INSTRUCTION MANUAL

- Nerve and muscle stimulation effected with the aid of stimulation current
- 2 channels with LED display for each channel
- Blue display backlighting
- 7 pre-programmed + 5 adjustable application programmes for TENS nerve stimulation
- 11 pre-programmed + 9 adjustable application programmes for EMS muscle stimulation
- 10 pre-programmed massage programmes
- 18 pre-programmed + 6 adjustable special programmes for 6 different parts of the body
- Adjustable intensity (for adjustable application programmes, also frequency, pulse duration and application time)
- Contains: 1 TENS/EMS device TEN 250, 8 adhesive electrodes, 1 instruction manual, 2 connecting cables, 4 x 1.5 V AAA batteries
- Incl. belt clip
- Warranty: 24 months

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Dear purchaser,
Congratulations on your purchase of a new TENS/EMS device TEN 250 and thank you for your trust. In order to ensure optimal functionality and operation of your TENS/EMS device, please read the instruction manual before using the device for the first time. This guarantees a long useful life of this product.

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BASIC INFORMATION

1.0 Definition of symbols

The safety symbols shown in this instruction manual contain information concerning the correct use of the TENS/EMS device and your safety.

The symbols refer to the following content:

Read and follow the instruction manual!

Warning / danger: If not used correctly, there might be the risk of serious injury, damage and mortal danger!

These instructions must be followed under all circumstances!

Warning / danger: The device must not be used by persons with a pacemaker!

2.0 Basic information

2.1 Characteristics of a TENS/EMS device

The TENS/EMS device TEN 250 is an electro-stimulation device. To this end, an electric current is transmitted through the skin.
EMS (electric muscle stimulation) = the muscle tissue is electrically stimulated.
TENS (transcutaneous electric nerve stimulation) = the nerve tract is electrically stimulated.

2.2 Information concerning the TENS/EMS therapy

The device is equipped with several application programmes and uses low-frequency electric currents for therapeutic purposes. The induced electric pulses, their intensity, frequency and frequency width are controlled by the respective application programme. By means of the adhesive electrodes applied on the skin, the electric pulses are transmitted to the nervous system and the muscles. The current flows from the positive (+) adhesive electrode (with the red plug) to the negative (-) adhesive electrode (with the black plug). For the purpose of pain treatment, the delivery of pain to the brain is influenced during the application of a TENS therapy. The user does no longer perceive the pain at all or perceives the pain to a limited extent only. During the application of an EMS therapy, the respective muscle receives an electric pulse resulting in a contraction of this muscle. The intensity of the two channels can be adjusted separately and can be used independently on two body regions to be treated. The device is equipped with two channels and four electrodes; thus, you can stimulate two groups of muscles (EMS) or two pain areas (TENS) at the same time using the respective programmes.

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3.0 Safety instructions

3.1 General safety instructions

3.1.1 In case of a defect, the TENS/EMS device must not be repaired, used or modified (changed) by the users themselves. If used incorrectly, the stimulation current may cause pain, injuries and burns.

3.1.2 Is skin alterations, pain, swelling, discomfort or other irregularities occur during the use of the TENS/EMS device, you must stop the therapy immediately and seek medical advice.

3.1.3 Please remove all metallic objects, such as jewellery, belts, watches and other utensils from your body, before starting the therapy in such a manner that they do not come into contact with the TENS/EMS device or the adhesive electrodes.

3.1.4 Do not use the TENS/EMS device while driving and do not perform any other activities while using the device.

3.1.5 If you have any doubts concerning the therapy with the TENS device TENS/EMS device, please seek medical advice in advance.

3.1.6 Without seeking prior medical advice, do not use the TENS/EMS device on areas that hurt inexplicably, swollen muscles or after a serious muscle injury. The therapy using the TENS/EMS device is not a substitution for a medical diagnosis and treatment.

3.1.7 Please store this instruction manual during the useful life of the product for later reference and also hand it over if you pass on the TENS/EMS device to third parties. Please make the instruction manual also available to third parties. The instruction manual is an integral part of the TENS/EMS device.

3.1.8 Any misuse and use not in conformity with the application must be avoided.

3.1.9 Accessories from other devices must not be used.

3.2.0 If irregularities occur while using the device, the therapy must be stopped immediately.

3.2.1 The connecting cables as well as the adhesive electrodes must not be bent sharply.

3.2.2 Do not place any heavy or sharp-edged objects on the TENS/EMS device or the adhesive electrodes.

3.2.3 Before starting each therapy session, check the device and the adhesive electrodes for errors. If an error and/or defect occur, the device and the adhesive electrodes must not be used.

3.2.4 While using the TENS/EMS device, do not wear any body jewellery or tattoo stickers / tattoos in the stimulation area.

3.3 Usage / environment for which the TENS/EMS device is suited

3.3.1 Only use the TENS/EMS device for the intended use, i.e. for a low-frequency therapy (max. electric pulses in a range up to 150 Hz and a max. of 90 mA) on the human body.

3.3.2 The TENS/EMS device is only intended for external application (skin application) on humans and for the purposes of electric nerve and muscle stimulation.

3.3.3 As part of a TENS therapy, the device can be used for the treatment of acute complaints, arthrosis, rheumatic complaints and other chronic pain conditions.

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3.3.4 Unless instructed otherwise by your doctor, we recommend an average therapy duration of 30 minutes up to 3 times a day.
3.3.5 The sense of intensity may actually depend on the respective daily constitution. Therefore, the user may adjust the intensity to his/her personal needs using the intensity control of the TENS/EMS device.

3.4 Usage / environment for which the TENS/EMS device is not suited

3.4.1 The TENS/EMS device must not be used at the same time with other medical and electric devices of any kind.
3.4.2 Do not use the TENS/EMS device while showering, while swimming, in the sauna, while bathing or in any other environment with high air humidity. Keep away from any liquids while in use. Otherwise, injuries may occur or health may be negatively impacted by an increased stimulation r a short circuit. Caution! Mortal danger!
3.4.3 Do not use the TENS/EMS device in bed and/or while sleeping.
3.4.4 Do not use the TENS/EMS device near highly flammable substances or gases or near explosives.
3.4.5 While using the TENS/EMS device, it may interfere with other electric devices or may be impaired by other electric devices. Therefore, do not use the TENS/EMS device near other electric devices.
3.4.6 Keep a distance of at least 1.5 metres to shortwave or microwave devices and/or high-frequency (HF) surgical devices when using the TENS/EMS device; otherwise, there is a risk of skin irritations or burns being caused to the skin under the electrodes. Do not use the TENS/EMS device on mountains higher than 3,000 metres.
3.4.7 The TENS/EMS device is designed for self-treatment; however, it is not intended for trade or commercial usage.
3.4.8 Please note that portable and mobile HF (high-frequency) communication equipment (e.g. mobile phones) may influence medical electrical devices.
3.4.9 Medical electrical devices are subject to special precautions regarding EMC (electromagnetic compatibility). Therefore, please observe the EMC instructions (page 35-38) on the installation and commissioning of the device provided in this instruction manual.

3.5 Application for which the TENS/EMS device is suited

3.5.1 Pain relief therapies with the TENS/EMS device are purely of symptomatic nature. They can effect a pain relief, and, under certain circumstances, a cure. Please seek medical advice if you have any therapy-related questions.
3.5.2 Therapies using the TENS/EMS device effect a stimulation of the muscular system. Here, the muscles are stimulated.

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3.6 Application for which the TENS/EMS device is not suited

3.6.1 You must not use the TENS/EMS device under the following circumstances: a. heart diseases and cardiac arrhythmias (may lead to cardiac arrest), b. directly on wounds, c. pregnancy, in the uterus area and during labour, d. on the eyes, e. in patients with pacemakers, f. parts of the body that are poorly supplied with blood, g. in patients with psychological and/or emotional problems, h. in patients with diagnosed dementia (deterioration of mental faculties), i. in patients with a low IQ (intelligence quotient).

3.6.2 Please consult your doctor before using the TENS/EMS device under the following circumstances: a. acute diseases, b. tumours, c. infectious diseases, d. fever, e. blood pressure problems, f. skin diseases, g. after an accident, h. nausea or dizziness, i. onset of illnesses, j. if anomalies occur, k. pain of indefinable cause, l. diabetes, m. seizures, n. during menstruation, o. if pain is not experienced in some parts of the body, p. persons with metal and implants in the body.

3.6.3 With indefinable pain, such as indefinable headaches, a therapy with the TENS/EMS device is not effective.

3.6.4 Do not use the TENS/EMS device if you could yourself in any way due to a sudden fright.

3.6.5 The adhesive electrodes of the TENS/EMS device must not be used on open wounds, on areas where the skin is sensitive and fresh scars.

3.6.6 The following persons should not use the TENS/EMS device: children, invalid people, allergy sufferers, persons with immunodeficiency, persons with indefinable pain, diabetes or circulatory insufficiencies, persons with circulatory disorders of the exterior arteries and tissues or serious cardiovascular diseases. If in doubt, seek medical advice!

3.6.7 If a person is not able to perceive the electric stimulation current correctly, a therapy using this TENS/EMS device must not be performed. Young children are more sensitive to stimulation current! People of frail health and handicapped persons might not be able to attract attention to themselves if too high an intensity of the stimulation current device has been reached.

3.7 Usage by children and adolescents

3.7.1 Children must not be treated with this TENS/EMS device.

3.7.2 The TENS/EMS device must be stored out of the reach of children and adolescents younger than 18 years.

3.7.3 Keep the TENS/EMS device out of the reach of children. Small parts could be swallowed by children who might then choke. Children could hurt themselves when using the device.

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3.8 Usage of the TENS/EMS device

3.8.1 The adhesive electrodes may only be connected to the TENS/EMS device TEN 250. Please ensure that the device is switched off when putting on or removing the adhesive electrodes.

3.8.2 If you wish to reposition the adhesive electrodes of the TENS/EMS device during the therapy, make sure that you switch off the device first.

3.8.3 Using the TENS/EMS device may result in skin irritations under certain circumstances. If skin irritations, e.g. redness, blisters or itching, occur, the TENS/EMS device should no longer be used! Do not use the adhesive electrodes permanently on the same part of the body, as this can lead to skin irritations.

3.8.4 Before using the adhesive electrodes, the areas of the skin where the adhesive electrodes will be put on must be thoroughly cleaned and dried. The areas of the skin should be greaseless and clean.

