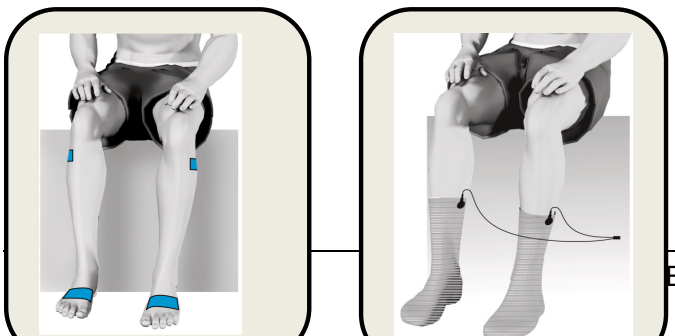


Trigeminus neuralgia

Migraine **Tension headache**

Polyarthritis / Polyneuropathy



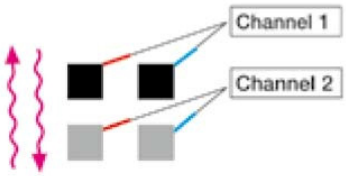


Carpal tunnel syndrome **Pain of Achilles' tendon/heel pain**

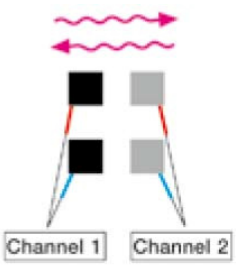
Electrode placement for dynamic stimulation

The stimulation is not administered simultaneously on both channels. The current flows from one electrode to the other like a wave 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 an 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 muscle or stomach muscle



Rising wave
Channel 2
Channel 1

Falling wave:
Channel 1
Channel 2

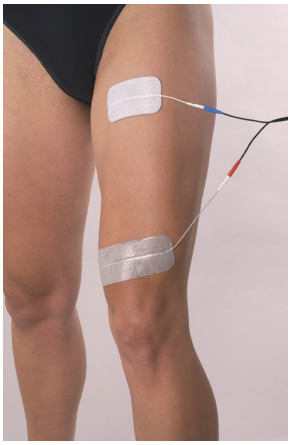
Electrode placement for muscle stimulation

Hand flexor

Hand extensor

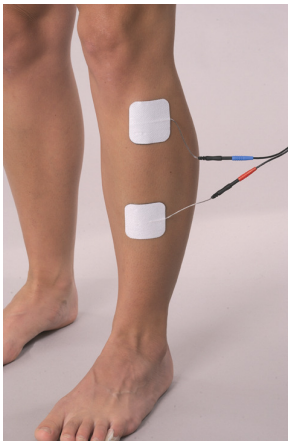
Biceps

Back

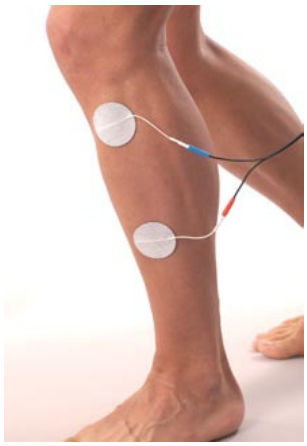


Quadriceps

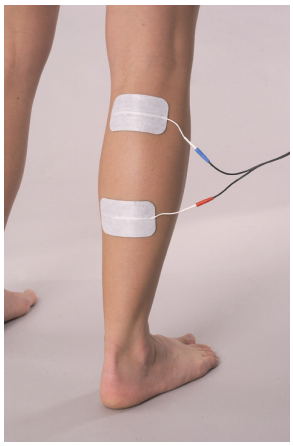
Leg flexor (hamstrings)



