

beurer

EM 49



EN Digital EMS/TENS unit
Instructions for use

CE 0483

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Read these instructions for use carefully and keep them for later use, be sure to make them accessible to other users and observe the information they contain.

Signs and symbols

	WARNING Warning instruction indicating a risk of injury or damage to health
	IMPORTANT Safety note indicating possible damage to the device/ accessory
	Note Note on important information
	Observe the instructions for use
IP22	Protected against ingress of solid foreign objects greater than 12.5 mm in diameter. Protected against drops of water falling at up to 15° from vertical.
	Serial number
	Application part, type BF
	Disposal in accordance with the Waste Electrical and Electronic Equipment EC Directive – WEEE

	The CE labelling certifies that the product complies with the essential requirements of Directive 93/42/EEC on medical products.
	Manufacturer
	The device can emit effective output values above 10 mA, averaged over every five-second interval
	Certification symbol for products that are exported to the Russian Federation and CIS countries.

C	4 x adhesive electrodes (45 x 45 mm)
D	3 x AAA batteries

1. Getting to know your device

What is a digital EMS/TENS unit and what can it do?

Digital EMS/TENS units fall into the electrostimulation device category. They provide three basic functions suitable for combined operation:

1. Electrical stimulation of nerve tracts (TENS)
2. Electrical stimulation of muscle tissue (EMS)
3. A massage effect triggered by electrical signals

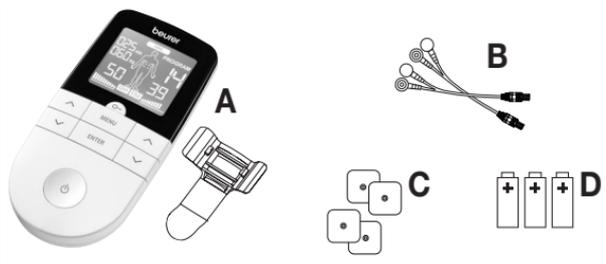
The unit also features two independent stimulation channels and four self-adhesive electrodes. It offers a wide range of functions for increasing general well-being, pain relief, maintaining physical fitness, relaxation, muscle revitalisation and combating tiredness. For these purposes, you can either choose from pre-set programs or specify your own to suit your individual needs.

The principle of electrostimulation devices is based on the imitation of impulses in our bodies that are transferred to nerve and muscle fibres using electrodes via our skin. The electrodes can be applied to many parts of the body; the electrical impulses are completely harmless and virtually painless. In certain applications you will merely notice a slight tingling or vibrating sensation. The electrical impulses that are sent into the tissue influence the transmission of stimulation into nerves, nerve centres and muscle groups in the application area.

Electrostimulation usually only has an effect after regular applications. With regard to muscles, electrostimulation does not replace regular training. However, it is a sensible, supplementary training element.

Delivery scope and accessories

Check that the set packaging has not been tampered with and make sure that all components are present. Before use, ensure that there is no visible damage to the device or accessories and that all packaging material has been removed. If you have any doubts, do not use the device and contact your retailer or the specified Customer Services address.

	
A	1 x digital EMS/TENS unit (including belt clip)
B	2 x connection cable

TENS, or transcutaneous electrical nerve stimulation, relates to the electrical stimulation of the nerves via the skin. TENS is an effective non-pharmacological method of treating different types of pain that have a variety of causes. It has no side-effects if administered correctly. The method has been clinically tested and approved and can be used for simple self-treatment. The pain-relieving or pain-suppressing effect is achieved by inhibiting the transference of pain to nerve fibres (caused mainly by high-frequency impulses) and by increasing the secretion of endorphins in the body. Their effect on the central nervous system reduces the sensation of pain. The method is scientifically substantiated and approved as a form of medical treatment.

Any symptoms that could be relieved using TENS must be checked by your GP. Your doctor will also give you instructions on how to carry out a TENS self-treatment regime.

TENS is clinically tested and approved to treat the following complaints:

- Back pain, particularly in the lumbar/cervical spine area
- Sore joints (e.g. knee, hip and shoulder joints)
- Neuralgia
- Menstrual cramps in women
- Pain resulting from injury to the musculoskeletal system
- Pain caused by circulatory disorders
- Chronic pain with various causes.

Electrical muscle stimulation (EMS) is a widespread and generally recognised method and has been used in sports medicine and rehabilitation for years. In sports and fitness, EMS is used to complement conventional muscle training, to increase the performance of muscle groups and to adjust physical proportions to achieve the desired aesthetic results. There are two different types of EMS application: one is for targeted strengthening of the muscles (activating application), and the other is to achieve a relaxing, restful effect (relaxing application).

The activating application involves:

- Muscle training to increase endurance and/or

- Muscle training to support the strengthening of specific muscles or muscle groups, and to achieve the desired changes to physical proportions

The relaxing application involves:

- Muscle relaxation for easing muscle tension
- Improving symptoms of muscular fatigue
- Acceleration of muscle regeneration after high muscle performance (e.g. after a marathon)

Thanks to **integrated massage technology**, digital EMS/TENS units are also able to relieve muscle tension and combat fatigue with a program based on the sensation and effects of a real massage.

The positioning suggestions and program tables in these instructions for use allow you to quickly and simply determine the corresponding application (depending on the affected area of the body) and set the unit to achieve the desired effects.

