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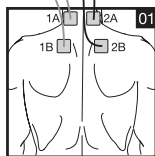
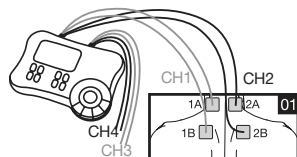
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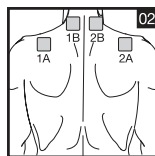
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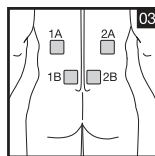




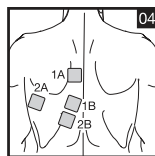
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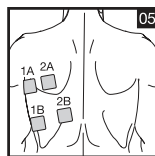
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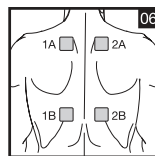
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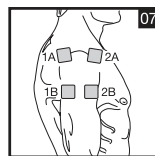
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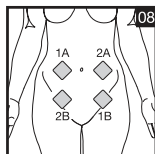
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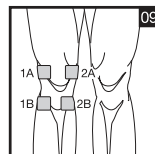
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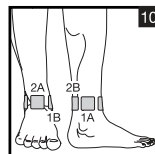
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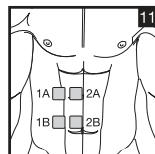
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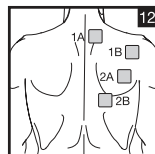
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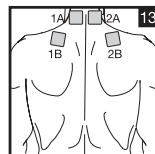
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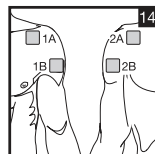
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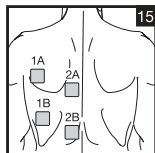
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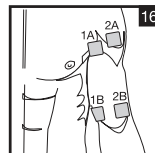
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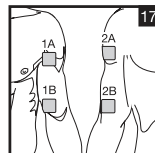
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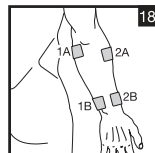
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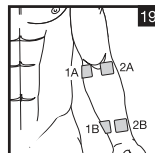
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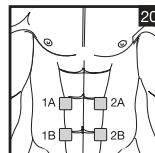
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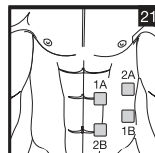
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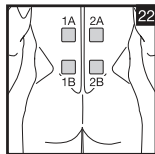
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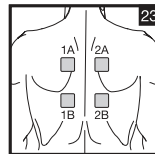
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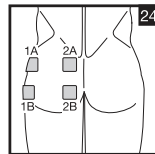
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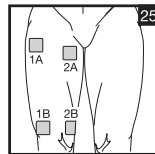
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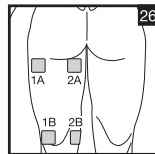
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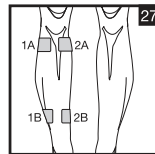
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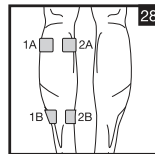
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


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## Table of Contents

Table of Contents .....	3
<b>1. Getting to know your device</b> .....	<b>4</b>
1.1 What is Digital TENS/EMS and what can it do? .....	4
1.2 Scope of supply .....	5
<b>2. Important Information</b> .....	<b>5</b>
<b>3. Current parameters</b> .....	<b>7</b>
3.1 Pulse shape.....	7
3.2 Pulse frequency.....	7
3.3 Pulse width.....	8
3.4 Pulse intensity .....	8
3.5 ON and OFF time .....	8
3.6 Cycle-controlled pulse parameter variation .....	8
<b>4. Unit description</b> .....	<b>8</b>
4.1 Description of components.....	8
4.2 Key functions .....	9
<b>5. Start-up</b> .....	<b>9</b>
<b>6. Programme overview</b> .....	<b>9</b>
6.1 Basic information .....	9
6.2 TENS programmes .....	10
6.3 EMS-Programme.....	11
6.4 MASSAGE programmes.....	12
6.5 Information on placing the electrodes .....	12
<b>7. Application</b> .....	<b>13</b>
7.1 Advice on application.....	13
7.2 Procedure for TENS, EMS and MASSAGE programmes 01-10 (quick start) .....	13
7.3 Procedure for TENS/EMS programmes 11 to 20 (individual pro- grammes) .....	13
7.4 Changes to the settings .....	14
7.5 Doctor's Function .....	14
<b>8. Cleaning and storage</b> .....	<b>14</b>
<b>9. Disposal</b> .....	<b>15</b>
<b>10. Problems and solutions</b> .....	<b>15</b>
<b>11. Technical details</b> .....	<b>16</b>
<b>12. Notes on electromagnetic compatibility</b> .....	<b>16</b>
<b>13. Replacement parts and wearing parts</b> .....	<b>17</b>
<b>14. Warranty/service</b> .....	<b>17</b>

Read these instructions for use carefully. Observe the warnings and safety notes. Keep these instructions for use for future reference. Make the instructions for use accessible to other users. If the device is passed on, provide the next user with these instructions for use.