3.8.5 Only connect the cables and the adhesive electrodes if the TENS/EMS device has been switched off.

3.8.6 Avoid pulling the cables directly when removing the plug connections from the adhesive electrodes in order to avoid damage to the cables. . Only handle the plugs in order to connect or disconnect the adhesive electrodes!

3.8.7 The adhesive electrodes can be connected to and disconnected from the device by means of a plug connection with an electric cable.

3.8.8 Each person reacts differently to an electric nerve stimulation. If the therapy is not successful, please seek medical advice.

3.8.9 Please remove the protective foil before applying the adhesive electrodes. The adhesive strength of the electrodes depends on the condition of the skin, storage and number of therapy sessions. If the adhesive electrodes do no longer stick completely on the skin surface, they must be replaced by new adhesive electrodes. The adhesive electrodes must lie completely flat against the skin in order to avoid locally high current densities which might result in skin burns. After the application has been completed, stick the adhesive electrodes back on the protective foil and keep the adhesive electrodes in the polybag in such a manner that they cannot dry out. Thus, the adhesion is ensured for longer.

3.9.0 Avoid any contact with the adhesive electrodes during the therapy. Under certain circumstances, touching the electrodes results in a short circuit involving an excessive current density. This excessive current density might cause burns and injuries!

3.9.1 For using the special programmes for different parts of the body, the DITTMANN textile electrodes and/or the back pain relief belt, knee pain relief cuff or neck cuff available as accessories are also ideally suited for a convenient application using the TENS/EMS device TEN 250 (e. g. for the area **H**, the stimulation glove **HFE 322**; for the area **F**, the stimulation sock **SFE 323**; for the area **E**, the elbow electrode **EFE 361**; for the area **K**, the knee electrode **KFT 362** or the knee pain relief cuff **KMT 285**; for the area **B**, the back pain relief belt **RFT 363** or **RGT 284** and for the area **N**, the neck cuff **TNM 275**).
When using these products together with the TENS/EMS device TEN 250, please always follow the operating instructions of these additional products and, above all, the respective safety instructions!

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4.0 Areas where the adhesive electrodes may be applied

4.0.1 Each person reacts differently to an electric nerve stimulation. The positioning of the electrodes might thus deviate from the standard positions. If the therapies are not successful, please consult your doctor as to which positioning techniques are most suitable for you.

4.0.2 In order to position the adhesive electrodes correctly, use the information provided on page 27 as well as the figures on page 28-29 for TENS therapies as well as on page 30-33 for EMS therapies intended as application examples as guidance.

4.0.3 Do not use any adhesive electrodes of an electrode size smaller than 40 x 40 mm (16 cm²); otherwise, too high a current density can flow and injuries may be caused.

4.0.4 The adhesive electrodes must not be resized, e.g. by cutting off parts.

4.0.5 The recommended distance between the electrodes should not be smaller than approx. 5 cm and not longer than approx. 25 cm.

4.0.6 Do not pull the cable if you wish to remove the adhesive electrodes from the skin. Lift the adhesive electrodes on the edges and remove them carefully.

4.0.7 Please ensure that the painful part of the body is enclosed by the positions of the electrodes during a TENS therapy. For an aching group of muscles, the electrodes are applied in such a manner that the affected muscles are also enclosed by the electrodes.

4.0.8 For the positioning of the electrodes during an EMS therapy, the following instructions must be observed: If you wish to activate the superficial muscles, you should apply the adhesive electrodes in parallel to the direction of the muscle fibres. In order to reach the deep muscle layers, we recommend applying the adhesive electrodes transversely to the direction of the muscle fibres.

4.1 Areas where the adhesive electrodes must not be used

4.1.1 The adhesive electrodes must not be applied on parts of the body with skin inflammations or open and fresh wounds.

4.1.2 Do not apply the adhesive electrodes on the following parts of the body: a. on and in the mouth, b. eyelids, c. front neck area, d. larynx, e. throat area, f. carotid artery, g. heart region, h. genitalia (genital organs: penis, testicles, ...), i. fingers, j. pacemakers.

4.1.3 The adhesive electrodes must not be applied in such a manner that the current can directly flow through the brain, e.g. on both temples.

4.1.4 Do not apply the adhesive electrodes directly on the heart region or do not position the adhesive electrodes directly right next to the heart region in order to prevent current flowing through the heart region.

4.1.5 Reversed positioning: Never position two poles of the same channel (one electrode connected to the red positive pole and one electrode connected to the black negative pole) on different sides of the body axis (i.e. one adhesive electrode (+) on the right arm and one adhesive electrode (-) on the left arm).

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4.2 Storage / maintenance of the TENS/EMS device

4.2.1 The TENS/EMS device is maintenance-free.
4.2.2 Do not dismantle or repair the TENS/EMS device; otherwise, technical or physical accidents may occur. Warning! Mortal danger!
4.2.3 If the device is not operated for a longer period of time, remove the batteries from the device.
4.2.4 If the TENS/EMS device TEN 250 is subject to trade or commercial usage, a safety inspection must be performed every 2 years in accordance with § 6 MPBetreibV [German Medical Devices Operator Ordinance]. The safety inspections must be carried out by a company specialised in medical devices. Further information may be obtained from our service centre (see page 44).

4.3 Cleaning and care of the TENS/EMS device

4.3.1 The TENS/EMS device must not be exposed to direct sunlight. Do not place the device on hot surfaces.
4.3.2 During cleaning and caring, the TENS/EMS device must be switched off and must not be connected to the adhesive electrodes.
4.3.3 Clean the surfaces of the TENS/EMS device carefully with a soft, damp cloth. Ensure that no moisture enters the device. If the device or the electrodes are very dirty, a mild detergent can be added. The TENS/EMS device must be switched off during cleaning. To this end, remove the batteries from the device before cleaning the device. Afterwards, let the TENS/EMS device dry completely. Do not use any chemical detergents or abrasive cleaners to clean the TENS/EMS device or the adhesive electrodes.
4.3.4 For hygienic reasons, every user should use his/her own adhesive electrodes.
4.3.5 A suitable, commercially available disinfectant may be used in order to disinfect the device. Afterwards, let the TENS/EMS device dry completely.
4.3.6 Do not immerse the TENS/EMS device in water or other liquids.

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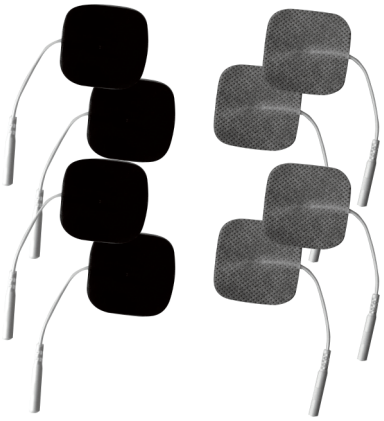
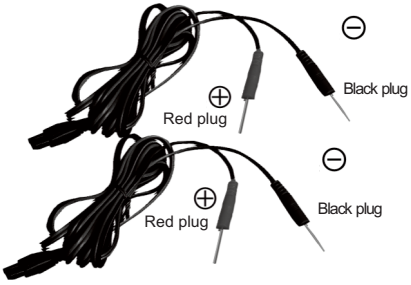
5.0 Scope of delivery / contents

1 EMS/TENS device TEN 250



8 x adhesive electrodes 40x40 mm

4 x AAA batteries



2 connecting cables


TENS/EMS DEVICE TEN 250

INSTRUCTION MANUAL

• Nerve and muscle stimulation effected with the aid of stimulation current
• 2 channels with LED display for each channel
• Blue display backlighting
• 7 pre-programmed + 5 adjustable application programmes for TENS nerve stimulation
• 11 pre-programmed + 9 adjustable application programmes for EMS muscle stimulation
• 10 pre-programmed massage programmes
• 18 pre-programmed + 6 adjustable special programmes for 6 different parts of the body
• Adjustable intensity (for adjustable application programmes, also frequency, pulse duration and application time)
• Contains: 1 TENS/EMS device TEN 250, 8 adhesive electrodes, 1 instruction manual, 2 connecting cables, 4 x 1.5 V AAA batteries
• Incl. belt clip
• Warranty: 24 months

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TEN 250

Version 2, 2014-03

1 instruction manual

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DISPOSAL / BATTERY CHANGE

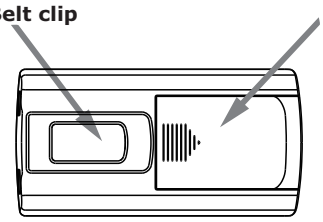
6.0 Disposal of the TENS/EMS device

6.1 If the TENS/EMS device is to be recycled, observe the legal regulations concerning disposal. Contact your municipality or a waste disposal company for further information. Dispose of the TENS device in accordance with the Waste of Electrical and Electronic Equipment Directive 2002/96/EC (WEEE Directive).

7.0 Battery change and information concerning batteries

7.1 Insert 4 batteries (type AAA) observing the correct polarity (+ (positive) and – (negative) pole).

7.2 Battery types: For the TENS/EMS device TEN 250, alkaline batteries of the type AAA are required. Do not use any rechargeable batteries!



Cover of the battery housing:
In order to open the cover lock, press on the shaded arrow-shaped area of the cover and push it outwards away from belt clip in order to remove it. Remove the used batteries. Then, insert four new alkaline batteries (size AAA). When inserting the batteries, observe the correct polarity (see marking / embossing in the battery housing). Afterwards, re-insert the cover of the battery compartment and push it towards the belt clip until it has engaged.

7.3 Disposal of the batteries: Used batteries must not be disposed of as household waste! Dispose of the batteries via your specialist dealer for electronic equipment or your public collection point for recyclable materials. As a consumer, you are legally obliged to return used batteries.

Pb, Hg, Cd

7.4 These chemical symbols indicate a battery containing harmful substances: **Pb** = contains lead, **Hg** = contains mercury, **Cd** = contains cadmium.

7.5 Batteries may be fatal if swallowed. Therefore, store batteries and products out of the reach of infants. If a battery was swallowed, seek medical advice immediately.

7.6 If a battery has leaked, avoid any contact with the skin, the eyes and the mucous membranes. Immediately rinse the affected parts with plenty of clear water and instantly consult a doctor or seek medical advice.