Thanks to the two separately adjustable channels, the digital EMS/TENS unit offers you the advantage of being able to set the intensity of the impulses independently from each other for two treatment areas on the body, for example to cover both sides of your body or to evenly stimulate larger areas of tissue. The option to individually set the intensity of each channel also enables you to treat two separate areas of the body simultaneously instead of having to treat the individual areas in turn, which saves you time.

2. Important notes

The device is not a substitute for medical consultation and treatment. Consult your doctor first if you are experiencing any pain or are suffering from an illness.

 **WARNING!**

To avoid damage to health, we strongly advise against using the digital EMS/TENS unit in the following situations:

- With implanted electrical devices (such as a pacemaker)
- In the case of metal implants



- If you use an insulin pump
- If you have a high temperature (e.g. > 39°C)
- If you have a known or acute cardiac arrhythmia, or disorders of the heart's impulse and conduction system
- If you suffer from a seizure disorder (e.g. epilepsy)
- If you are pregnant
- If you have cancer
- After an operation, if strong muscle contractions could affect the healing process
- The device must never be used near to the heart. The stimulation electrodes must not be placed on any part of the front ribcage (where the ribs and breastbone are located), especially not on the two large pectorals. this can increase the risk of ventricular fibrillation and induce cardiac arrest.
- On the skeletal skull structure, or around the mouth, throat or larynx
- In the neck/carotid artery area
- In the genital area
- On acutely or chronically diseased (injured or irritated) skin (e.g. inflamed skin – whether painful or not, reddened skin, rashes, e.g. allergies, burns, bruises, swellings, both open and healing wounds, and post-operative scars where the healing process could be affected)
- In humid environments (e.g. in the bathroom) or when bathing or showering
- Do not use after consuming alcohol
- If connected to a high-frequency surgical device
- In the case of acute or chronic diseases of the gastrointestinal tract
- The stimulation should not be applied across or through the head, directly on the eyes, covering the mouth, on the front of the neck, (especially the carotid sinus), or from electrodes placed on the chest and the upper back or crossing over the heart.



Before using the device, consult your doctor if any of the following applies to you:

- Serious illnesses, in particular if you suspect or have been diagnosed with high blood pressure, a blood coagulation disorder, propensity to thrombo-embolic conditions or recurrent malignant growths
- Any skin conditions
- Unexplained chronic pain in any part of the body
- Diabetes
- Any sensory impairment that reduces the feeling of pain (e.g. metabolic disorders)
- If you are receiving medical treatment
- In the event of complaints linked to stimulation treatment
- If you suffer from persistently irritated skin due to long-term stimulation at the same electrode site

⚠ IMPORTANT!

Only use digital EMS/TENS units:

- On people
- For the intended purpose and as specified in these instructions for use. Improper use can be dangerous.
- For external use
- With the original accessories supplied, which can be re-ordered. Failure to do so invalidates the warranty.

PRECAUTIONS:

- Always pull firmly on electrodes to remove them from the skin to prevent injuries in the unusual case of highly sensitive skin.
- Keep the device away from sources of heat and do not use it in close proximity (approx. 1 m) to shortwave or microwave devices (e.g. mobile phones), as doing so can result in unpleasant current peaks.
- Do not expose the device to direct sunlight or high temperatures.
- Protect the device from dust, dirt and humidity.
- Never immerse the device in water or other liquids.
- The device is suitable for self-treatment.

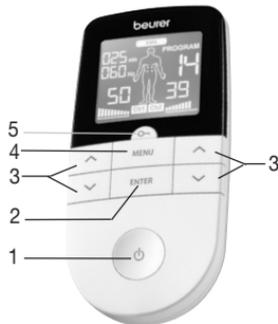
- For hygiene reasons, the electrodes may only be used on one person.
 - If the device does not work properly, or you feel unwell or experience pain, stop using it immediately.
 - Switch off the unit or the respective channel first before removing or relocating electrodes to prevent unintentional stimulation.
 - Do not modify electrodes (e.g. by cutting them). This increases the current intensity, which is potentially hazardous (max. recommended output value for the electrodes is 9 mA/cm², an effective current intensity beyond 2 mA/cm² requires increased awareness).
 - Do not use the device whilst asleep, driving a vehicle or operating machinery.
 - Do not use whilst undertaking any activity where an unexpected reaction (e.g. strong muscle contractions even at low intensity) could be dangerous.
 - Ensure that no metallic objects (e.g. belt buckles or necklaces) come into contact with the electrodes during stimulation. If you are wearing jewellery or have piercings in the area to be treated (e.g. a navel piercing), these must be removed before using the device. Failure to do so could result in spot burns.
 - Keep the device away from children.
 - Make sure not to confuse the electrode cables including contacts with your headphones or other devices and do not connect the electrodes to other devices.
 - Do not use the device whilst using other devices that transmit electrical impulses into your body.
 - Do not use in the vicinity of highly flammable substances, gases or explosives.
 - Do not use rechargeable batteries and always use the same battery types.
 - During the initial few minutes, use the device while sitting or lying down to minimise the risk of injuries as a consequence of isolated cases of vagal responses (feeling of faintness). If you feel faint, immediately switch off the device, lie down and support the legs in an elevated position (approx. 5– 10 min).
 - Treatment of the skin with moisturising lotions or ointments beforehand is not recommended as this considerably increases the electrode wear and may cause unpleasant current peaks.
 - This device is not intended for use by children or people with restricted physical, sensory (e.g. reduced sensitivity to pain) or mental skills or a lack of experience and/or lack of knowledge, unless they are supervised by a person who is responsible for their safety or are instructed by such a person in how to use the device.
 - If the adhesive capability of the adhesive electrodes decreases, please replace them immediately. Only use the device again with new adhesive electrodes. Otherwise the unequal adhesion of the adhesive electrodes may lead to skin injuries. Replace the electrodes with new ones after having used them 20 times at the latest.
- Damage**
- If the device is damaged, do not use it and contact your retailer or the specified Customer Services address.
 - In order to perform the effectiveness of function by the device, do not drop the device or disassemble the device.
 - Check the device for signs of wear and tear or damage. If there are such signs of wear and tear or damage or if the device was used improperly, it must be returned to the manufacturer or retailer before further use.
 - Switch the device off immediately if it is faulty or not working properly.
 - Do not attempt to open and/or repair the device yourself. Repairs may only be carried out by Customer Services or authorised retailers. Failure to comply will result in voiding of the warranty.
 - The manufacturer is not liable for damage resulting from improper or careless use.
- Notes on handling batteries**
-  If your skin or eyes come into contact with battery fluid, rinse the affected areas with water and seek medical assistance.