	<b>Warning</b> Warning notice indicating a risk of injury or damage to health.
	Observe the instructions for use
	Disposal in accordance with the Waste Electrical and Electronic Equipment EC Directive – WEEE
	Marking to identify the packaging material. A = Material code, B = Material number: 1-6 = Plastics, 20-22 = Paper and cardboard

	Separate the packaging elements and dispose of them in accordance with local regulations.
	Separate the product and packaging elements and dispose of them in accordance with local regulations.
	Manufacturer
	CE labelling This product satisfies the requirements of the applicable European and national directives.
	Temperature limits
	Humidity limits
	The device must not be used by persons with medical implants (e.g. heart pacemakers). Otherwise their function could be impaired.
	Item number
	Importer symbol
	Permissible storage and transport temperature and humidity
	Permissible operating temperature and humidity.
	Do not dispose of batteries containing hazardous substances with household waste

	<b>Isolation of applied parts Type BF</b> Galvanically isolated applied part (F stands for “floating”); meets the requirements for leakage currents for type B
	

## 1. Getting to know your device

### 1.1 What is Digital TENS/EMS and what can it do?

Digital TENS/EMS belongs to the group of electrical stimulation systems. It has three basic functions, which can be used in combination:

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

For this, the device has four independent stimulation channels and eight self-adhesive electrodes. It has various versatile functions in order to increase general wellbeing, alleviate pain, maintain physical fitness, relaxation, revitalise muscles and combat fatigue. You can either select these functions from pre-set programmes or determine them yourself according to your requirements. The operating principle of electrical stimulation equipment is based on simulating the body's own pulses which are transmitted transcutaneously to nerve or muscle fibres by means of electrodes. The electrodes can thereby be attached to many parts of the body, whereby the electrical stimuli are safe and practically painless. You merely feel a gentle prickling or vibrating in some applications. The electrical pulses transmitted to the tissue affect the transmission of stimulation in nerve conduction as well as neural nodes and muscle groups in the field of application.

The effect of electrical stimulation is generally only recognisable after regularly repeated application. Electrical stimulation does not replace regular exercising of the muscle, but is able to reasonably supplement the effect thereof.

**TENS, transcutaneous electrical nerve stimulation**, means electrical stimulation of nerves through the skin. TENS is recognised as a clinically proven, effective, non-medication method of treating pain from certain causes. It is free from side-effects when used properly, and can also thereby be used as a simple means of self-treatment. The pain-alleviating or suppressing effect

is also achieved by preventing pain from being passed on into nerve fibres (above all through high-frequency pulses) and increasing the secretion of the body's own endorphines which reduce awareness of pain through their effect on the central nervous system. The method is scientifically underpinned and medically approved.

Any symptoms indicating TENS application must be clarified with the doctor in charge of your treatment. The latter will also give you information on the respective benefits of TENS self-treatment.

TENS is clinically tested and approved with the following applications:

- Back pain, particularly also lumbar and cervical spine problems.
- Joint pain (e.g. knee joint, hip joint, shoulder).
- Neuralgia.
- Headaches.
- Women's period pains.
- Pain after injuries to musculoskeletal system.
- Pain with circulatory problems.
- Chronic pain through various causes.

**Electrical muscle stimulation (EMS)** is a widespread and generally recognised method and has been used for years in sports and rehabilitation medicine. In the sports and fitness field, one of the uses of EMS is as a supplement to conventional muscle training, in order to increase the efficiency of muscle groups and adapt physical proportions to the desired aesthetic results. EMS application goes in two directions. On the one hand, a targeted strengthening of musculature can be produced (activating application) and on the other hand a relaxing, resting effect can also be achieved (relaxing application).

Active application includes the following:

- Muscle training to improve endurance performance and/or
- Muscle training to support the strengthening of certain muscles or muscle groups in order to achieve desired changes to body proportions.

Relaxing application includes the following:

- Muscle relaxation in order to loosen up muscular tension.
- Improving muscular fatigue symptoms.
- Accelerating muscle regeneration after high muscular performance (e.g. after a marathon).

Through **integrated massage technology**, Digital TENS/EMS also offers the

possibility of reducing muscular tension and combating fatigue symptoms using a programme based on real massage in terms of sensation and effect.

Using the positioning suggestions and programme charts in this manual, you can determine the device setting fast and easily for the respective application (depending on the region of the body affected) in order to ensure the desired effect.

Through the four separately adjustable channels, the Digital TENS/EMS has the advantage of adapting pulse intensity independently to several parts of the body to be treated, for example in order to cover both sides of the body or ensure even stimulation of larger areas of tissue. The individual intensity setting of each channel also allows you to treat up to four different parts of the body at the same time, making for a time saving compared with individual sequential treatment.

## 1.2 Scope of supply

- 1x Digital TENS/EMS device
- 2x connecting cable
- 8x adhesive electrodes (45 x 45 mm)
- 3x AA batteries
- these instructions for use
- 1x brief instructions (suggestions on placing electrodes and fields of application)
- 1x storage bag

## Subsequent purchase articles

- 8x adhesive electrodes (45 x 45 mm), Art. no. 661.02
- 4x adhesive electrodes (50 x 100 mm), Art. no. 661.01

## 2. Important Information

**Use of the device does not replace medical consultation and treatment. In the event of any type of pain or illness, you must therefore always first ask your doctor.**

### **WARNING!**

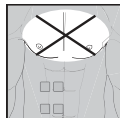
**In order to prevent any damage to health, we would urgently advise against using the Digital TENS/EMS in the following cases:**

- With any implanted electrical devices (such as pacemakers).
- If there are any metal implants.
- When using an insulin pump.