7.7 Batteries must not be charged (except for rechargeable batteries), taken apart, thrown into fire or short-circuited.

7.8 Protect the batteries from excessive heat. Remove the batteries from the device if they are empty or if you do not use the product for a longer period of time. Thus, you can avoid any damage which may be caused by leaking batteries.

7.9 Always replace all batteries. Do not use any different battery types or brands, accumulators (rechargeable batteries) or batteries with different capacities.

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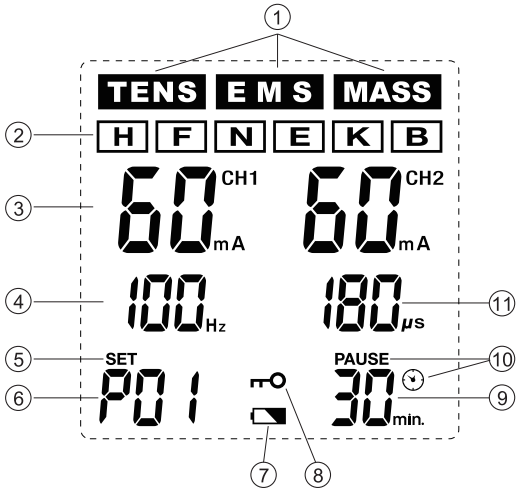
8.0 LCD display



1. Information about the respective therapy mode: **TENS** / **EMS** / **MASSAGE**
2. Information about the part of the body to be treated:
   H = Hand
   F = Foot
   N = Neck
   E = Elbow joint
   K = Knee joint
   B = Back
3. Information about the output intensity in **mA** (Milliampere) for channel **CH1** (left) and for channel **CH2** (right), e. g. 60 mA
4. Information about the pulse frequency in **Hz**, e.g. 100 Hz
5. **SET**: The device is in the setting mode.
6. Number of the application programme, e.g. programme P 01
7. Warning symbol for weak batteries: Change batteries
8. Information about the keylock
9. Application time in **minutes**, e.g. 30 minutes
10. Symbol "**PAUSE**" and clock symbol: Flashes if the pause mode has been activated
11. Information about the pulse duration in **µs**, e. g. 180 µs

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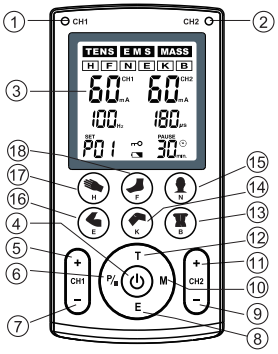
OVERVIEW OF DEVICE FUNCTIONS

9.0 Designation and functionality of the TENS/EMS device



① The yellow indicator light ① for channel 1 (**CH1**) lights up if the latter is activated.

② The yellow indicator light ② for channel 2 (**CH2**) lights up if the latter is activated.

③ LCD display indicates the current operating status.

④ ON/OFF key **(⏻)** for switching on/off the device and for saving the settings.

⑤ Key **(CH1⊕)** for increasing the output intensity for channel **CH1**.

⑥ Key **(P/II)**: Press this key in the standby mode in order to select a programme. In order to reach the setting mode, you must press and hold the key for several seconds. Press the key during the application if you wish to pause.

⑦ Key **(CH1⊖)** for reducing the output intensity for channel **CH1** and for switching between **Hz**, **µs** and **min.** in the setting mode.

⑧ Key **(E)** for selecting an **EMS programme**.

⑨ Key **(CH2⊖)** for reducing the output intensity for channel **CH2** and for reducing the set values for **Hz**, **µs** and **min.** in the setting mode.

⑩ Key **(M)** for selecting a **massage programme**.

⑪ Key **(CH2⊕)** for increasing the output intensity for channel **CH2** and for increasing the set values for **Hz**, **µs** and **min.** in the setting mode.

⑫ Key **(T)** for selecting a **TENS programme**.

⑬ Key **(B)** for selecting 3 pre-programmed programmes and 1 adjustable programme for the back.

⑭ Key **(K)** for selecting 3 pre-programmed programmes and 1 adjustable programme for the knee joint.

⑮ Key **(N)** for selecting 3 pre-programmed programmes and 1 adjustable programme for the neck.

⑯ Key **(E)** for selecting 3 pre-programmed programmes and 1 adjustable programme for the elbow joint.

⑰ Key **(H)** for selecting 3 pre-programmed programmes and 1 adjustable programme for the hand.

⑱ Key **(F)** for selecting 3 pre-programmed programmes and 1 adjustable programme for the foot.

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10.0 Quick overview for commissioning

Step 1: Insert 4 batteries (type AAA) observing the polarity marking of the batteries (see section 7.0 on page 12). When inserting the batteries in the device, observe the correct polarity (+(positive) and –(negative) pole). Do not switch on the device!

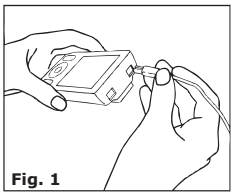

Fig. 1

Step 2: Insert one or two connecting cable(s) in the connector socket(s) of the device (see **Fig. 1**). Afterwards, connect the adhesive electrodes to the device by means of the plug connections (see **Fig. 2**). The device must be switched off when establishing the connection!

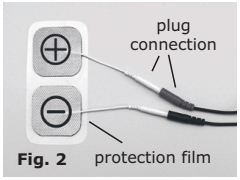

Fig. 2

Step 3: Remove the adhesive electrodes from the protective foil and position them according to the application examples on the pages 27-33. **Warning!** Observe the safety instructions!

Step 4: In order to switch on the device, press the start key ④ **(⏻)** (**Fig. 3**). Set the desired application programme by using the keys ⑫ **(T) = TENS**, ⑧ **(E) = EMS** or ⑩ **(M) = MASSAGE**. Furthermore, you can select special programmes for the indicated parts of the body by using the one-touch keys ⑬ **(B) = back**, ⑭ **(K) = knee joint**, ⑮ **(N) = neck**, ⑯ **(E) = elbow joint**, ⑰ **(H) = hand** and ⑱ **(F) = foot**.

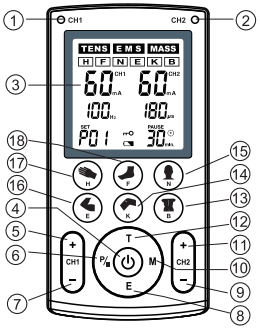

Fig. 3

Step 5: Press the key ⑤ **(CH1⊕)** or ⑪ **(CH2⊕)** in order to increase the output intensity of channel 1 **(CH1)** or channel **(CH2)** and to start the application. Press the key ⑦ **(CH1⊖)** or ⑨ **(CH2⊖)**, in order to reduce the output intensity of channel 1 **(CH1)** or channel 2 **(CH2)**. On the display of the device, the selected output intensity as well as the remaining application duration will be shown. Each application starts from the intensity level **1** for each channel. You can read the current intensity setting on the display (see ③, **Fig. 4**: Information about the output intensity (here, e. g. **60 mA**) in **mA** (milliampere) for channel **CH1** (left) und **CH2** (right).

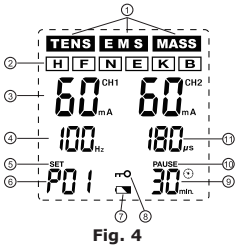

Fig. 4

Step 6: The application time can only be adjusted for the **U** programmes. For the **P** programmes, the application time is 30 minutes.

Step 7: If you wish to reposition the adhesive electrodes, make sure that you switch off the device first and repeat the steps **3** to **5**.

Step 8: In order to switch off the device, press and hold the key ④ (**Fig. 3**) Remove the plug of the connecting cable from the device and the adhesive electrodes. Then, remove the adhesive electrodes from the body and stick them back on the protective foil (**Fig. 2**). **NOTE:** If none of the keys is pressed, the device switches off automatically after three minutes provided that it is not in the operating state.

CAUTION: If malfunctions occur while using the device or if you wish to immediately stop the application, press and hold the key ④ (⏻) (**Fig. 3**). Every time a key is pressed, an acoustic signal (beep) is generated.

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11.0 Application instructions

11.1 Switching on the device

In order to switch on the device, press the key (⏻). The blue display backlighting switches on and the device is now run in the basic mode. If you switch on the device for the first time, the display information corresponds to **Fig. 5**: The device is now run in the programme 1 (**P01**) of the **TENS** mode (**TENS** flashes). If you have already used the device, the programme used last before the device has been switched off is shown.

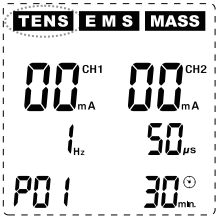

Fig. 5

11.2 Programme setting TENS mode

Press the key ⑫ **(T)** in order to select the **TENS mode**. The **TENS mode** is activated and information, as shown in **Fig. 5**, appears on the display: The device is now run in programme 1 (**P01**) of the **TENS** mode (**TENS** flashes at the top on the left of the display). In the **TENS mode**, there are a total of 12 programmes (7 pre-programmed programmes **P01 - P07** as well as 5 individual programmes **U1 - U5** whose parameters can be set by the users themselves (see programme tables, page 22). In the **TENS mode**, press the key ⑥ **(P/II)** repeatedly in order to first call the programmes **P01 - P07** one after the other and then the programmes **U1 - U5**. After programme **U5**, the programme order starts from the beginning with **P01, P02** etc.

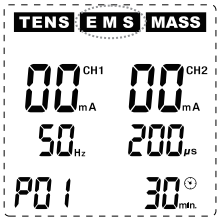

Fig. 6

11.3 Programme setting EMS mode

Press the key ⑧ **(E)** in order to select the **EMS mode**. The **EMS mode** is activated and information, as shown in **Fig. 6**, appears on the display: The device is now run in programme 1 (**P01**) of the **EMS** mode (**E M S** flashes at the top in the middle of the display). In the **EMS mode**, there are a total of 20 programmes (11 pre-programmed programmes **P01 - P11** as well as 9 individual programmes **U1 - U9** whose parameters can be set by the users themselves (see programme tables, page 23). In the **EMS mode**, press the key ⑥ **(P/II)** repeatedly in order to first call the programmes **P01 - P11** one after the other and then the programmes **U1 - U9**. After programme **U9**, the programme order starts from the beginning with **P01, P02** etc.