- Choking hazard! Small children may swallow and choke on batteries. Store the batteries out of the reach of small children.
- Observe the plus (+) and minus (-) polarity signs.
- If a battery has leaked, put on protective gloves and clean the battery compartment with a dry cloth.
- Protect batteries from excessive heat.
- Risk of explosion! Never throw batteries into a fire.
- Do not charge or short-circuit batteries.
- If the device is not to be used for a relatively long period, take the batteries out of the battery compartment.
- Use identical or equivalent battery types only.
- Always replace all batteries at the same time.
- Do not use rechargeable batteries.
- Do not disassemble, open or crush the batteries.

3. Device description

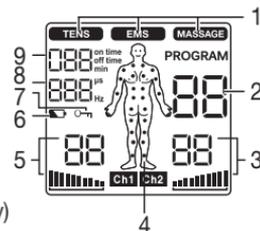
Buttons:

- 1 ON/OFF button
- 2 **ENTER** button
- 3 Setting buttons
(**Ch1** **∧/∨** left, **Ch2** **∧/∨** right)
- 4 **MENU** button
- 5 Keylock



Display (full screen):

- 1 Menu **TENS** / **EMS** / **MASSAGE**
- 2 Program number
- 3 Impulse intensity channel 2 (**Ch2**)
- 4 Electrode positioning indicator
- 5 Impulse intensity channel 1 (**Ch1**)
- 6 Low battery
- 7 Keylock
- 8 Display for frequency (Hz) and pulse width (μ s)
- 9 Timer function (remaining time display) or working time



4. Initial use

1. Remove the belt clip from the unit (if attached).
2. Press the battery compartment cover on the rear of the device and slide it downwards.
3. Insert the three alkaline AAA 1.5V batteries. Make sure that the batteries are inserted the correct way round.
4. Close the battery compartment lid again carefully (Fig. 1).
5. Reattach the belt clip, if required.
6. Connect the connection cables with the electrodes (Fig. 2).

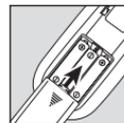


Fig. 1

7. Reattach the belt clip, if required.
 8. Connect the connection cables with the electrodes (Fig. 2).
- The electrodes feature clip closures to make connection particularly easy.
7. Guide the connection cable plugs into the socket on the top of the device (Fig. 3).
 8. Do not pull, twist or make sharp bends in the cables (Fig. 4).

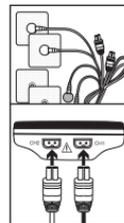


Fig. 3

- Please note that when the battery is replaced or removed, all settings are restored to the factory default settings.



Fig. 4

5. Use

5.1 Notes on use

- The device switches itself off automatically if it is not used for one minute (automatic switch-off). When the unit is switched on again, the LCD screen displays the menu selection and the most recently used menu flashes.
- A brief acoustic signal is output when a valid button is pressed. Two brief acoustic signals are output when an invalid button is pressed.
- You can pause the stimulation at any time by briefly pressing the ON/OFF button . To continue the stimulation, briefly press the ON/OFF button  again and set the desired impulse intensity again.

5.2 Starting application

Step 1: Look for a suitable program from the program tables (see section „6. Program overview“).

Step 2: Place the electrodes on the desired area for treatment (for positioning suggestions see section „6.4 Information regarding the positioning of electrodes“) and connect them to the device.

Step 3: Press the ON/OFF button  to switch on the device.

Step 4: Press the **MENU** button to navigate through the **TENS** / **EMS** / **MASSAGE** menus and press the **ENTER** button to confirm your selection.

Step 5: Use the \wedge/\vee setting buttons to select the program number you want and press the **ENTER** button to confirm your selection. At the start of the stimulation treatment, the impulse intensity of **Ch1** and **Ch2** is set to 00 by default. No impulses are sent to the electrodes yet.

Step 6: Use the left and right \wedge/\vee setting buttons for **Ch1** and **Ch2** to select the impulse intensity you want. The indicator for impulse

intensity in the display changes accordingly. If the program is in a pause phase, the intensity cannot be increased.

General information

If you wish to return to the previous selection menu, press the **MENU** button. By holding down the **ENTER** button, you can skip individual setting steps and start directly with the stimulation treatment.

Keylock

Locks the buttons to avoid them being pressed unintentionally.