- In case of high fever (e.g. > 39°C).
- In case of known or acute cardiac arrhythmias and other disorders in stimulus formation and conduction of the heart.
- If suffering from attacks (e.g. epilepsy).
- If pregnant.
- In case of cancer.
- After operations where increased muscle contractions might impair the healing process.

• Never use near the heart. Stimulation electrodes should never be placed anywhere on the front of the thorax (marked by ribs and breastbone), but above all not on the two large pectoral muscles. Here it can increase the risk of ventricular fibrillation and lead to cardiac arrest.



- On the bony part of the cranium, near the mouth, throat or larynx.
- Near the throat / carotid artery.
- Near the genitals.
- On acutely or chronically diseased (injured or inflamed) skin (e.g. in the event of painful and painless inflammation, reddening, skin rashes (e.g. allergies), burns, bruises, swellings, open wounds and wounds in the process of healing, on operation scars in the process of healing).
- In environments with high humidity such as in the bathroom or when having a bath or shower.
- In the case of acute or chronic diseases of the gastrointestinal tract.
- Stimulation should not be carried out around or on the head, directly over the eyes, on the mouth, the throat (the carotid artery in particular) or using electrodes placed on the chest, the upper back or over the heart.
- Do not use after consuming alcohol.
- When a high frequency surgical device is connected at the same time.

**Before using the device, you should consult with the doctor in charge of your treatment in the event of the following:**

- Acute diseases, especially if hypertension is suspected or actually exists, or blood-clotting disorders, tendency to thromboembolic diseases or in case of malignant new masses.
- All skin diseases.
- Chronic pain disorders which have not been clarified, regardless of the region of the body.

- Diabetes.
- All sensitivity disorders with reduced pain awareness (such as metabolic disturbances).
- Medical treatments carried out simultaneously.
- Complaints arising as a result of the stimulation treatment.
- Constant skin irritation as a result of prolonged stimulation at the same electrode point.

**IMPORTANT!**

**Use the Digital TENS/EMS solely:**

- On humans.
- For the purpose for which it was developed and in the manner specified in these instructions for use. Any improper use can be hazardous.
- For external application.
- With the original accessory parts which are supplied and can be re ordered, otherwise the warranty becomes null and void.

**PRECAUTIONARY MEASURES:**

- Always remove the electrodes from the skin with a moderate pull in order to avoid injury in the event of highly sensitive skin.
- Keep the device away from heat sources and never use it near (~1 m) short-wave or microwave equipment (e.g. mobile phones), as this may lead to unpleasant current spikes.
- Do not expose the device to direct sunlight or high temperatures.
- Protect the device from dust, dirt and humidity. Never submerge the device in water or other liquids.
- The device is suitable for private use.
- For reasons of hygiene, the electrodes should only be used on one person.
- If the device is not functioning properly, or if you start feeling unwell or there is any pain, stop the application immediately.
- To remove or move the electrodes, first switch off the device or the appropriate channel in order to avoid unwanted irritation.
- Never modify any electrodes (e.g. by cutting). This leads to a higher current density and can be dangerous (max. recommended output value for electrodes: 9 mA/cm<sup>2</sup>, an effective current density over 2 mA/cm<sup>2</sup> requires greater attention).

- Do not use when asleep, when driving a vehicle or at the same time as operating a device.
- Never use with any activities where an unforeseen reaction (e.g. increased muscle contraction despite low intensity) may be dangerous.
- Make sure that no metallic objects such as belt buckles or necklaces can come in contact with the electrodes during stimulation. If you wear any jewellery or piercings (e.g. belly piercing) near the application site, you must remove these before using the device as burning may otherwise occur at some points.
- Keep the device away from children to prevent any hazards.
- Do not confuse the electrode cables and contacts with your headphones or other devices, and do not connect the electrodes to other devices.
- Do not use this device at the same time as other equipment which sends electrical pulses to your body.
- Do not use it near any highly flammable substances, gases or explosives.
- Never use accumulators, always use the same types of battery.
- In the initial minutes, carry out the application sitting or lying down in order to avoid any unnecessary risk of injury in the rare event of a vagal reaction (feeling of weakness). If you start feeling weak, switch the device off immediately and put your legs up (approx. 5-10 minutes).
- It is not advisable to apply any enriching creams or ointments to the skin beforehand, as this greatly increases electrode wear or else unpleasant current spikes may occur here.

#### Damage:

- If the device is damaged, do not use it if you are in any doubt but rather contact your dealer or the customer service address indicated.
- Check the device at regular intervals for signs of wear or damage. If you find any such signs or if the device was used improperly, you must bring it to the manufacturer or dealer before it is used again.
- Switch off the device immediately if it is defective or if it is not working properly.
- Do not, under any circumstances, attempt to open or repair the device yourself! Only have repairs carried out by the customer service department or an authorized dealer. If these instructions are not heeded, the warranty becomes null and void.
- The manufacturer assumes no liability for damage caused through improper or wrong use.

#### Information on ESD (Electrostatic Discharge)

Please note that jacks marked with the ESD warning label must not be touched.



ESD protective measures:

- Do not touch plugs/jacks marked with the ESD warning label with fingers!
- Do not touch plugs/jacks marked with the ESD warning label with handheld tools!

Further explanations on the ESD warning label, as well as possible training courses and their contents, are available on request from the customer service department.