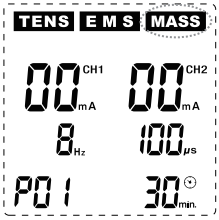

Fig. 7

11.4 Programme setting MASSAGE mode

Press the key ⑩ **(M)** in order to select the **MASSAGE mode**. The **MASSAGE mode** is activated and information, as shown in **Fig. 7**, appears on the display: The device is now run in programme 1 (**P01**) of the **MASSAGE** mode (**MASS** flashes at the top on the right of the display). In the **MASSAGE mode**, there are 10 programmes **P01 - P10** (see programme table, page 24 - 25) which are all pre-programmed. In the **MASSAGE mode**, press the key ⑥ **(P/II)** repeatedly in order to first call the programmes **P01 - P10**. After programme **P10**, the programme order starts from the beginning with **P01, P02** etc.

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11.5 Programme setting of the special programmes for six different parts of the body

In addition to the TENS, EMS and massage programmes, the device is also equipped with **24** special **programmes for six different parts of the body**. One-touch keys facilitate the selection and settings of these special programmes (see also page 26).

By pressing one of these one-touch keys **(H) (F) (N) (E) (K) (B)** for selecting special programmes for different parts of the body, you can directly select the following special programmes:

⑰ **(H)**: Special programmes for the **hand** (see **Fig. 8**)
⑱ **(F)**: Special programmes for the **foot** (see **Fig. 9**)
⑮ **(N)**: Special programmes for the **neck** (see **Fig. 10**)
⑯ **(E)**: Special programmes for the **elbow joint** (see. **Fig. 11**)
⑭ **(K)**: Special programmes for the **knee joint** (see **Fig. 12**)
⑬ **(B)**: Special programmes for the **back** (see **Fig. 13**)

After one of these keys has been pressed, information with the corresponding letter appears on the display (e. g. **H** if the key **(H)** was pressed), as shown in **Fig. 8**.

Each of these 6 areas **(H) (F) (N) (E) (K) (B)** has 3 pre-programmed therapy programmes as well as one therapy programme that can be set by the users themselves. By pressing the respective one-touch key, the therapy programme **P01** is switched on first. By pressing the key again, the next therapy programme is called. If the four therapy programmes are run through, the programme order starts from the beginning (**P01 > P02 > P03 > U1 > P01** etc.).

11.6 Starting the application / setting the intensity

If you have selected a programme and wish to start with the application, you must increase the output intensity for one or two channels from **0** to the desired value by using the keys ⑤ **(CH1⊕)** for channel **CH1** and/or ⑪ **(CH2⊕)** for channel **CH2**. If one or two channels have been activated by this setting of a certain output intensity (from **1 mA** to a maximum of **90 mA**), the **pulse intensity in mA** for the respective channel or for the two channels is shown on the display and the pulse output is, in addition to this, confirmed by the yellow indicator lights ① for channel **CH1** and/or ② for channel **CH2** lighting up. Every time you press one of the keys ⑤ **(CH1⊕)** for channel **CH1** and/or ⑪ **(CH2⊕)** for channel **CH2**, the displayed value is increased by **1 mA** (milliampere) whilst an acoustic signal is generated. If you press and hold one of these keys for several seconds, a quick continuous increase of the output intensity by **10 mA** is started, whereas each increase by **1 mA** (milliampere) is confirmed by an acoustic signal. If you release the respective key, the output intensity remains set to the currently reached value.

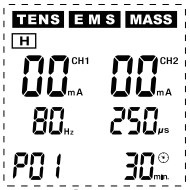

Fig. 8

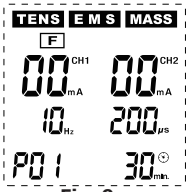

Fig. 9

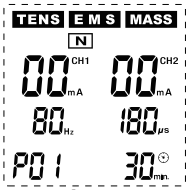

Fig. 10

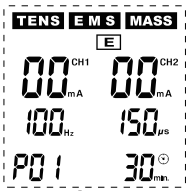

Fig. 11

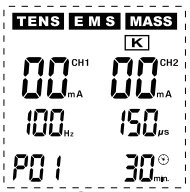

Fig. 12

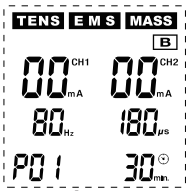

Fig. 13

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If in any programme the intensity setting was increased from **0** to any value on one or two channels **(CH1)** or **(CH2)**, the device switches into the operating mode and starts the application. The intensity of the stimulation can be adjusted to the individual needs of the user, with the highest intensity being **90 mA** (milliampere). The information about the selected output intensity in **mA** (milliampere) and the remaining time in **minutes** is shown on the display (see **Fig. 14**). The pre-programmed programmes (**P01** etc.) have a non-adjustable application time of **30 minutes** per application. After this time (the time information shown on the display is then **0 min.**) has run out, the device automatically stops the pulse output and returns to the basic mode. The output intensity is set to **0** and the yellow indicator lights ① for channel 1 **(CH1)** and/or ② for channel 2 **(CH2)** go out. However, you can immediately stop the application by pressing the key ④ (⏻). Then, the device returns to the basic mode. If you wish to switch off the device completely, you must press the key ④ (⏻) for several seconds.

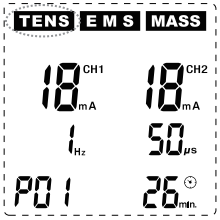

Fig. 14

The keys ⑦ **(CH1⊖)** for channel **CH1** and/or ⑨ **(CH2⊖)** for channel **CH2** are used to reduce the output intensity. Every time you press one of the keys, the displayed value is reduced by **1 mA** (milliampere) whilst an acoustic signal is generated. If you press and hold one of these keys for several seconds, a quick continuous reduction of the output intensity is started, whereas each reduction by **1 mA** (milliampere) is confirmed by an acoustic signal. You release the respective key, the output intensity remains set to the currently reached value. If you set the output intensity to **0**, the device switches off the pulse output and returns to the basic mode. The yellow indicator lights ① for channel **CH1** and/or ② for channel **CH2** go out. If you wish to switch off the device immediately, press and hold the key ④ (⏻) for several seconds.

11.7 Automatic keylock

If none of the keys is pressed in the operating mode, the device switches off the blue display lighting after approx. 20 seconds and activates the keylock that is shown on the display by means of the flashing symbol ⊓O (see **Fig. 15**). This keylock prevents the set output intensity from being increased further. Thus, it can be avoided that the intensity is increased unintentionally by pressing the key in an uncontrolled manner or other undesired changes occur whilst the device is operated. In order to deactivate the keylock, press one of the two keys ⑦ **(CH1⊖)** for channel **CH1** and/or ⑨ **(CH2⊖)** for channel **CH2**.

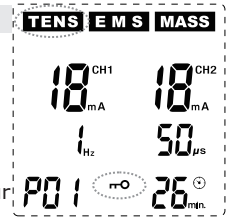

Fig. 15

11.8 Warning symbol for weak batteries

If the battery symbol starts to flash on the display (see **Fig. 16**), the batteries are already weak. However, the device can still be operated for a certain time. In this case, keep new batteries ready in order to replace the used batteries with the new ones if required. Please follow the instructions in the instruction manual on page 12 when changing the batteries.

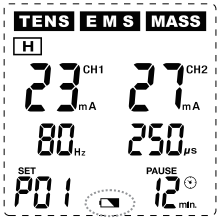

Fig. 16

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11.9 Pause mode and switching off the device

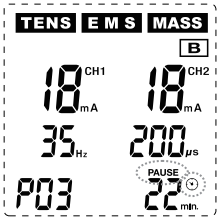

Fig. 17

Pause mode: If you wish to pause during the application, you can press the key ⑥ **(P/II)** in the operating mode in order to access the pause mode. The pulse output is interrupted and the yellow indicator lights ① for channel 1 **(CH1)** and/or ② for channel 2 **(CH2)** go out. On the display, the **PAUSE** symbol above and the symbol **(⏲)** next to the minute information (see **Fig. 17**) will flash. In order to continue the application, press the key ⑥ **(P/II)** again and the device will return to the operating mode and resume the application.

Switching off the device:
If the programme time has run out in the operating mode, the device stops the pulse output after generating an acoustic signal and switches into the basic mode. Press and hold the key ④ **(⏻)** for several seconds in order to switch off the device completely.

NOTE: If none of the keys is pressed in the basic mode and in the setting mode, the device switches off the blue display lighting after approx. 20 seconds. Approx. 1 minute after the last key has been pressed, a short acoustic signal is generated; after approx. 2 minutes, two short acoustic signals are generated and, after approx. 3 minutes, three short acoustic signals are generated. Afterwards, the device switches off automatically. If desired or in an emergency situation, however, you can always switch off the device in the operating, pause or setting mode at any time by pressing the key ④ **(⏻)** for several seconds.

NOTE: For safety reasons, the pulse output is reset automatically to **0** if a pulse intensity of **10 mA** or more has been set and if there is an open circuit. This is for instance the case if the cables of the electrodes are not connected or damaged. Then, the device returns to the basic mode.

12.0 Application instructions and mode settings

12.1 Adjustable user programmes

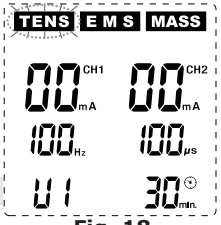

Fig. 18

The device is equipped with 5 adjustable user programmes in the **TENS mode** and 9 adjustable user programmes in the **EMS mode**. Each of the 6 special programmes for 6 different parts of the body has one adjustable user programme. All these programmes start with **U** (**U1, U2** etc.)

12.2 Calling the adjustable programmes

Switch on the device by press the key ④ (⏻) and press the key ⑥ **(P/II)** in the **TENS mode** or **EMS mode** repeatedly in order to call the adjustable user programmes until the first of the adjustable user programmes with the designation **U1** appears on the left at the bottom of the display. By pressing the key ⑥ **(P/II)** again, all existing programmes beginning with **U** are called one after the other. Example: If, for example, a user programme (e. g. **U1**) was set in the TENS programme, information according to **Fig. P** is shown on the display.

For the **special programmes for 6 different parts of the body**, press the corresponding one-touch key (e. g. **H** for hand) in order to call the respective adjustable user programme. On the left at the bottom of the display, the programme **P01**

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is then shown. Now, press the corresponding one-touch key repeatedly until the programme **U1** appears on the left at the bottom of the display (see **Fig. 19**).