1. To activate the keylock, hold down the  button until the symbol is visible in the display (approx. 3 seconds).
2. To deactivate the keylock, hold down the  button until the symbol disappears from the display (approx. 3 seconds).

Pausing application

You can pause the stimulation at any time by briefly pressing the ON/OFF button . To continue the stimulation, briefly press the ON/OFF button  again and set the desired impulse intensity again.

6. Program overview

The digital EMS/TENS unit features a total of over 70 programs:

- 15 TENS programs
- 35 EMS programs
- 20 MASSAGE programs

In all programs you can set the impulse intensity of both channels individually.

You can also set various parameters in the TENS programs 13 – 15 and the EMS programs 33 – 35 to adjust the stimulating effect to the application area.

6.1 TENS program table

Progr. no.	Area of application, indications	Running time (min)	Possible electrode positions
1	Pain in upper limbs 1	30	12-17
2	Pain in upper limbs 2	30	12-17
3	Pain in lower limbs	30	23-27
4	Ankle pain	30	28
5	Shoulder pain	30	1-4
6	Pain in the back	30	4-11
7	Pain in bottom and back of thighs	30	22, 23
8	Pain relief 1	30	1-28
9	Pain relief 2	30	1-28
10	Endorphin effect (burst)	30	1-28
11	Pain relief 3	30	1-28
12	Pain relief – chronic pain	30	1-28

i TENS programs 13-15 can be set individually (see section „7. Customisable programs“).

Note: See section 6.4 for the correct electrode position.

6.2 EMS program table

Progr. no.	Area of application, indications	Running time (min)	Possible electrode positions
1	Warming up	30	1-27
2	Capillarisation	30	1-27
3	Strengthening the upper arm muscles	30	12-15
4	Maximising the strength of the upper arm muscles	30	12-15
5	Explosive force of the upper arm muscles	30	12-15
6	Tightening the upper arm muscles	30	12-15
7	Shaping the upper arm muscles	30	12-15
8	Tightening the lower arm muscles	30	16-17
9	Maximising the strength of the lower arm muscles	30	16-17
10	Shaping the lower arm muscles	30	16-17
11	Tightening the abdominal muscles	30	18-20
12	Maximising the strength of the abdominal muscles	30	18-20
13	Shaping the abdominal muscles	30	18-20
14	Toning the abdominal muscles	30	18-20
15	Strengthening the thigh muscles	30	23, 24
16	Maximising the strength of the thigh muscles	30	23, 24
17	Explosive force of the thigh muscles	30	23, 24
18	Shaping the thigh muscles	30	23, 24
19	Toning the thigh muscles	30	23, 24
20	Strengthening the lower leg muscles	30	26, 27
21	Maximising the strength of the lower leg muscles	30	26, 27
22	Explosive force of the lower leg muscles	30	26, 27
23	Shaping the lower leg muscles	30	26, 27
24	Toning the lower leg muscles	30	26, 27
25	Strengthening the shoulder muscles	30	1-4
26	Maximising the strength of the shoulder muscles	30	1-4

Progr. no.	Area of application, indications	Running time (min)	Possible electrode positions
27	Tightening the shoulder muscles	30	1-4
28	Strengthening the lower back muscles	30	4-11
29	Maximising the strength of the lower back muscles	30	4-11
30	Tightening the gluteal muscles	30	22
31	Strengthening the gluteal muscles	30	22
32	Maximising the strength of the gluteal muscles	30	22

 EMS programs 33 - 35 can be set individually (see section „7. Customisable programs“).

Note: See section 6.4 for the correct electrode position.