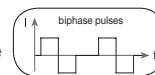
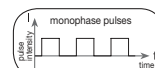
### 3. Current parameters

Electrical stimulation devices operate with the following current settings, which will alter the stimulation effect depending on the setting.

#### 3.1 Pulse shape

This describes the time function of the excitation current, whereby monophasic pulse trains are differentiated from biphasic. With monophasic pulse trains, the current flows in one direction. With biphasic pulses, the excitation current alternates its direction.

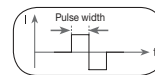
In the Digital TENS/EMS unit, there are only biphasic pulse trains, as they reduce the strain on the muscle, leading to less muscle fatigue as well as safer application.



#### 3.2 Pulse frequency

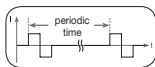
Frequency indicates the number of individual pulses per second, and is indicated in Hz (Hertz). It can be calculated by working out the inverse value of the periodic time. The respective frequency determines which types of muscle fibre preferably react.

Slow-response fibres tend to react to lower pulse frequencies up to 15 Hz, while fast-response fibres only respond to frequencies over approx. 35 Hz. With pulses of approx. 45-70 Hz, there is permanent tension in the muscle combined with premature muscle fatigue. Higher pulse frequencies can therefore preferably be used for elasticity and maximum strength training.



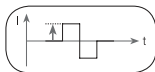
### 3.3 Pulse width

Pulse width is used to indicate the duration of an individual pulse in microseconds. Pulse width also determines the penetration depth of the current whereby in general, the following applies: a greater muscle mass requires a greater pulse width.



### 3.4 Pulse intensity

Setting the degree of intensity is individually dependent on the subjective feeling of each individual user and is determined by a number of parameters such as application site, skin circulation, skin thickness as well as quality of electrode contact. The actual setting should be effective but should never produce any unpleasant sensations such as pain at the site of application. While a slight tingling sensation indicates sufficient stimulation energy, any setting which leads to pain must be avoided.



With prolonged application, readjustment may be necessary due to time adjustment processes at the site of application.

### 3.5 ON and OFF time

ON time describes the stimulation time of the cycle in seconds, i.e. the length of the cycle in which pulses are delivered to the body. OFF time, on the other hand, indicates the length of the cycle (in seconds) which is stimulation-free.

### 3.6 Cycle-controlled pulse parameter variation

In many cases it is necessary to cover the entirety of tissue structures at the site of application by using several pulse parameters. With the Digital TENS/EMS unit, this is done by the existing programmes automatically making a cyclical pulse parameter change. This also prevents individual muscle groups at the site of application from getting tired.

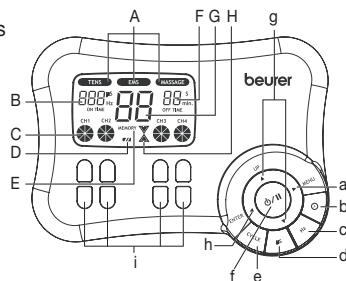
With the Digital TENS/EMS unit there are useful presettings for current parameters. During the application, however, you do have the possibility of changing pulse intensity at any time and, with individual programmes, you can also alter pulse frequency beforehand in order to implement the application which is the most comfortable or promises the most success for you.

## 4. Unit description

### 4.1 Description of components

#### Display (main menu):

- A TENS/EMS/MASSAGE submenus
- B Frequency (Hz); ON time; pulse width
- C Pulse intensity
- D Low battery
- E MEMORY display
- F Timer function (residual time display); OFF time
- G Programme/cycle numbers
- H Operating status display

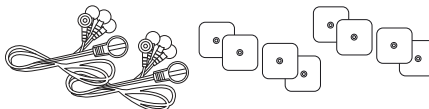


#### Keys:

- a MENU key
- b CYCLE TIMER key
- c FREQUENCY SETTING key
- d PULSE WIDTH SETTING key
- e CYCLE SETTING key
- f ON/OFF key
- g ▲ UP and ▼ DOWN selection keys
- h ENTER key
- i CH1±, CH2±, CH3±, CH4± keys

#### Accessories:

- 2x connection cable (with 2 separately controllable channels, recognisable by their difference in colour)
- 8x adhesive electrodes (45 x 45 mm)



## 4.2 Key functions

Every time a key is pressed, this is acknowledged by a signal tone in order to ensure that any unintentional pressing of a key is detected. This signal tone cannot be switched off.

### ⏻ (ON/OFF)

- (1) Hit briefly to switch on the device. If the key is held down for 10 seconds when switching on, the unit automatically switches off again.
- (2) Press once (= pause mode) to interrupt and continue stimulation treatment.
- (3) Hold ON/OFF key down (approx. 3 seconds) to switch off the device.

### ▲ and ▼

- (1) Select (A) treatment programme, (B) treatment time and (C) frequency, pulse width, number of cycles, ON/OFF time.
- (2) The DOWN key ▼ is used to reduce pulse intensity for all channels during stimulation.

### MENU

- (1) Navigation between the submenus TENS, EMS and MASSAGE.
- (2) Return to (A) programme selection window or (B) main menu.

### ENTER

- (1) Menu selection.
- (2) To confirm a selection made with UP/ DOWN, apart from channel intensity.

### CH1±, CH2±, CH3±, CH4±

Setting pulse intensity.

### Cycle

Setting, changing and confirming the number of cycles.

### µs (microseconds)

Setting, changing and confirming pulse width of the individual cycles.

### Hz (Hertz)

Setting, changing and confirming pulse frequency of the individual cycles.