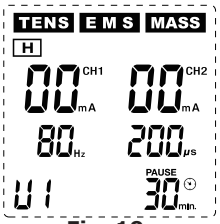

Fig. 19

12.3 Setting mode of the U programmes

If you have selected one of the adjustable user programmes according to section **12.1** (e. g. **U1**), you can reach the setting mode by pressing and holding the key ⑥ **(P/II)** for several seconds until the display **SET** appears on the display via the number of the selected user programme (e.g. **U1**), accompanied by an acoustic signal. At the same time, **Hz** to the right of the display of the **pulse frequency** starts flashing, which signals that this value can be set now. You are now in the setting mode and can set the values according to your needs one after the other for **pulse frequency (Hz)** (see **Fig. 20**), **pulse duration (µs)** (see **Fig. 21**) and **application time (min.)** (see **Fig. 22**).

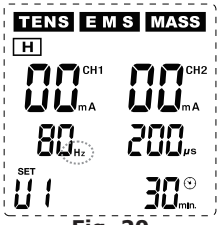

Fig. 20

12.4 Selecting and setting the parameters

Selecting the parameters:
In the setting mode, the flashing value can always be set. First of all, this is the **pulse frequency setting** (**Hz** flashes). By pressing the key ⑦ **(CH1⊖)**, you will reach the **pulse duration setting** (**µs** flashes) and, by pressing this key again, the **application time setting** in **min.** (**clock symbol** flashes). By pressing the key ⑦ **(CH1⊖)** again, you return to the pulse frequency etc.

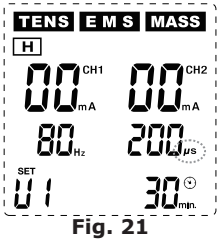

Fig. 21

Setting the parameters:
By pressing the keys ⑪ **(CH2⊕)** or ⑨ **(CH2⊖)**, you can now change the set values of the respectively selected area in single steps. The key ⑪ **(CH2⊕)** is used for increasing the values, whereas the key ⑨ **(CH2⊖)** is used for reducing the values. Each keystroke is accompanied by an acoustic signal. If you press and hold these keys for several seconds, a quick continuous increase or reduction of the respective set values is started, whereas each increase or reduction by one unit (**Hz** and **min.**: one step / **µs**: five steps) is confirmed by an acoustic signal. If you release the respective key, the currently reached value remains set. If you have set the values according to your needs, press the key ④ **(⏻)** in order to save these values.

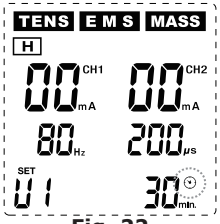

Fig. 22

Adjustable parameters:

Pulse frequency:	**2 - 150 Hz (hertz)**
Pulse duration:	**50 - 350 µs (microseconds)**
Application time:	**5 - 90 min. (minutes)**

NOTE: In the programmes **TENS U3 - U5**, ranges instead of individual values can be set depending on the programme. Here, two values (lower value and upper value) can be set for **pulse frequency** in **Hz** (**U4** and **U5**) and for **pulse duration** in **µs** (**U3 - U5**)!

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NOTE: If no key is pressed in the setting mode for approx. 30 seconds, the setting mode is automatically terminated with an acoustic signal. The display **SET** goes out, the adjustable values stop flashing and the device switches into the basic mode. If no other key is pressed for a further 3 minutes, the device switches off automatically.

12.5 Deleting the settings

The settings you have made in the adjustable programmes are stored in the device and can be recalled. If you wish to delete these settings and to reset the programmes to the basic settings, you can proceed as follows: Open the cover of the battery compartment (see also p. 12) and remove one of the four batteries. Press and hold the key ⑨ **(CH2⊖)** while re-inserting the fourth battery. The blue display lighting switches on and shows an empty display. After several seconds, two acoustic signals are generated and all adjustable programmes are reset to the basic factory settings according to table (p. 22 - 26). In the basic mode, the programme 1 (**P01**) of the **TENS** mode is now shown on the display (**TENS** flashes - see **Fig. 23**).

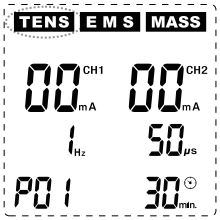

Fig. 23

12.6 Switching off the device

In the operating mode, the device switches into the basic mode whilst an acoustic signal is generated when the programme time has run out. Press and hold the key ④ **(⏻)** for several seconds in order to switch off the device completely.

NOTE: If none of the keys is pressed, the device switches off the blue display lighting after approx. 20 seconds. Approx. 1 minute after the last key has been pressed, a short acoustic signal is generated; after approx. 2 minutes, two short acoustic signals are generated and, after approx. 3 minutes, three short acoustic signals are generated. Afterwards, the device switches off automatically. If desired or in an emergency situation, however, you can always switch off the device at any time by pressing the key ④ **(⏻)** for several seconds.

12.7 Use of accessories

Particularly when using the **special programmes for 6 different parts of the body**, you can also comfortably connect the DITTMANN textile electrodes and/or the back pain relief belt, knee pain relief cuff or neck cuff available as accessories to the device. The following products are suitable for use for these programmes:

(H): Special programmes for the **hand: stimulation glove HFE 322**
(F): Special programmes for the **foot: stimulation sock SFE 323**
(N): Special programmes for the **neck: neck cuff TNM 275**
(E): Special programmes for the **elbow joint: elbow electrode EFE 361**
(K): Special programmes for the **knee joint: knee pain relief cuff KMT 285** and **knee electrode KFT 362**
(B): Special programmes for the **back: back pain relief belt RGT 284** and **back pain relief belt RFT 363**

When using these products together with the TENS/EMS device TEN 250, please always follow the operating instructions of these additional products and, above all, the respective safety instructions!

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13.0 TENS application programmes

13.1 Pre-programmed TENS application programmes P01 - P07

Pro-gram.	Wave form	Applicat. time	Frequency Hz	Pulse duration µs
P01	continuous	30 min.	1 Hz	50 µs
P02	continuous	30 min.	8 Hz	200 µs
P03	continuous	30 min.	80 Hz	80 µs
P04	Han	30 min.	100 Hz 2 Hz	150 µs 200 µs
P05	Amplitude modulated	30 min.	80 Hz	200 / 330 µs
P06	Pulse duration modulated	30 min.	80 Hz	110-180 µs
P07	Pulse duration modulated	30 min.	2 Hz	150-200 µs

13.2 Adjustable TENS application programmes U1 - U5

The values shown in the table are factory preset and can be set in the following ranges:
Application time: adjustable from **5** to **90 Minuten**
Frequency in Hz: adjustable from **2** to **150 Hz**

Pro-gram.	Wave form	Applicat. time	Frequency Hz Factory setting	Pulse duration µs Factory setting
U1	continuous	30 Min.	100 Hz	100 µs
U2	Amplitude modulated	30 Min.	100 Hz	200 / 330 µs
U3	Pulse duration modulated	30 Min.	80 Hz	150-200 µs
U4	Pulse duration modulated	30 Min.	2-8 Hz	300 µs
U5	Frequency and pulse duration modulated	30 Min.	2-100 Hz	50-300 µs

(min. = minutes, Hz = vibrations per second, µs = pulse duration in microseconds)
Each programme has an application time of 30 minutes. The corresponding wave forms, frequencies and pulse durations of the programmes can be found in the programme overview provided above.

The programmes **P01 - P07** are pre-programmed TENS programmes for transcutaneous electric nerve stimulation. The programmes **U1 - U5** are adjustable TENS programmes. The respective programme cycles run automatically one after the other and enhance the effectiveness of the stimulation on the treated muscle or pain region.

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14.0 EMS application programmes

14.1 Pre-programmed EMS application programmes P01 - P11

Pro-gram.	Wave form	Applicat. time	Frequency Hz	Pulse duration µs
P01	synchronous	30 min.	50 Hz	200 µs
P02	synchronous	30 min.	40 Hz	200 µs
P03	synchronous	30 min.	60 Hz	200 µs
P04	synchronous	30 min.	80 Hz	200 µs
P05	synchronous	30 min.	20 Hz	200 µs
P06	synchronous	30 min.	50 Hz	350 µs
P07	synchronous	30 min.	65 Hz	350 µs
P08	synchronous	30 min.	50 Hz	150 µs
P09	synchronous	30 min.	80 Hz	150 µs
P10	synchronous	30 min.	65 Hz	200 µs
P11	synchronous	30 min.	50 Hz	200 µs

14.2 Adjustable EMS application programmes U1 - U9

The values shown in the table are factory preset and can be set in the following ranges:
Application time: adjustable from **5** to **90 Minuten**
Frequency in Hz: adjustable from **2** to **150 Hz**
Pulse duration in µs: adjustable from **50** to **350 µs**

Pro-gram.	Wave form	Applicat. time	Frequency Hz Factory setting	Pulse duration µs Factory setting
U1	Changing stimulation	30 min.	50 Hz	200 µs
U2	Changing stimulation	30 min.	8 Hz	200 µs
U3	synchronous	30 min.	45 Hz	200 µs
U4	synchronous	30 min.	60 Hz	250 µs
U5	synchronous	30 min.	50 Hz	350 µs
U6	Changing stimulation	30 min.	50 Hz	350 µs
U7	synchronous	30 min.	40 Hz	350 µs
U8	synchronous	30 min.	80 Hz	150 µs
U9	synchronous	30 min.	15 Hz	250 µs

(min. = minutes, Hz = vibrations per second, µs = pulse duration in microseconds)
Each programme has an application time of 30 minutes. The corresponding wave forms, frequencies and pulse durations of the programmes can be found in the programme overview provided above.

The programmes **P01 - P11** are pre-programmed EMS programmes for electric stimulation of the muscle tissue. The programmes **U1 - U9** are adjustable EMS programmes. The respective programme cycles run automatically one after the other and enhance the effectiveness of the stimulation on the treated muscle or pain region.