6.3 MESSAGE program table

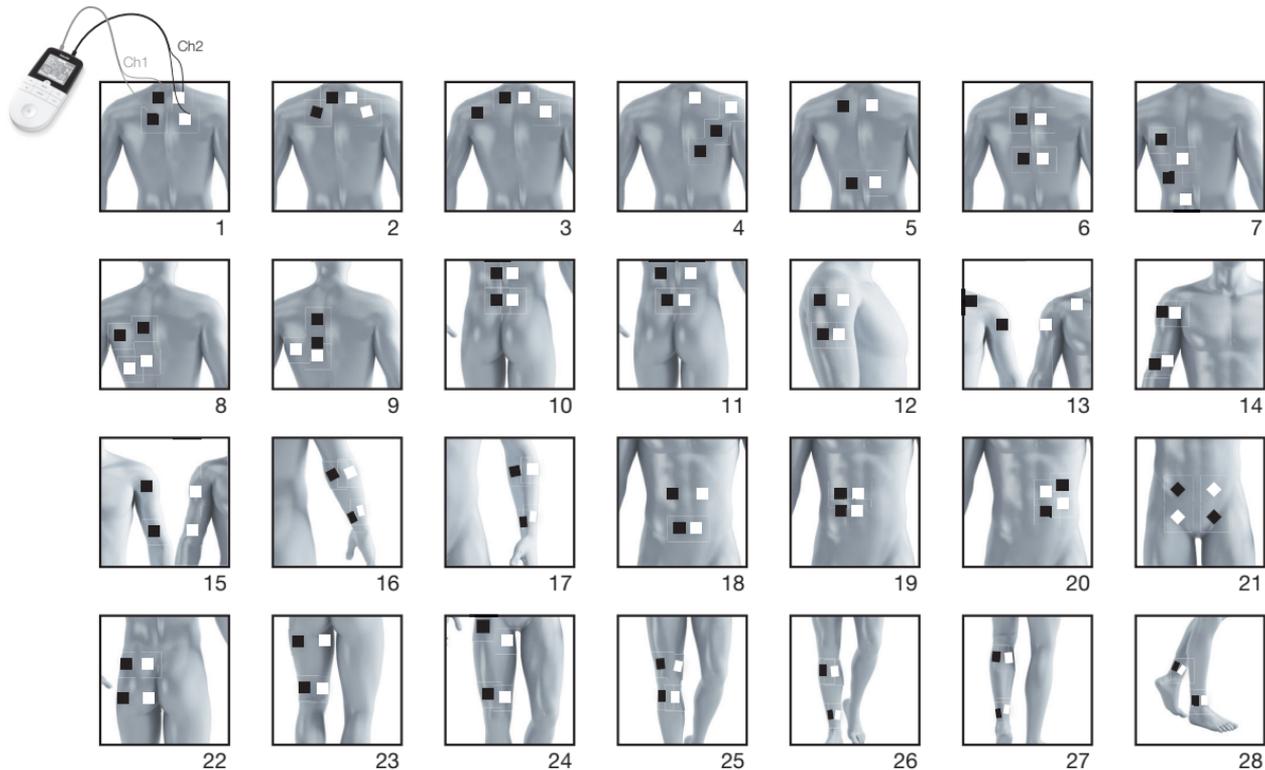
Progr. no.	Area of application, indications	Running time (min)	Possible electrode positions
1	Tapping massage 1	20	1-28
2	Tapping massage 2		
3	Tapping massage 3		
4	Kneading massage 1		
5	Kneading massage 2		
6	Pressure massage		
7	Relaxing massage 1		
8	Relaxing massage 2		
9	Relaxing massage 3		
10	Relaxing massage 4		
11	Spa massage 1		
12	Spa massage 2		
13	Spa massage 3		
14	Spa massage 4		
15	Spa massage 5		
16	Spa massage 6		
17	Spa massage 7		
18	Relaxing massage 1		
19	Relaxing massage 2		
20	Relaxing massage 3		

Note: See section 6.4 for the correct electrode position.

WARNING!

Do not apply the electrodes to the front wall of the chest, i.e. do not massage the large left and right pectoral muscles.

6.4 Information regarding the positioning of electrodes



It is fundamental to the intended success of electrostimulation applications that electrodes are positioned sensibly. We recommend that you consult your doctor to establish the ideal electrode positions for your intended application area.

The figure on the display is intended as an initial aid to help you position the electrodes.

The following applies to the selection of electrode positions:

Electrode distance

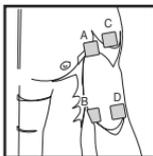
The larger the distance between electrodes, the larger the stimulated tissue volume. This applies to the area and depth of the tissue volume. At the same time, however, the stimulation intensity of the tissue falls the further the electrodes are apart. As a result, greater distances between electrodes mean a larger tissue volume is stimulated, but less intensively. Consequently, you must increase the impulse intensity to boost stimulation.

The following guideline applies to selection of the electrode distance:

- Sensible distance: approx. 5– 15 cm
- At distances below 5 cm, the unit primarily stimulates surface structures intensively
- At distances in excess of 15 cm, large areas and deep structures are stimulated very weakly

Relationship between electrodes and muscle fibre structures

Adapt the current flow direction to the fibre structure of the muscle according to the muscle layer you would like to treat. If you are targeting superficial muscles, position the electrodes in parallel to the fibre structure (A–B / C–D) and if you are targeting deeper layers of tissue, position the electrodes across the fibre structure. You can do this by positioning electrodes as crosses (i.e. diagonally), such as A–D / B–C.



- As part of pain relief treatment (TENS) using the digital EMS/TENS unit and its 2 separately adjustable channels and 2 adhesive electrodes each, it is advisable either to position the

electrodes of a channel so that the area affected by the pain is between the electrodes or to position one electrode directly on the area affected by the pain and the other electrode at a minimum distance of 2–3 cm.

You may use the electrodes of the second channel to simultaneously treat additional areas affected by pain or use them in conjunction with the electrodes of the first channel to restrict the area affected by pain (position electrodes opposite). In this case, we once again recommend positioning electrodes as crosses.

- **i** Tip for the massage function: always use all four electrodes for optimum treatment.
- **i** Use the electrodes on skin that is clean and preferably free from hair and grease in order to prolong the life of the electrodes. If required, clean the skin with water and remove hair prior to treatment.
- **i** If an electrode should come loose during use, the impulse intensity of both channels is reduced to the lowest level. Apply the electrode again and reset the desired impulse intensity.

7. Customisable programs

(Applies for TENS 13-15, EMS 33-35)

The programs TENS 13-15 and EMS 33-35 can be customised according to your needs.

TENS 13 program

TENS 13 is a program that you can also customise. In this program, you can set the impulse frequency to between 1 and 150 Hz and the impulse width to between 80 and 250 μ s.

1. Place the electrodes on the desired area for treatment (for positioning suggestions see section “6.4 Information regarding the positioning of electrodes”) and connect them to the device.
2. Select the TENS 13 program as described in section “5.2 Starting application” (step 3 to step 5).