### ⌚ (cycle timer)

Setting, changing and confirming ON/OFF times of the individual cycles.

## 5. Start-up

1. Remove the battery cover from the base of the monitor by undoing the catch.
2. Insert three AA 1.5 V alkaline batteries. Make absolutely sure that you insert the batteries with the correct polarity as marked.
3. Replace the battery cover carefully.
4. Attach the connecting cable to the electrodes (Fig. 1).  
① Note: The electrodes have a clip fastener to ensure easy connection.
5. Insert the connecting cable connector into the socket at the back of the device (Fig. 2).
6. Do not pull, twist or make any sharp kinks in the cables (Fig. 3).



Fig. 1



Fig. 2



Fig. 3

## 6. Programme overview

### 6.1 Basic information

The Digital TENS/EMS unit has a total 50 programmes:

- 20 TENS programmes
- 20 EMS programmes
- 10 MASSAGE programmes

With all programmes, you can set the length of application and (for each of the four channels) pulse intensity separately.

Besides this, with TENS and EMS programmes 11-20, in order to physically adapt the stimulation effect to the structure of the site of application, you can also change both the pulse frequency, pulse width, ON and OFF times of the individual cycles as well as the number of cycles.

Cycles are the different sequences making up the programmes. They automatically run one after the other and increase the efficacy of stimulation on different types of muscle fibre and combat premature muscle fatigue.

You will find the standard stimulation parameter settings and information on placing the electrodes in the following programme charts for TENS, EMS and MASSAGE.

## 6.2 TENS programmes

Prog. No.	Reasonable areas of application Indications	Possible electrode position	Cycle 1				Cycle 2				Cycle 3				Cycle 4			
			Cycle 5				Cycle 6				Cycle 7				Cycle 8			
			Width (µs)	Frequency (Hz)	On Time (sec.)	Off Time (sec.)	Width (µs)	Frequency (Hz)	On Time (sec.)	Off Time (sec.)	Width (µs)	Frequency (Hz)	On Time (sec.)	Off Time (sec.)	Width (µs)	Frequency (Hz)	On Time (sec.)	Off Time (sec.)
1 + 11	Neck pain, tension headache	01, 02, 13	250	4	30	0	250	4	30	0	250	5	30	0	250	5	30	0
			250	6	20	0	250	6	20	0	250	8	30	0	250	8	30	0
2 + 12	Back pain	03, 04, 05, 06, 15, 23	250	6	30	0	250	6	30	0	250	8	20	0	250	8	20	0
			250	10	20	0	250	10	20	0								
3 + 13	Shoulder pain	07, 14	250	2	10	0	250	4	8	0	250	6	6	0				
4 + 14	Pain as a result of rheumatoid arthritis	See note	250	60	20	0	250	70	20	0	250	80	30	0	250	80	30	0
5 + 15	Lumbar pain	22	250	80	20	0	250	80	20	0	250	75	4	0	250	10	20	0
			250	70	4	0	250	65	4	0								
6 + 16	Menstrual pain	08	250	40	30	0	250	45	30	0	250	55	30	0	250	60	30	0
7 + 17	Pain programme I	See note	250	4	30	0	250	4	20	0	250	6	30	0	250	6	20	0
			250	8	30	0	250	8	20	0	250	10	30	0	250	10	20	0
8 + 18	Knee pain Ankle joint pain, capsular injuries	09, 10	250	40	5	0	250	6	10	0	250	50	5	0				
9 + 19 (Burst)	Pain programme II	See note	250	75	0,25	0,25	250	2	0,5	0								
10 + 20 (Burst)	Pain programme III	See note	250	100	0,25	0,25												

On Time (sec.) = Cycle switch-on time in seconds (contraction) – Off Time (sec.) = Cycle switch-off time in seconds (relaxation)

Note: Electrode position is supposed to surround the painful area. With painful muscle groups, the electrodes are grouped round the muscle affected. In case of joint pain, the joint on the front/rear side of the joint and, if electrode distances permit, on the right and left sides of the joint, should be surrounded with electrodes.

Minimal electrode distance should not be less than 5 cm and not exceed 15 cm. See figure no. 9 and 10 for knee and ankle joint.

Burst programmes are suitable for all sites which should be treated with an alternating signal pattern (to ensure minimum habituation).

### 6.3 EMS-Programme

Prog. No.	Reasonable areas of application Indications	Possible electrode position	Cycle 1				Cycle 2				Cycle 3				Cycle 4			
			Cycle 5				Cycle 6				Cycle 7				Cycle 8			
			Width (µs)	Frequency (Hz)	On Time (sec.)	Off Time (sec.)	Width (µs)	Frequency (Hz)	On Time (sec.)	Off Time (sec.)	Width (µs)	Frequency (Hz)	On Time (sec.)	Off Time (sec.)	Width (µs)	Frequency (Hz)	On Time (sec.)	Off Time (sec.)
1 + 11	Shoulder muscles	07, 14	250	30	5	1	250	10	15	1	250	50	5	1				
2 + 12	Middle and lower trapezius muscle, latissimus dorsi muscle, neck muscles	01, 02, 03, 04, 05, 12, 15	250	4	30	1	250	4	20	1	250	5	30	1	250	5	20	1
3 + 13	Back musculature near spinal column, Prog. I	03, 06, 22, 23	250	2	10	1	250	4	10	1	250	6	10	1				
4 + 14	Front and back upper arm musculature (including biceps), front and back lower arm musculature	16, 17, 18, 19	250	4	30	1	250	4	30	1	250	4	30	1	250	5	30	1
5 + 15	Straight and transverse abdominal musculature	11, 20, 21	250	6	15	1	250	8	15	1	250	10	15	1				
6 + 16	Back musculature near spinal column, Prog. II	03, 06, 22, 23	250	2	20	1	250	2	20	1	250	1	30	1	250	1	30	1
7 + 17	Back musculature near spinal column, Prog. III	03, 06, 22, 23	250	4	30	1	250	4	20	1	250	6	30	1	250	6	20	1
8 + 18	Posterior musculature	24	250	20	5	1	250	6	5	1	250	30	5	1				
9 + 19	Front and back upper thigh musculature	25, 26	250	20	5	1	250	6	8	1	250	25	5	1				
10 + 20	Front and back lower thigh musculature	27, 28	250	25	5	1	250	6	8	1	250	35	5	1				