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15.0 Massage application programmes

15.1 Programmed massage application programmes P01 - P10

Pro-gram.	Operating period sec.	Rest period sec.	Applicat. time	Frequency Hz	Pulse duration µs
P01	-	-	30 min.	8 Hz	100 µs
P02	-	-	30 min.	125 Hz	200 µs
P03	-	-	21 min.	7 / 5 / 3 Hz	300 µs
P04	-	-	22 min.	2 / 4 / 6 / 8 / 6 / 8 / 2-8 Hz	250 µs
P05	-	-	30 min.	5 / 8 Hz	300 µs
P06	-	-	30 min.	60 Hz	100 µs
P07	4,0 sec.	1,0 sec.	30 min.	83 Hz	50-220 µs
	3,8 sec.	0,8 sec.		100 Hz	50-220 µs
	3,1 sec.	0,7 sec.		111 Hz	50-220 µs
	2,6 sec.	0,6 sec.		118 Hz	50-220 µs
	2,3 sec.	0,6 sec.		132 Hz	50-220 µs
	2,6 sec.	0,6 sec.		118 Hz	50-220 µs
	2,8 sec.	0,7 sec.		111 Hz	50-220 µs
	3,3 sec.	0,8 sec.		100 Hz	50-220 µs
P08	3,5 sec.	1,0 sec.	30 min.	25 Hz	30-220 µs
	2,5 sec.	0,9 sec.		25 Hz	30-220 µs
	1,9 sec.	0,9 sec.		33 Hz	30-220 µs
	1,3 sec.	0,8 sec.		43 Hz	30-220 µs
	0,9 sec.	0,7 sec.		53 Hz	200 µs
	0,7 sec.	0,6 sec.		69 Hz	200 µs
	0,5 sec.	0,5 sec.		79 Hz	200 µs
	0,7 sec.	0,6 sec.		69 Hz	200 µs
	0,7 sec.	0,6 sec.		53 Hz	200 µs
	1,3 sec.	0,8 sec.		43 Hz	30-220 µs
	1,9 sec.	0,9 sec.		33 Hz	30-220 µs
	2,5 sec.	0,9 sec.		25 Hz	30-220 µs
	3,5 sec.	1,0 sec.		25 Hz	30-220 µs

(min. = minutes, Hz = vibrations per second, µs = pulse duration in microseconds)
The respective operating and rest periods, application times, frequencies and pulse durations of the programmes can be found in the programme overview provided above.

The programmes **P01 - P10** are massage programmes for the electric stimulation of the muscle tissue. The respective programme cycles run automatically one after the other and enhance the effectiveness of the massage on the treated muscle region.

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15.1 Programmed massage application programmes P01 - P10

Pro-gram.	Operating period sec.	Rest period sec.	Applicat. time	Frequency Hz	Pulse duration µs
P09	12,0 sec.	1,0 sec.	30 min.	147 Hz	30-220-150-220 µs
	10,3 sec.	0,9 sec.		169 Hz	30-220-150-220 µs
	8,5 sec.	0,6 sec.		196 Hz	30-220-150-220 µs
	6,8 sec.	0,6 sec.		237 Hz	30-220-150-220 µs
	5,1 sec.	0,4 sec.		285 Hz	30-220-150-220 µs
	5,7 sec.	0,5 sec.		290 Hz	30-220-150-220 µs
	6,3 sec.	0,5 sec.		238 Hz	30-220-150-220 µs
	8,0 sec.	0,6 sec.		197 Hz	30-220-150-220 µs
	8,5 sec.	0,7 sec.		191 Hz	30-220-150-220 µs
	9,1 sec.	0,8 sec.		168 Hz	30-220-150-220 µs
	10,8 sec.	0,9 sec.		150 Hz	30-220-150-220 µs
P10	-	-	30 min.	5 / 8 Hz	200 µs

(min. = minutes, Hz = vibrations per second, µs = pulse duration in microseconds)
The respective operating and rest periods, application times, frequencies and pulse durations of the programmes can be found in the programme overview provided above.

The programmes **P01 - P10** are massage programmes for the electric stimulation of the muscle tissue. The respective programme cycles run automatically one after the other and enhance the effectiveness of the massage on the treated muscle region.

Notes on the programme settings

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16.0 Special application programmes für 6 parts of the body

16.1 Pre-programmed applications für 6 parts of the body

Part of the body	Pro-gram.	Wave form	Applicat. time	Frequency Hz	Pulse duration µs
HAND	**P01**	Han	30 min.	80 Hz	250 µs
	P02	continuous	30 min.	35 Hz	200 µs
	P03	continuous	30 min.	2 Hz	250 µs
FOOT	**P01**	Frequency modulated	30 min.	10-100 Hz	200 µs
	P02	Frequency modulated	30 min.	10-100 Hz	250 µs
	P03	Frequ./Pulse durat. modul.	30 min.	70-110 Hz	100-200 µs
NECK	**P01**	continuous	30 min.	80 Hz	180 µs
	P02	continuous	30 min.	1 Hz	50 µs
	P03	Han	30 min.	80 Hz	70 / 180 µs
ELBOW	**P01**	Han	30 min.	100 Hz 2 Hz	150 µs 200 µs
	P02	Frequ./Pulse durat. modul.	30 min.	70-110 Hz	100-200 µs
	P03	Han	30 min.	80 Hz	70 / 180 µs
KNEE	**P01**	Burst	30 min.	100 Hz	150 µs
	P02	Burst	30 min.	80 Hz	250 µs
	P03	Frequ./Pulse durat. modul.	30 min.	70-110 Hz	100-200 µs
BACK	**P01**	Han	30 min.	2 / 80 Hz	180 µs
	P02	continuous	30 min.	80 Hz	150 µs
	P03	continuous	30 min.	35 Hz	200 µs

16.2 Adjustable applications for 6 parts of the body

The values shown in the table are factory preset and can be set in the following ranges:
Application time: adjustable from **5** to **90 Minuten**
Frequency in Hz: adjustable from **2** to **150 Hz (H, N, K, B)** or **20** to **150 Hz (F, E)**
Pulse duration in µs: adjust. from **50** to **350 µs (H, N, K)** or **100** to **350 µs (F, E, B)**

Part of the body	Pro-gram.	Wave form	Applicat. time	Frequency Hz Factory setting	Pulse duration µs Factory setting
HAND	**U1**	changing EMS pulse	30 min.	80 Hz	200 µs
FOOT	**U1**	simply modulated pulse	30 min.	2-125 Hz	100-200 µs
NECK	**U1**	Pulse duration modulated	30 min.	80 Hz	110-180 µs
ELBOW	**U1**	simply modulated pulse	30 min.	2-125 Hz	100-200 µs
KNEE	**U1**	changing EMS pulse	30 min.	80 Hz	200 µs
BACK	**U1**	Amplitude modulated	30 min.	100 Hz	200 / 330 µs

(min. = minutes, Hz = vibrations per second, µs = pulse duration in microseconds)
The respective operating and rest periods, application times, frequencies and pulse durations of the programmes can be found in the programme overview provided above.

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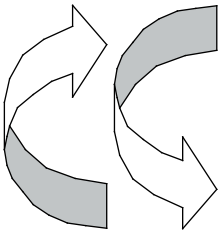
ADHESIVE ELECTRODES

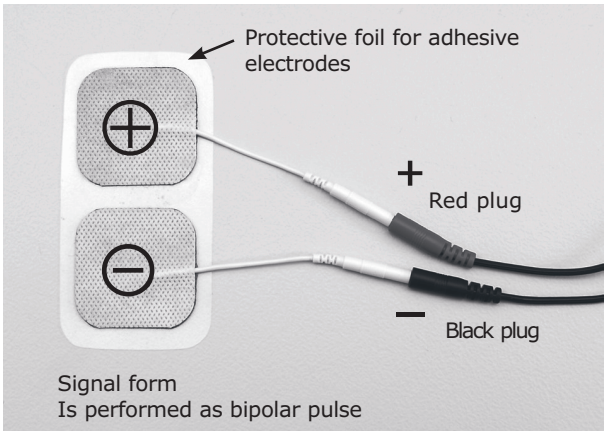
GB

17.0 Information concerning the positioning of the adhesive electrodes

The following application examples show standard positions for the positioning of the adhesive electrodes. As each user reacts differently to electric nerve stimulation, it is very important that the correct positions of the adhesive electrodes are determined in collaboration and upon consultation with your doctor in order to ensure a successful pain relief therapy or stimulation of the groups of muscles.



Electrical direction



Signal form
Is performed as bipolar pulse

Position the adhesive electrodes above and below (or to the left and to the right of) the area of pain. Avoid applying the electrodes directly on the pain centre! It is important that the stimulation current can flow through the area of pain!

Unless instructed otherwise by your doctor, we recommend an average therapy duration of 30 minutes up to 3 times a day.

The sense of intensity may actually depend on the respective daily constitution. Therefore, the user may adjust the intensity to his/her personal needs using the intensity control.

Further application examples can be found in specialist books.

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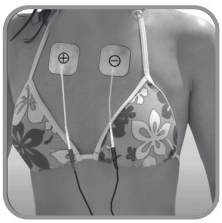
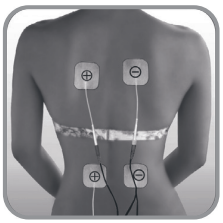
ELECTRODE POSITIONING / TENS

18.0 Positioning of the adhesive electrodes for TENS therapy

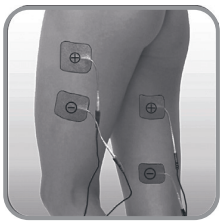
Abdomen
For the relief of muscle tensions, pulled muscles, bruises



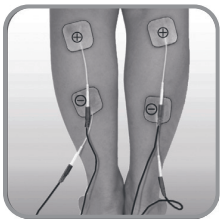
Above the thorax
For the relief of muscle tensions, pulled muscles, bruises (not on the heart region!)



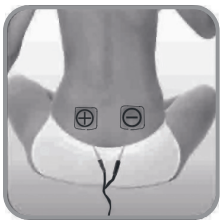
Back
For the relief of muscle tensions, pulled muscles, bruises



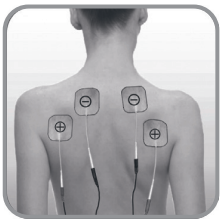
Upper leg
For the relief of pain in the upper leg, muscle tensions, pulled muscles, bruises



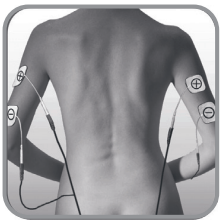
Lower leg
For the relief of muscle tensions, pulled muscles, bruises, circulatory disorders



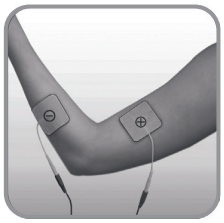
Lumbar region
For the relief of pain in the lumbar spine region



Shoulder
For the relief of back pain, muscle tensions, pulled muscles



Upper arm
For the relief of muscle tensions, pulled muscles, bruises



Arm
For the relief of pain in the elbow joint

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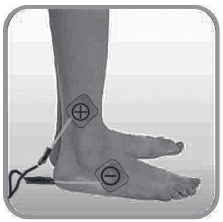
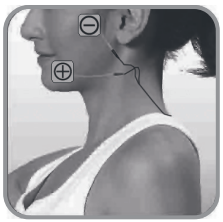
18.0 Positioning of the adhesive electrodes for TENS therapy



Feet
For the relief of pain in the ankle joint



Face
For the relief of toothache

Information concerning the programmes and the positioning of the adhesive electrodes

The application examples imaged on pages 28 and 29 show standards concerning the positioning of the adhesive electrodes. Since everybody responds differently to electrical nerve stimulation, it is very important to choose the correct position for the adhesive electrodes in cooperation and in accordance with your physician in order to ensure successful stimulation of muscles and pain treatment.