Foot flexor



M. tibialis



Calf

EMP 2 PRO

Program no.	Program name	Indication
1	Slow gate control dynamic	Lombalgia
2	Gate control + endorphin release	Lombo-sciatalgia
3	Fast gate control dynamic	cervico-brachial neuralgia
4	Burst	Chronic pain
5	Gate control + endorphin release	Combination of acute and chronic pain
6	HAN	All kind of pain, arthrosis pain
7	Modulation	Alternative parameters, epicondylitis
8	Modulation	Alternative parameters, algodystrophy
9	Slow gate control dynamic	Massage effect
10	Classic gate control	Acute pain
11	Low frequency	Treatment of contractures, chronic pain

Overview pre-set programs

Program description	Frequency / Hz	Pulse width / µs	Time / min.
Dynamic stimulation: Channel 1 and 2 working in different phases Rising ramp: 1 s Falling ramp: 1 s	80	150	20
Channel 1: 80 Hz Channel 2: 2 Hz	Channel 1: 80 Channel 2: 2	200	20
Dynamic stimulation: Channel 1 and 2 working in different phases Rising ramp: 0.2 s Falling ramp: 0.2 s	80	150	20
100 Hz for 0.25 s (series of impulses) Then pause of 0.25 s	100	150	20
Channel 1: 100 Hz Channel 2: 2 Hz	Channel 1: 100 Channel 2: 2	200	20
Alternately 3 s 100 Hz 3 s 2 Hz	Alternately 100 and 2	200	20
Frequency modulation from 2-80 Hz within 7.5 In 15 s: 2 Hz → 80 Hz → 2 Hz	2 – 80 – 2	178-100	20
Frequency modulation from 2-80 Hz within 7.5 In 15 s: 2 Hz → 80 Hz → 2 Hz	2 – 80 – 2	148-70	20
Dynamic stimulation: Channel 1 and 2 are working in different phases. Rising ramp: 0.5 s Falling ramp: 0.5 s	80	150	20
Both channels with the same parameters	120	150	20
Both channels with the same parameters	1	150	20

EMP 2 PRO

Program no.	Program name	Indication
12	Muscle stimulation	Atrophy of upper extremities
13	Muscle stimulation	Atrophy of lower extremities
14	Muscle strengthening	Muscle strengthening of upper extremities
15	Muscle strengthening	Muscle strengthening of lower extremities
16	Venous return	Venous return (heavy legs, cramps)
17	URO 1: Urge	Urge incontinence
18	URO 2: Mixed	Mixed incontinence
19	URO 3: Stress	Stress incontinence
20	Slow dynamic stimulation	Relaxation, massage
21	Agonist / Antagonist	Dynamic stimulation channel 1 and channel 2

Overview pre-set programs

Program description	Frequency / Hz	Pulse width / µs	Time / min.
Both channels work with the same parameters Rising ramp: 2 s Work phase: 3 s Falling ramp: 1 s Pause: 9 s	35	150	20
Both channels work with the same parameters Rising ramp: 2 s Work phase: 3 s Falling ramp: 1 s Pause: 9 s	35	300	20
Both channels work with the same parameters Rising ramp: 2 s Work phase: 4 s Falling ramp: 1 s Pause: 8 s	65	250	20
Both channels work with the same parameters Rising ramp: 2 s Work phase: 4 s Falling ramp: 1 s Pause: 8 s	65	300	20
Both channels work with the same parameters Rising ramp: 3 s Work phase: 5 s Falling ramp: 1 s Pause: 10 s	35	250	20
Both channels work with the same parameters	10	180	15
Both channels work with the same parameters Rising ramp: 2 s Work phase: 4 s Falling ramp: 1 s Pause: 4 s	20	180	15
Both channels work with the same parameters Rising ramp: 2 s Work phase: 3 s Falling ramp: 1 s Pause: 6 s	50	180	15
Dynamic stimulation Rising ramp: 2 s Falling ramp. 2 s	120	150	20
Dynamic stimulation, channel 1 and 2 are time delayed during the treatment Rising ramp: 2 s ; Falling ramp: 1 s Work phase: 3 s ; Pause: 6 s	40	300	20

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