On Time (sec.) = Cycle switch-on time in seconds (contraction) – Off Time (sec.) = Cycle switch-off time in seconds (relaxation)

## 6.4 MASSAGE programmes

Prog. no.	Massage form
1	Tap and grasp massage
2	Knead and grasp massage
3	Tap massage
4	Side of hand/pressing massage
5	Side of hand/pressing massage
6	Vibratory massage
7	Tap massage (switch between electrodes)
8	Massage jet (switch between electrodes)
9	Pressure massage jet (switch between electrodes)
10	Combination programme (switch between electrodes)

Electrodes must be placed so that they surround the muscle segments in question. For optimal effect, electrode distance must not be greater than approx. 15 cm.

The electrodes should not be applied to the anterior wall of the thorax, i.e. never massage the left or right large pectoral muscle.



## 6.5 Information on placing the electrodes

For the desired success of any stimulation application, it is important that electrodes are placed sensibly.

We advise you to coordinate with your doctor regarding the best electrode positions for your intended field of application.

The electrode positions suggested inside the cover (Figs. 1-28) serve as a guide. The following applies when choosing electrode positions:

### Electrode distance

The greater the electrode distance which is selected, the greater will be the volume of tissue that is stimulated. This applies to the area and the depth of the tissue volume. At the same time, however, the strength of tissue stimulation decreases as the electrode distance becomes greater, which means that, if a greater electrode distance is chosen, a greater volume is stimulated, but stimulation is weaker. To increase stimulation, pulse intensity must then be increased.

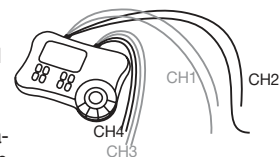
The following guideline holds when selecting electrode distances:

- most reasonable distance: approx. 5-15 cm.
- below 5 cm, it is mainly surface structures which are strongly stimulated.
- over 15 cm, large-area and deep structures are stimulated very weakly.

### Electrode relationship to muscle fibre orientation

Choice of current flow direction must be adapted to the muscle fibre orientation according to the desired muscle layer. If surface muscles are to be reached, the electrodes must be placed parallel to the fibre orientation (p. 2, fig. 16; 1A-1B/2A-2B). If deep tissue layers are to be reached, the electrodes must be placed crosswise to the fibre orientation (p. 2, fig. 16; 1A-2A/1B-2B). The latter arrangement can, for example, be achieved via the cross electrode arrangement, e.g. p. 2, fig. 16; 1A-2B/2A-1B.

Note the colour-codes of the cables and the channels. The white cable belongs to channel CH1/3 and the grey cable to channel CH2/4.



- ① In the treatment of pain (TENS) using the Digital TENS/EMS device with its 4 separately controllable channels and in each case 2 adhesive electrodes, it is advisable to either position the electrodes of one channel so that the pain spot lies between the electrodes or else you can position one electrode directly on the pain spot and the other at least 2-3 cm away.

The electrodes of the other channels can be used to treat other pain spots simultaneously or else, however, together with the electrodes of the first channel, to surround the pain area (opposite). A cross arrangement is again advisable here.

- ① **Message function tip:** use all electrodes to ensure optimal treatment.
- ① In order to extend the service life of the electrodes, use them on clean skin which is as free as possible of hair and grease. If necessary, clean the skin with water before use and remove any hair.
- ① If an electrode becomes detached during the application, the pulse intensity of this channel goes back to the lowest setting. Press the ON/OFF key to enter pause mode, reposition the electrode and continue application by pressing the ON/OFF key again and setting the required pulse intensity.

## 7. Application

### 7.1 Advice on application

- If the device is not used within 3 minutes, it switches off automatically (automatic switch-off function). When it is switched on again, the LCD main menu screen appears, with the last used submenu flashing.
- If an admissible key is pressed, there is one short beep. If an inadmissible key is pressed, there are two short beeps.

### 7.2 Procedure for TENS, EMS and MASSAGE programmes 01-10 (quick start)

- From the programme charts, select a programme that is suitable for your purpose.
- Place the electrodes in the area selected and connect these to the device. The corresponding positioning suggestions may help you here.
- Press the ON/OFF key in order to switch on the device.
- Press MENU and navigate through the sub-menus (TENS/EMS/MASSAGE) and confirm your selection with ENTER. (Fig. 1, example of TENS display).
- Using the UP/DOWN keys, select the programme you want and confirm with ENTER (Fig. 2, example of display for No. 11 TENS programme).
- Using the UP/DOWN keys, select the total treatment time and confirm with ENTER (Fig. 3, example of 30-minute treatment duration).