Generally any programme may be applied on the parts of the body pictured above. Successful treatment is decisive for the proper selection of the most suitable programmes.

Position the adhesive electrodes above and below (or to the left and to the right of) the area of pain. Avoid applying the electrodes directly on the pain centre! It is important that the stimulation current can flow through the area of pain! Unless instructed otherwise by your physician, we recommend an average therapy duration of 30 minutes up to 3 times a day.

The sense of intensity may actually depend on the respective daily constitution. Therefore, the user may adjust the intensity to his/her personal needs using the intensity control.

Further application examples can be found in specialist books.

Warning: Before application, please read and follow the operating instructions and, above all, the respective safety instructions on pages 5 - 10!

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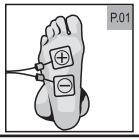
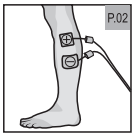
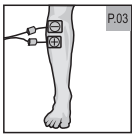
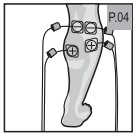
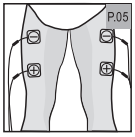
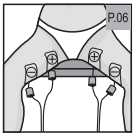
19.0 Positioning of the adhesive electrodes for EMS therapy

The stimulation position depends on the group of muscles to be stimulated. The different suggested positions can be found as pictograms next to the figures illustrating the positioning of the electrodes. In the following table, different groups of muscles are listed. The table also contains important information on the optimum stimulation position and on how to intentionally cause a contraction (muscle tension) yourself.

Group of muscles	Positioning of the electrodes	Stimulation positions	Cause the contraction - (muscle tension) yourself.
Foot sole muscles		Sitting position, place your feet on the floor.	Vigorously tense your foot sole muscles by trying to dig the toes in the floor.
Calf bone muscles		Sitting position, place your feet on the floor.	Vigorously tense your calf bone muscles by pressing the big toe firmly against the floor and lifting the outer toes from the floor at the same time.
Anterior shin bone muscles		Sitting position, place your feet underneath a piece of furniture in such a manner that the ankles can no longer be bent.	Vigorously tense your anterior shin bone muscles by firmly pressing the forward sections of your feet upwards against a resistance that counteracts this movement.
Calf muscles		Sitting position in such a manner that your back and feet are supported. The easiest way would be to sit down in a door frame.	Vigorously tense your calf muscles by firmly pressing the forward sections of your feet upwards against a resistance that counteracts this movement.
Posterior thigh muscles		Lie prone; your ankles are fixed in such a manner that it feels comfortably.	Vigorously tense your posterior thigh muscles by trying to bend your knee.
Adductors (legs)		Sitting position, position a hard object between your knees (in such a manner that it feels comfortably).	Vigorously tense your adductors (legs) by trying to firmly press your knees towards each other.

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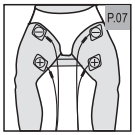
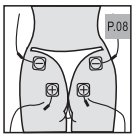
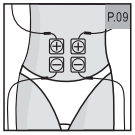
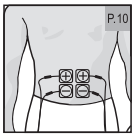
19.0 Positioning of the adhesive electrodes for EMS therapy

Group of muscles	Positioning of the electrodes	Stimulation positions	Cause the contraction - (muscle tension) yourself.
Anterior thigh muscles		Sitting position. You can select between two options for this exercise: either statically – for this block the movement of your knees; or dynamically – for this, carry out this movement against a resistance and use objects with heavy weight.	Vigorously tense your anterior thigh muscles by trying to stretch your legs.
Gluteal muscles		Lie prone or take a standing position.	Vigorously tense your gluteal muscles by contracting them and trying to bring your thigh behind your trunk.
Muscles of the abdomen	 	Lie on your back which can be slightly raised. You can select between two options for this exercise: either statically – for this, simply start contracting the muscle by carrying out the movement described next to the figure; or dynamically – for this, additionally move your trunk to your thighs; in this case, you must ensure not to put the emphasis on the lumbar spine; your knees should always be firmly tied.	Tense your muscles of the abdomen by trying to vigorously raise your head and shoulder from the floor.

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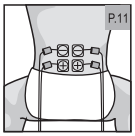
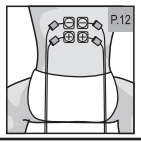
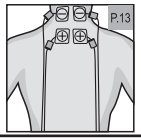
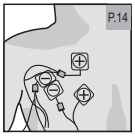
19.0 Positioning of the adhesive electrodes for EMS therapy

Group of muscles	Positioning of the electrodes	Stimulation positions	Cause the contraction (muscle tension) yourself.
Lower back muscles		Sitting position. Please note: Due to the anatomical feature of the lower back muscles, the training in this mode requires a particularly strong musculature. Position the electrodes, as shown, at the height of the back muscles.	Vigorously tense your lower back muscles by trying to sit as upright as possible.
Back muscles		Sitting position	Vigorously tense your back muscles by trying to sit as upright as possible.
Muscles of the cervical vertebra		Sitting position	Vigorously tense your back muscles by trying to sit as upright as possible.
Trapezius muscle		Sitting position	Tense your trapezius muscle by trying to vigorously raise and lower your shoulders.

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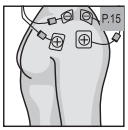
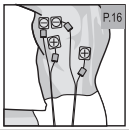
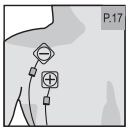
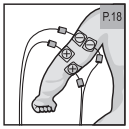
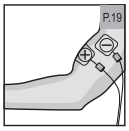
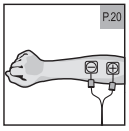
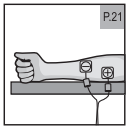
19.0 Positioning of the adhesive electrodes for EMS therapy

Group of muscles	Positioning of the electrodes	Stimulation positions	Cause the - contraction (muscle tension) yourself
Shoulder joint muscle		Sitting position, keep your elbows inside the armrests in such a manner that the armrests represent a resistance to the movement away from your body.	Vigorously tense your shoulder joint muscle by pressing your elbows away from your body.
Large back muscle		Sitting position, keep your elbows outside the armrests in such a manner that the armrests represent a resistance to the movement towards your body.	Vigorously tense your large back muscle by pressing your elbows towards your body.
Pectoral muscles		Sitting position, the palms of your hands touch each other. Warning concerning the positioning of the electrodes on the heart region: increased risk of cardiac fibrillation.	Vigorously tense your pectoral muscles by pressing the palms of your hands against each other.
Posterior upper arm muscles		Sitting position, your hands and forearms rest on the table.	
Anterior upper arm muscles		Sitting position, your forearms rest on the table, the palms of the hands must point upwards. Fix your elbows in such a manner that they cannot move during the stimulation.	Vigorously tense your anterior upper arm muscles by moving the palms of your hands towards your shoulders.
Extensor carpi of the hand		Sitting position, your forearms and palms of the hands rest on the table.	Vigorously tense the extensor carpis of your hands by trying to raise your hands.
Flexor carpi of the hand		Sitting position, your forearms rest on the table. Take a resistant and hard object in your hands; your fingers are slightly bent.	Vigorously tense the flexor carpis of your hands by encom-passing the object in your hand tightly.

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20.0 Malfunctions, troubleshooting

Malfunction	Cause	Solution
The batteries have been inserted, but no information is shown on the display.	There might be foreign particles in the battery compartment. Ensure that the batteries are full and have been inserted with the correct polarity. Check whether the battery contacts fit closely.	If there are any foreign particles, they must be removed. Replace the empty batteries by full batteries. Observe the correct polarity.
	There is a malfunction of the electronic system.	Remove the batteries and re-insert them after approx. 3 seconds.
The display is working, but the adhesive electrodes do not transfer any current pulses.	The plug connections of the cables have been mounted incorrectly.	Check the plug connection on the device and on the adhesive electrodes for tightness.
On the device, an intensity level has been set; however, only little stimulation is felt on the adhesive electrodes.	The batteries did not have sufficient power.	Replace the empty batteries by full batteries. Observe the correct polarity.
	Impurity of the skin surface.	Clean the skin surface.
	The entire adhesive surface of the electrodes does no longer have any adhesive effect and is worn out.	The adhesive electrodes must be replaced by new electrodes.
The intensity of the stimulation current increases, although a low intensity level has been set.	The adhesive electrodes have not been applied completely on the skin surface.	Press the adhesive electrodes firmly to the skin surface.
	The adhesive electrodes stick only partially to the skin surface.	The adhesive electrodes are worn out and must be replaced by new electrodes.
The device stops while being used.	The batteries do no longer provide sufficient power.	Replace the empty batteries by full batteries. Observe the correct polarity.
	There is a malfunction of the electronic system.	Remove the batteries and re-insert them after approx. 3 seconds.
The skin surface shows changes or is reddened.	The changes to the skin might have been caused by the adhesive electrodes.	Immediately stop the application and consult your doctor.

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21.0 Information regarding electromagnetic immunity

Table 1 – Instruction and manufacturer's specifications – electromagnetic emissions – for all INSTALLATIONS and SYSTEMS (see 6.8.3.201 a) 3).		
Instruction and manufacturer's specifications – electromagnetic emissions		
The (INSTALLATION or the SYSTEM) is designed for the use in the electromagnetic environment described below. The customer or the user of the (INSTALLATION or the SYSTEM) should ensure that it is used in such an environment.		
Emission test	**Compliance**	**Electromagnetic environment – instruction**
HF emissions CISPR 11	Group 2	The (INSTALLATION or the SYSTEM) only uses HF energy for its internal operation. Therefore, only very low HF emissions occur, which most probably do not cause any malfunctions in nearby electronic installations.