3. Use the Δ/V setting buttons to select the impulse frequency you want and use the **ENTER** button to confirm.
4. Use the Δ/V setting buttons to select the impulse width you want and use the **ENTER** button to confirm.
5. Use the Δ/V setting buttons to select the treatment time you want and use the **ENTER** button to confirm.
6. Use the left and right Δ/V setting buttons for **Ch1** and **Ch2** to select the impulse intensity you want.

TENS 14 program

The TENS 14 program is a **burst** program that you can also customise. Various impulse sequences run in this program. Burst programs are suitable for all areas of application to be treated with changing signal patterns (to minimise the level of accustoming to the treatment). In this program you can set an impulse width of between 80 and 250 μ s.

1. Place the electrodes on the desired area for treatment (for positioning suggestions see electrode positions in section 6.4) and connect them to the device.
2. Select the TENS 14 program as described in section “5.2 Starting application” (step 3 to step 5).
3. Use the Δ/V setting buttons to select the impulse width you want and use the **ENTER** button to confirm.
4. Use the Δ/V setting buttons to select the treatment time you want and use the **ENTER** button to confirm.
5. Use the left and right Δ/V setting buttons for **Ch1** and **Ch2** to select the impulse intensity you want.

TENS 15 program

TENS 15 is a program that you can also customise. In this program, you can set the impulse frequency to between 1 and 150 Hz. The impulse width changes automatically during the stimulation treatment.

1. Place the electrodes on the desired area for treatment (for positioning suggestions see electrode positions in section 6.4) and connect them to the device.
2. Select the TENS 15 program as described in section “5.2 Starting application” (step 3 to step 5).
3. Use the Δ/V setting buttons to select the impulse frequency you want and use the **ENTER** button to confirm.
4. Use the Δ/V setting buttons to select the treatment time you want and use the **ENTER** button to confirm.
5. Use the left and right Δ/V setting buttons for **Ch1** and **Ch2** to select the impulse intensity you want.

EMS 33 program

EMS 33 is a program that you can also customise. In this program, you can set the impulse frequency to between 1 and 150 Hz and the impulse width to between 80 and 320 μ s.

1. Place the electrodes on the desired area for treatment (for positioning suggestions see electrode positions in section 6.4) and connect them to the device.
2. Select the EMS 33 program as described in section “5.2 Starting application” (step 3 to step 5).
3. Use the Δ/V setting buttons to select the impulse frequency you want and use the **ENTER** button to confirm.
4. Use the Δ/V setting buttons to select the impulse width you want and use the **ENTER** button to confirm.
5. Use the Δ/V setting buttons to select the treatment time you want and use the **ENTER** button to confirm.
6. Use the left and right Δ/V setting buttons for **Ch1** and **Ch2** to select the impulse intensity you want.

EMS 34 program

EMS 34 is a program that you can also customise. In this program, you can set the impulse frequency to between 1 and 150 Hz and the impulse width to between 80 and 450 μ s. You can also set the

working time and pause time for this program to between 1 and 30 seconds each.

1. Place the electrodes on the desired area for treatment (for positioning suggestions see electrode positions in section 6.4) and connect them to the device.
2. Select the EMS 34 program as described in section “5.2 Starting application” (step 3 to step 5).
3. Use the \wedge/V setting buttons to select the working time (“on time”) you want and use the **ENTER** button to confirm.
4. Use the \wedge/V setting buttons to select the pause time (“off time”) you want and use the **ENTER** button to confirm.
5. Use the \wedge/V setting buttons to select the impulse frequency you want and use the **ENTER** button to confirm.
6. Use the \wedge/V setting buttons to select the impulse width you want and use the **ENTER** button to confirm.
7. Use the \wedge/V setting buttons to select the treatment time you want and use the **ENTER** button to confirm.
8. Use the left and right \wedge/V setting buttons for **Ch1** and **Ch2** to select the impulse intensity you want.

EMS 35 program

EMS 35 is a **burst** program that you can also customise. Various impulse sequences run in this program. Burst programs are suitable for all areas of application to be treated with changing signal patterns (to minimise the level of accustoming to the treatment). In this program, you can set the impulse frequency to between 1 and 150 Hz and the impulse width to between 80 and 450 μ s. You can also set the working time and pause time for this program to between 1 and 30 seconds each.

1. Place the electrodes on the desired area for treatment (for positioning suggestions see electrode positions in section 6.4) and connect them to the device.
2. Select the EMS 35 program as described in section “5.2 Starting application” (step 3 to step 5).

3. Use the \wedge/V setting buttons to select the working time (“on time”) you want and use the **ENTER** button to confirm.
4. Use the \wedge/V setting buttons to select the pause time (“off time”) you want and use the **ENTER** button to confirm.
5. Use the \wedge/V setting buttons to select the impulse frequency you want and use the **ENTER** button to confirm.
6. Use the \wedge/V setting buttons to select the impulse width you want and use the **ENTER** button to confirm.
7. Use the \wedge/V setting buttons to select the treatment time you want and use the **ENTER** button to confirm.
8. Use the left and right \wedge/V setting buttons for **Ch1** and **Ch2** to select the impulse intensity you want.

8. Doctor's function

The Doctor's function is a special setting to allow you to access your personal program even more easily and directly.

Your individual program settings are instantly recalled and activated when the device is switched on.

You may wish to adjust this individual program following advice from your doctor.

Setting the Doctor's function

- Select your program and the corresponding settings as described in section “5.2 Starting application”.
- At the start of the stimulation treatment, the impulse intensity of **Ch1** and **Ch2** is set to 00 by default. No impulses are sent to the electrodes yet. Before setting the desired impulse intensity using the intensity setting buttons, press and hold the **Ch2** ∇ -button for 5 seconds. Storage in the Doctor's function is confirmed with a long acoustic signal.