The device is in wait status (Fig. 4).

- Press ON/OFF to start stimulation treatment. Operating status starts to change and pulse frequency is displayed alternately with pulse width (Figs. 5 and 6).
- Select the pulse intensity which is the most comfortable for you by pressing keys CH1±, CH2±, CH3±, CH4±. The pulse intensity display adapts accordingly.



Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6

### 7.3 Procedure for TENS/EMS programmes 11 to 20 (individual programmes)

Programmes 11 to 20 are preset programmes which you can also individualise. Here you can set pulse frequency, pulse width as well as the ON and OFF time of the individual cycles.

- From the programme charts, select a programme that is suitable for your purpose.
- Place the electrodes in the area selected and connect these to the device. The corresponding positioning suggestions may help you here.
- Press the ON/OFF key in order to switch on the device.
- Press MENU and navigate through the sub-menus (TENS/EMS/MASSAGE) and confirm your selection with ENTER. (Fig. 1, example of TENS display).
- Using the UP/DOWN keys, select the programme you want and confirm with ENTER (Fig. 2, example of display for No. 11 TENS programme).
- The number of cycles is displayed (C) (Fig. 3, e.g. 5 cycles). To change this, press the UP/DOWN key and confirm by pressing CYCLE or ENTER.

① You can also change the number of cycles during the other programming stages by pressing the CYCLE key, selecting the required number of cycles with UP/DOWN and confirming with CYCLE or ENTER.

- To set pulse width, press the key 'µs', choose your setting with UP/DOWN and confirm by once again pressing the key 'µs'. Repeat for each cycle (Fig. 4).
- Set pulse frequency by pressing the 'Hz' key. Choose your setting with UP/DOWN and confirm by once again pressing 'Hz'. Repeat for each cycle (Fig. 5).
- Press the key  $\odot$  in order to set the respective ON and OFF times of the individual cycles. Choose the duration with UP/DOWN and confirm by once again pressing the key  $\odot$ . Repeat for each cycle (Fig. 6).

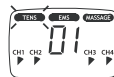


Fig. 1

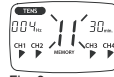


Fig. 2



Fig. 3



Fig. 4

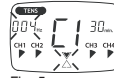


Fig. 5



Fig. 6

ⓘ Note: Setting OFF time to '00' ensures that there is no period of relaxation between the individual cycles.

- Hold ENTER depressed for approx. 2 seconds to advance to the treatment time.

Using the UP/DOWN keys, select the desired treatment time and confirm with ENTER (Fig. 7, Example of 30-minute treatment duration).

- The device is in wait status (Fig. 8).
- Press ON/OFF to start stimulation treatment. Operation status starts to change and pulse frequency is displayed alternately with pulse width (Fig. 9).
- Select the pulse intensity which is the most comfortable for you by pressing keys CH1±, CH2±, CH3±, CH4±. The pulse intensity display adapts accordingly.

ⓘ Note: Your individualised programme settings are stored and automatically retrieved when you select it next.

## 7.4 Changes to the settings

### Changing intensity (during application)

- CH1±, CH2±, CH3±, CH4±: Changing the intensity for each channel.
- DOWN key ▼: the intensity of all channels is reduced.

### Interrupting stimulation

Press the ON/OFF button.

If you press it again, the application is resumed.

### Switching off a complete channel

Press the CH- key until the channel reaches the lowest intensity, then hold the key depressed until the channel no longer appears in the display. Hold down the corresponding key CH+ to reactivate the channel.

### Changing application (completely or single parameters)

- ON/OFF: to interrupt stimulation.
- MENU: back to program selection window or main menu.
- Set required parameters. Confirm with ENTER. Press ON/OFF to continue application.



Fig. 7



Fig. 8



Fig. 9

## 7.5 Doctor's Function

Doctor's Function is a specific setting to allow you to call up your specific personal programme even more easily.

Your individual programme setting is immediately retrieved in wait status when you switch on and is activated by simply pressing the ON/OFF key. Settings for this individual programme may, for example, be on the advice of your doctor.

With the Doctor's Function, only pulse intensity can be changed during stimulation treatment. All other parameters and programmes of the Digital TENS/EMS are blocked in this case and cannot be modified or called up.

### Setting the Doctor's Function:

- Select your programme and appropriate settings as described under 7.2 or 7.3.
- Before you activate the programme by pressing the ON/OFF key, hold ON/OFF and Ⓞ keys down simultaneously for approximately 5 seconds. Storage in Doctor's Function is confirmed by a long signal tone.

### Cancelling Doctor's Function:

To clear the device again and access other programmes, hold down the two keys ON/OFF and Ⓞ once again for approximately 5 seconds (not possible during stimulation). Cancelling of the Doctor's Function is confirmed by a long signal tone.

## 8. Cleaning and storage

### Adhesive electrodes:

- In order to ensure that the electrodes adhere for as long as possible, they should be cleaned carefully with a damp, lint-free cloth.
- After use, stick the electrodes onto the backing film.