Guidelines and manufacturer's declaration – electromagnetic emissions		
The model TEN 250 is intended for use in an environment as specified below. The customer or the user of the model TEN 250 should ensure that it is used in such an environment.		
Electromagnetic interference measurements	**Compliance**	**Electromagnetic environment – guideline**
HF emissions according to CISPR 11	Group 2	The model TEN 250 only uses HF energy for its internal operation. Therefore, its HF emissions are very low, which most probably do not cause any malfunctions in nearby electronic installations.
HF emissions according to CISPR 11	Class B	The model TEN 250 is intended for use in all facilities, including residential environments and such environments that are directly connected to the public power supply, which also supplies buildings that are used for residential purposes.
Harmonic current emissions according to IEC 61000-3-2	Not applicable	
Emission of voltage fluctuations/flicker according to IEC 61000-3-3	Not applicable	

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21.0 Information regarding electromagnetic immunity

Guidelines and manufacturer's declaration – electromagnetic immunity			
The model TEN 250 is intended for operation in an electromagnetic environment as specified below. The customer or the user of the model TEN 250 should ensure that it is used in such an environment.			
Immunity tests	**IEC 60601 – test level**	**Conformity level**	**Electromagnetic environment – guidelines**
Electrostatic discharge immunity test according to IEC 61000-4-2	± 6 kV contact discharge ± 8 kV air discharge	Not applicable ± 8 kV air discharge	Floors should be made of wood or concrete or furnished with ceramic tiles. If the floor is furnished with synthetic material, the relative air humidity must be at least 30%.
Electrical fast transient/burst immunity according to IEC 61000-4-4	± 2 kV for power cables ± 1 kV for input and output cables	Not applicable	The quality of the supply voltage should correspond to the voltage of a typical commercial or hospital environment.
Surges according to IEC 61000-4-5	± 1 kV differential mode voltage ± 2 kV common mode voltage	Not applicable	The quality of the supply voltage should correspond to the voltage of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations according to IEC 61000-4-11	< 5% U_T (>95 % dip of U_T) during ½ period 40% U_T (60% dip of U_T) during 5 periods 70% U_T (30% dip of U_T) during 25 periods < 5% U_T (> 95% dip of U_T) during 5 s	Not applicable	The quality of the supply voltage should correspond to the voltage of a typical commercial or hospital environment. If the user of the model TEN 250 requires a continuous function also when interruptions in the energy supply occur, it is recommended to supply the model TEN 250 from an uninterruptible power source or a battery.
Magnetic fields at the power frequency (50/60 Hz) according to IEC 61000-4-8	3 A/m	3 A/m	Magnetic fields at the power frequency should correspond to typical values that can be found in a commercial or hospital environment.
NOTE U_T is the alternating mains voltage prior to application of test levels.			

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21.0 Information regarding electromagnetic immunity

Guidelines and manufacturer's declaration – electromagnetic immunity			
The model TEN 250 is intended for operation in an electromagnetic environment as specified below. The customer or the user of the model should ensure that it is used in such an environment.			
Immunity tests	**IEC 60601 – test level**	**Conformity level**	**Electromagnetic environment – guidelines**
			Portable and mobile radio devices should not be used in closer proximity to the [device or system] including the cables as the recommended protective distance calculated in accordance with the formula for the respective transmission frequency. **Recommended protective distance:**
Conducted HF disturbances according to IEC 61000-4-6	3 Vrms 150 kHz to 80 Mhz	3 Vrms	$d = 1.2\sqrt{P}$
Radiated HF disturbances according to IEC 61000-4-3	3 V/m 80 MHz to 2.5 Ghz	3 V/m	$d = 1.2\sqrt{P}$ 80 MHz to 800 MHz
			$d = 2.3\sqrt{P}$ 800 MHz to 2.5 GHz
			Where P is the rated power of the transmitter in watt (W) according to the specification of the transmitter manufacturer and d is the recommended protective distance in metres (m). According to an on-site[a] investigation, the field strength of stationary radio transmitters is in all frequencies lower than the conformity level.[b] Disturbances are possible in the vicinity of devices carrying the following symbol. 
NOTE 1 For 80 MHz and 800 MHz, the higher value is applicable. **NOTE 2** These guidelines might not apply to all situations. The spreading of electromagnetic waves is influenced by absorptions and reflections of buildings, objects and people.			

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21.0 Information regarding electromagnetic immunity

a. Theoretically, the field strength of stationary transmitters, such as base stations of wireless telephones and land mobile services, amateur radio stations, AM and FM radio and television stations, cannot be predicted precisely. An investigation of the site is recommended to determine the electromagnetic environment due to stationary HF transmitters. If the determined on-site field strength of the model TEN 250 exceeds the conformity level specified above, the normal operation of the model TEN 250 must be observed at every application site. If unusual performance characteristics are observed, additional measures might have to be taken, such as reorientation or relocation of the model TEN 250. **b.** Not applicable above the frequency range from 150 kHz to 80 Mhz.

Recommended protective distances between portable and mobile HF telecommunication devices and the [DEVICE or the SYSTEM].

The model TEN 250 is intended for operation in an electromagnetic environment in which the HF disturbances are controlled. The customer or user of the model TEN 250 may contribute to the avoidance of electromagnetic disturbances by observing the minimum distance between portable and mobile HF telecommunication devices (transmitters) and the model TEN 250, depending on the output rating of the communication device as specified below.

Rated power of the transmitter W	Protective distance depends on the transmission frequency m		
	150 kHz to 80 Mhz d=1.2 P	80 Mhz to 800 Mhz d=1.2	800 Mhz to 2.5 Ghz d=2.3
0.01	**0.12**	**0.12**	**0.23**
0.1	**0.38**	**0.38**	**0.73**
1	**1.2**	**1.2**	**2.3**
10	**3.8**	**3.8**	**7.3**
100	**12**	**12**	**23**

For transmitters whose rated power is not specified in the table above, the distance can be caculated with the help of the formula of the respective column, with P being the rated power of the transmitter in watt (W) in accordance with the specification of the transmitter manufacturer.

NOTE 1 For the calculation of the recommended protective distance of transmitters in the frequency range from 80 MHz to 2.5 GHz, an additional factor of 10/3 was used to minimise the possibility that a mobile/portable communication device unintentionally brought into the patient area could lead to disturbances.
NOTE 2 These guidelines might not apply to all situations. The spreading of electromagnetic waves is influenced by absorptions and reflections of buildings, objects and people.

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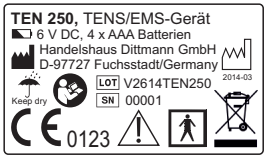
22.0 Technical specification, symbols, pictograms

Model type:	TEN 250
Dimensions (L x W x H):	approx. 116 x 60 x 30 mm
Weight:	approx. 100 g (without batteries)
Surface adhesive electrodes:	40 x 40 mm (16 cm²)
Material:	Plastics, metals
LOT	Lot designation: LOT V2614TEN250
SN	Serial number: SN 00001 (consecutive number)
2014-03	Date of manufacture: 2014-03 (year-month)
CE 0123	The TEN 250 device is certified in accordance with the EU Council Directive 93/42 EEC for medical devices (Medical Devices Directive).
	Manufacturer: Handelshaus Dittmann GmbH, Kissinger Straße 68, D-97727 Fuchsstadt / Germany
	Protection against electric shock according to type BF (body floating). A therapy device of the type BF with a higher degree of protection against electric shock on the body, but not directly on the heart.

Type plate of the device:



Electrical data:

Power supply:	6.0 V DC, 4 x AAA batteries (V= volt, DC= direct current)
Pulse voltage (V):	0-60 volt at a load of 1,000 ohm per channel
Frequency (Hz):	TENS 1-100 Hz, EMS 8-80 Hz, MASSAGE 2-290 Hz (vibrations per second)
Pulse width (duration):	TENS 50-300 µs, EMS 150-350 µs, MASSAGE 30-300 µs (microseconds)
Pulse strength (mA):	0-90 mA at a load of 1,000 ohm, direct current (mA=milliampere, ohm= electric resistance)
Power consumption:	< 200 mA
Electrical tolerances:	+/- 20 % at a load of 1,000 ohm
Signal form:	Bipolar (symmetrically two-phase)
LED equipment:	LED lights correspond to class I
Output channels:	2 channels whose intensity can be adjusted separately

Application data:

Ambient temperature:	5 °C - 40 °C (degree Celsius)
Max. air humidity at normal operation:	30% - 75% (per cent)
Atmospheric pressure:	700hPa – 1,060hPa (hectopascal)

Storage / transport data:

	Storage / transport temperature: 10 °C - 55 °C (degree Celsius)
	Max. air humidity during storage and transport: 10% - 95% (per cent)
Atmospheric pressure:	700hPa – 1,060hPa (hectopascal)

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23.0 Terms of warranty

The TENS/EMS device TEN 250 has been developed and manufactured with great care.

The statutory warranty period is 24 months as of the purchase date for material and manufacturing defects of the product. Please keep the receipt as proof of the purchase of the TENS/EMS device TEN 250 in order to be able to assert a possible warranty claim.

The warranty does not include:
- damage due to incorrect usage
- defects that were already known to the customer when purchasing the product
- wear and tear parts
- damage due to unauthorised interventions and personal negligence on the customer's part

After the expiration of the warranty period you may send a defective TENS/EMS device TEN 250 to the address specified below for repair. Repairs after the expiration of the warranty period are subject to charge.

Do not hesitate to contact us if technical problems, questions and warranty claims concerning this TENS/EMS device TEN 250 arise:

NOTE: Please contact the service centre in the event of a complaint concerning the TENS/EMS device TEN 250!
If necessary, the service centre will arrange for the collection of the device.
Only PREPAID parcels are accepted by the service centre!

Handelshaus Dittmann GmbH
Abteilung Service-Center
Kissinger Straße 68
D-97727 Fuchsstadt/Germany
E-mail: hotline@servicecenter.tv
Telephone hotline: +49 0180 5012678 (€ 0.14/min German landline; max. € 0.42/min mobile phone networks)
www.dittmann-gmbh.com

Yours sincerely

Manufacturer: Handelshaus Dittmann GmbH
Kissinger Straße 68
D-97727 Fuchsstadt/Germany
www.dittmann-gmbh.com

1215714-Technical documentation by www.dittmann-consulting.com

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