If you switch on the device again, the program you saved using the Doctor's function is automatically opened directly.

Deleting the Doctor's function

To clear the device again and to re-allow access to other programs, press and hold the **Ch2** ∇ -button again for approx. 5 seconds. To do this, the impulse intensity of **Ch1** and **Ch2** must be set to 00.

Deletion of the Doctor's function is confirmed with a long acoustic signal.

Therapy memory

The EM49 records the treatment time. To reach the therapy memory, switch the device on using the ON/OFF  button and press and hold the button **Ch2**  for 5 seconds. The treatment time lapsed appears in the display. The top two numbers stand for minutes; the hours are shown below. To reset the treatment time, press and hold the button **Ch2**  for 5 seconds. When replacing the battery, the therapy memory is automatically reset. Press the „Menu“ button to return to selecting a program, or switch the device off. Info: Therapy memory cannot be accessed if the Doctor's function is activated.

9. Current parameters

Electrostimulation units operate with the following current settings, which may affect stimulation effects differently, depending on the setting:

9.1 Impulse shape

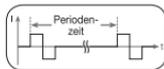
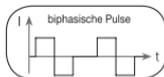
This describes the time function of the electrical impulse.

It distinguishes between monophasic and biphasic pulse currents. In monophasic pulse currents, the current flows in one direction and in biphasic pulse currents the electrical impulse alternates its direction.

The digital EMS/TENS unit only provides biphasic pulse currents as these relieve muscles, cause little muscle fatigue and provide safer application.

9.2 Impulse frequency

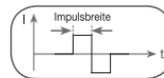
The frequency indicates the number of individual impulses each second and is given in Hz (Hertz). It can be calculated by determining the cyclic value for the time period. The relevant frequency determines which types of muscle fibres react favourably. Slow-reacting fibres react



more easily to lower impulse frequencies up to 15 Hz, whereas fast-reacting fibres only respond from approximately 35 Hz onwards. Impulses of approx. 45 – 70 Hz are linked with constant tension in the muscles and quicker fatigue. Higher impulse frequencies are therefore favourable in strength and maximum power training.

9.3 Impulse width

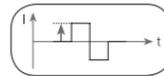
This indicates the duration of an individual impulse in microseconds. The impulse width therefore determines, among other things, the penetration of the electricity, where usually: larger muscle masses require larger impulse widths.



9.4 Impulse intensity

Setting the intensity levels depends on the individual sensitivity of each user and is determined by a variety of variables, such as site of application, blood circulation to the skin, skin thickness and the quality of the electrode contact. The setting used should be effective but should never cause an unpleasant sensation, such as pain, at the site of application. While a gentle tingling indicates sufficient stimulation energy levels, any setting that causes pain should be avoided.

During longer applications it may be necessary to make readjustments due to the adjustment processes over time at the site of application.



9.5 Cycled impulse parameter variation

In many cases it is necessary to cover the overall tissue structure at the site of application by applying several impulse parameters. In the digital EMS/TENS unit, this is achieved by the provided programs, which automatically make a cyclical impulse parameter change. This also prevents individual muscle groups at the site of application being affected by fatigue.

The digital EMS/TENS unit provides sensible default current parameter settings. With this, you can change the impulse intensity at any time during use. For 6 programs you can also set various parameters for stimulation yourself.

10. Cleaning and storage

Adhesive electrodes

- To ensure that the adhesive electrodes remain adhesive for as long as possible, clean them carefully with a damp, lint-free cloth or clean the underside of the electrodes under lukewarm, running water and pat dry with a lint-free cloth.

 Before cleaning with water, remove the connection cables from the electrodes.

- Reapply the electrodes to the carrier foil following treatment.

Cleaning the device

- Remove the batteries from the device before cleaning.
- Clean the device after use with a soft, slightly damp cloth. If it is very dirty, you can also moisten the cloth with a mild soapy solution.
- Do not use any chemical or abrasive cleaning agents.

 Ensure that no water enters the device.

Reuse of the device

Once it has been properly prepared, the device can be used again. Preparation includes replacement of the treatment electrodes as well as cleaning of the surface of the device using a cloth moistened with a mild soapy solution.

Storage

- Remove the batteries from the device if you will not be using it for a prolonged period of time. Leaking batteries may damage the device.
- Do not make sharp bends in the connection cables and electrodes.
- Disconnect the connection cables from the electrodes.
- Reapply the electrodes to the carrier foil after use.
- Store the device and accessories in a cool, well-ventilated space.
- Never place any heavy objects on the device.

11. Disposal

The empty, completely flat batteries should be disposed of through specially designated collection boxes, recycling points or

electronics retailers. You are legally required to dispose of the batteries.

Note: The codes below are printed on batteries containing harmful substances:

Pb = Battery contains lead, Cd = Battery contains cadmium, Hg = Battery contains mercury.

For environmental reasons, do not dispose of the device in the household waste at the end of its useful life. Dispose of the unit at a suitable local collection or recycling point. Dispose of the device in accordance with EC Directive – WEEE (Waste Electrical and Electronic Equipment). If you have any questions, please contact the local authorities responsible for waste disposal.