### Cleaning the unit:

- Remove the batteries from the device every time you clean.
- Clean the unit after use with a soft, slightly moistened cloth. In case of more extreme soiling you can also moisten the cloth with mild soapy water.
- Ensure that no water penetrates into the device. If this should ever happen, only use the device again once it is completely dry.
- Do not use any chemical cleaners or abrasive agents for cleaning.

## Storage:

- Remove the batteries from the unit if you are not going to use it for a longer period. Leaking batteries can damage the unit.
- Do not make any sharp kinks in the connecting leads or electrodes.
- Detach the connecting cable from the electrodes.
- After use, stick the electrodes onto the backing film.
- Store the device in a cool, well-ventilated place.
- Never place any heavy objects on the device.

## 9. Disposal



### Notes on handling batteries

- If your skin or eyes come into contact with battery fluid, flush out 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 the 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 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, split or crush the batteries.

### Battery disposal

- The empty, completely flat batteries must be disposed of through specially designated collection boxes, recycling points or electronics retailers. You are legally required to dispose of the batteries.
- The codes below are printed on batteries containing harmful substances:  
Pb = Battery contains lead,  
Cd = Battery contains cadmium,  
Hg = Battery contains mercury.



## General disposal

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.



## 10. Problems and solutions

**The device does not switch on when the ON/OFF button is pressed.**

**What should I do?**

- (1) Make sure that the batteries have been inserted correctly and have contact.
- (2) Change the batteries if necessary.
- (3) Contact customer service.

**The electrodes are detaching themselves from the body. What should I do?**

- (1) Clean the adhesive surface of the electrodes with a damp, lint-free cloth. Then let them dry in the air and attach them again. Should the electrodes still not adhere firmly, they must be replaced.
- (2) Before each application, clean the skin, avoiding using any skin cream or oils before treatment. Shaving can increase adhesion of the electrodes.

**The device is giving out abnormal signal tones during treatment. What should I do?**

- (1) Look at the display. Is any channel flashing? → Interrupt the programme by pressing the ON/OFF button. Make sure that the connecting leads are properly connected to the electrodes. Make sure that there is a firm contact between the electrodes and the treatment area.
- (2) Make sure that the plug of the connecting lead is firmly connected to the device.
- (3) If the signal tones do not stop and the channel is flashing, change the connecting cable.
- (4) The display shows a flashing battery signal. Renew the batteries.

**There is no noticeable stimulation. What should I do?**

- (1) If a warning signal sounds, go through the steps described above.
- (2) Press the ON/OFF key to start the programme again.

- (3) Check that the electrodes are positioned properly and make sure that the adhesive electrodes are not overlapping.
- (4) Increase pulse intensity in stages.
- (5) The batteries are almost empty. Replace these.

**You are aware that the electrodes feel uncomfortable. What should I do?**

- (1) The electrodes are badly positioned. Check positioning and if necessary reposition the electrodes.
- (2) The electrodes are worn. Due to the fact that current distribution can no longer be guaranteed evenly over the entire surface, these may lead to skin irritation. You must therefore replace these.

**The skin in the treatment area becomes red. What should I do?**

Stop treatment immediately and wait until the skin has returned to normal. If any redness beneath the electrode soon disappears, this is not dangerous and is due to the increased circulation which has been stimulated locally. If, however, the skin irritation remains and there is possibly itching or inflammation, please consult your doctor before further use. It may possibly be caused by an allergy to the adhesive surface.

## 11. Technical details

Name and model:	EM80
Initial curve shape:	biphase square-wave pulse
Pulse duration:	40-250 µs
Pulse frequency:	1-120 Hz
Output voltage:	max. 90 Vpp (at 500 Ohm)
Output current:	max. 180 mApp (at 500 Ohm)
Power supply:	3x AA batteries
Treatment time:	adjustable from 5 to 90 minutes
Intensity:	adjustable from 0 to 15
Operating conditions:	5°C-40°C (41°F-104°F) with a relative humidity of 40-70 %
Storage conditions:	0°C-40°C (32°F-104°F) with a relative humidity of ≤ 90 %
Transportation conditions:	-25 °C - 70 °C (-13 °F 158 °F), with a relative humidity of ≤ 90 %
Dimensions:	170 x 125 x 48 mm
Weight:	235 g (without batteries) , 310 g (incl. batteries)

Explanation of symbols: Application part type BF 

Caution! Read the instructions for Use. 



The device can emit effective output values above 10 mA, averaged over every five second interval.

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

Note: If the device is not used according to these specifications, perfect functioning is not guaranteed.

We reserve the right to make any technical alterations that are necessary in order to improve and develop the product further.

This unit is in line with European Standards EN 60601-1, EN 60601-1-2and EN 60601-2-10 (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 particular precautions with regard to electromagnetic compatibility (EMC). Please note that portable and mobile HF communication systems may interfere with this unit. For more details, please contact customer service at the address indicated.

The device meets the requirements of the European Medical Products Directive 93/42/EEC and the German Medical Products Act. For this device, a functional test and instruction in accordance with Section 5 of the Medical Devices Operator Ordinance (MPBetreibV) is not required. It is also not necessary to carry out safety checks in accordance with Section 6 of the Medical Devices Operator Ordinance (MPBetreibV).

## 12. 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.
- Failure to comply with the above can impair the performance of the device.

### 13. Replacement parts and wearing parts

Replacement parts and wearing parts are available from the corresponding listed service address under the stated material number.

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

### 14. Warranty/service

Further information on the guarantee and guarantee conditions can be found in the guarantee leaflet supplied.







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