12. Problems/solutions

The device does not switch when the ON/OFF button  is pressed. How to proceed:

- (1) Ensure batteries have been inserted correctly and are in contact with the terminals.
- (2) Replace batteries, if applicable.
- (3) Contact Customer Services.

Electrodes do not adhere to the body. How to proceed:

- (1) Clean the adhesive surface of the electrodes using a damp, lint-free cloth. Replace the electrodes if they still do not adhere securely.
- (2) Clean the skin prior to any application; do not use skincare lotions or oils prior to treatment. Shaving may increase the life of electrodes.

There is no noticeable stimulation. How to proceed:

- (1) Press the ON/OFF button  to interrupt the program. Check the connection cables are correctly connected to the electrodes. Ensure the electrodes are in firm contact with the treatment area.
- (2) Ensure the connection plug is firmly connected to the device.
- (3) Press the ON/OFF button  to restart the program.
- (4) Check electrode positions and ensure that adhesive electrodes do not overlap.
- (5) Gradually increase the impulse intensity.
- (6) The batteries are almost empty. Replace the batteries.

The battery symbol is shown. How to proceed:

Replace all batteries.

You have an unpleasant sensation at the electrodes. How to proceed:

- (1) The electrodes are not positioned correctly. Check their positions and re-position, if necessary.
- (2) The electrodes are worn. This may cause irritated skin as even distribution of the current across the entire area is no longer guaranteed. For this reason, replace the electrodes.

Skin in the treatment area turns red. How to proceed:

Immediately stop treatment and wait until your skin has returned to its normal condition. If the redness is under the electrode and disappears quickly, there is no risk – this is caused by the locally stimulated, increased blood flow.

However, consult your doctor before you continue treatment if the skin irritation persists and this is accompanied by an itchy sensation or inflammation. This may be caused by an allergic reaction to the adhesive surface.

13. Replacement parts and wearing parts

You can obtain the following replacement parts directly from Customer Services:

Designation	Item number and/or order number
8 x adhesive electrodes (45 x 45 mm)	Item 661.02
4 x adhesive electrodes (50 x 100 mm)	Item 661.01

14. Technical specifications

Name and model	EM 49
Type	EM 49
Output waveform	Biphasic rectangular pulse
Pulse length	50–450 μ s

Pulse frequency	1 – 150 Hz
Output voltage	max. 100 Vpp (500 ohm)
Output current	max. 200 mApp (500 ohm)
Voltage supply	3 x AAA batteries
Treatment time	Adjustable from 5 to 100 minutes
Intensity	Adjustable from 0 to 50
Operating conditions	5°C–40°C (41°F–104°F) at a relative humidity of 15–93%
Storage conditions	-25°C–70°C (-13°F–158°F) at a relative humidity of 0–93%
Dimensions	132 x 63 x 29.5 mm (including belt clip)
Weight	83 g (including belt clip, without batteries), 117 g (including belt clip and batteries)
Use Altitude Limit	3000 m
Use Range Atmospheric Pressure	700 - 1060 hPa

The serial number is located on the device or in the battery compartment.

Note: If the device is not used according to the instructions specified, perfect functionality cannot be guaranteed!

We reserve the right to make technical changes to improve and develop the product.

This device complies with European standards EN60601-1 and EN60601-1-2 (In accordance with IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8 and IEC 61000-4-11) and is subject to special precautionary measures with regard to electromagnetic compatibility. Please note that portable and mobile HF communication systems may interfere with this unit.

More details can be requested from the stated Customer Services address or found at the end of the instructions for use.

This device meets the requirements of European Directive 93/42/EEC for medical products, as well as those of the Medizinproduktegesetz (German Medical Devices Act).

15. Notes on electromagnetic compatibility

WARNING!

- The device is suitable for use in all environments listed in these instructions for use, including domestic environments.
- The use of the device may be limited in the presence of electromagnetic disturbances. This could result in issues such as error messages or the failure of the display/device.
- Avoid using this device directly next to other devices or stacked on top of other devices, as this could lead to faulty operation. If, however, it is necessary to use the device in the manner stated, this device as well as the other devices must be monitored to ensure they are working properly.
- The use of accessories other than those specified or provided by the manufacturer of this device can lead to an increase in electromagnetic emissions or a decrease in the device's electromagnetic immunity; this can result in faulty operation.
- Keep portable RF communication devices (including peripheral equipment, such as antenna cables or external antennas) at least 30 cm away from all device parts, including all cables included in delivery. Failure to comply with the above can impair the performance of the device.
- Failure to comply with the above can impair the performance of the device.

16. Warranty/service

In case of a claim under the warranty please contact your local dealer or the local representation which is mentioned in the list "service international".

In case of returning the unit please add a copy of your receipt and a short report of the defect.

The following warranty terms shall apply:

1. The warranty period for BEURER products is either 5 years or- if longer- the country specific warranty period from date of Purchase. In case of a warranty claim, the date of purchase has to be proven by means of the sales receipt or invoice.
2. Repairs (complete unit or parts of the unit) do not extend the warranty period.
3. The warranty shall not be valid for damages because of
 - a. improper treatment, e.g. nonobservance of the user instructions.
 - b. repairs or tampering by the customer or unauthorised third parties.
 - c. transport from the manufacturer to the consumer or during transport to the service centre.
 - d. The warranty shall not be valid for accessories which are subject to normal wear and tear (cuff, batteries etc.).
4. Liability for direct or indirect consequential losses caused by the unit are excluded even if the damage to the unit is accepted as a warranty claim.

