DENAS-PCM Pro

Universal Transcutaneous Electrostimulator

OPERATING MANUAL

English Translation

Document TRTK 23.0-03.70-02 RE
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Translation notice. This document is an English translation prepared from the manufacturer's Russian-language operating manual. It is not presented as an official English edition issued by TRONITEK. Where regulatory, medical, warranty, or safety interpretation is critical, the Russian original supplied by the manufacturer remains the controlling source.

Contents

Part I. Technical Passport

1 Safety Rules

Please pay attention to all information marked as a warning or caution. It is important for safe and effective use of the device.

To ensure effective and safe use of the DENAS-PCM Pro Universal Transcutaneous Electrostimulator (hereinafter the device or DENAS-PCM Pro), carefully read all sections of this manual.

WARNING / CAUTION. If any undesirable event associated with use of the device occurs, notify the manufacturer or its authorized representative.

The device does not present an electrical hazard to users because it is powered by an internal power source isolated from the applied part. The applied part is Type BF.

WARNING / CAUTION. Do not use the device to treat patients with implanted electronic devices, for example a cardiac pacemaker.

WARNING / CAUTION. If the patient has previously experienced an adverse reaction when using other electrical stimulation devices, use of DENAS-PCM Pro is prohibited in order to avoid an individual intolerance to electric current.

WARNING / CAUTION. Do not apply the device over the direct anterior projection of the heart.

WARNING / CAUTION. During a session, the patient must not be connected to any high-frequency electrical equipment. Simultaneous use may cause burns and may damage the device. In particular, simultaneous connection to high-frequency electrosurgical equipment may cause burns at the electrode sites and possible device damage.

WARNING / CAUTION. Do not connect any devices other than the electrodes included in the supply package and remote electrodes manufactured by the device manufacturer.

Operation within approximately 1 m of short-wave or microwave equipment may cause instability of the device output parameters.

WARNING / CAUTION. Do not use the device if the skin in the stimulation area is damaged (wounds, abrasions, burns, etc.). Failure to follow this recommendation may lead to infection.

WARNING / CAUTION. If an allergic reaction develops where the electrodes contact the skin, stop using the device immediately and consult a physician.

WARNING / CAUTION. Before treatment, remove all conductive items from the treatment area, such as watches and jewelry. Their presence may cause an electrical burn.

WARNING / CAUTION. Do not use the device if the conductive layer of an electrode is damaged.

WARNING / CAUTION. External mains power supplies are prohibited. The device is not designed to operate from an external mains power source. Failure to comply may cause electric shock or device failure.

The device contains fragile components. Protect it from impact. Avoid prolonged exposure to direct sunlight at ambient temperatures above +25 °C and keep it away from heating appliances.

The device is not waterproof. Protect it from moisture.

• Operating temperature: +10 to +35 °C.

• If stored below +1 °C, keep the device under operating-temperature conditions for at least two hours before use.

• Relative humidity: 30 to 80% at +25 °C.

• Atmospheric pressure: 70 to 106 kPa (525 to 795 mmHg).

WARNING / CAUTION. Repairs must be performed by qualified specialists at the manufacturer's facility. Partial or complete disassembly and modification by the user are prohibited. A device with a broken warranty seal is not eligible for warranty service.

When used as intended, the device does not create hazardous radiation levels.

The device contains no medicinal substances, materials of animal or human origin, or carcinogenic, mutagenic, or toxic materials.

No user adjustment or calibration is required before putting the device into service. The device contains no noise sources.

There are no controlled studies of use in pregnant women. If use during pregnancy is considered necessary, consultation with a physician is required.

When the operating conditions and rules in this manual are observed, no adverse effects of the device have been identified by the manufacturer.

2 Package Contents

Item	Quantity
DENAS-PCM Pro Universal Transcutaneous Electrostimulator	1
LR6/AA 1.5 V battery*	2
Connection cable**	1
Remote self-adhesive electrode**	6
Operating Manual	1

* Warranty does not apply to batteries.
** May be supplied upon separate request.

3 Device Design

3.1 External appearance

Front: housing; liquid-crystal display; keypad; Back button; Main Menu button; menu selection button; menu navigation buttons; power On/Off button.

Rear: integrated electrode (applied part); battery compartment cover; connector for remote electrodes.

3.2 Display symbols

• contact present / no contact indicator

• Main Menu icon

• sound on / sound off icon

• alarm-clock icon

• Children's Doctor icon

• battery level indicator

• timer icon

• Favorites icon

• status line and cursor

3.3 Self-adhesive electrode and connection cable

The self-adhesive electrode has an adhesive conductive working surface. Remote therapeutic electrodes from the manufacturer's product range may also be connected (see Appendix A).

3.4 Audible indication

- when switching on and off
- at the start and end of programs and modes
- when contact with the load (skin) is established or lost
- when the timer expires
- at the end of a Screening cycle
- when MED switches to its second phase
- when the alarm activates
- when battery voltage falls to 2.2 ± 0.1 V
- when any button except the designated silent/power control is pressed

3.5 Software information

Parameter	Value
Software name	denas_pcm_pro_2020_v1.bat
Version	v1.0
Release date	25 February 2020
Software safety class	Class A
Supplier	TRONITEK LLC

4 Technical Specifications

Parameter	Specification
Device dimensions	160 ± 2 × 62 ± 2 × 30 ± 2 mm
Self-adhesive electrode	50 ± 1 × 50 ± 1 mm
Connection cable	140 ± 5 cm
Device mass without batteries	105 ± 10 g
Self-adhesive electrode mass	5 ± 2 g
Connection cable mass	20 ± 2 g
Power supply	2 × LR6/AA batteries
Approximate operating time	At least 10 hours with LR6/AA batteries
Ingress protection	IP20; protected against solid objects ≥12.5 mm; not protected against water
Operating mode	Continuous operation
Supply-voltage operating range	2.2 ± 0.1 to 3.2 ± 0.1 V
Current consumption	80 ± 20 mA at backlight 100; 40 ± 20 mA at backlight 5; ≤45 µA when off

4.8 Pulse parameters

The device generates biphasic therapeutic electrical pulses. The first-phase duration and the first- and second-phase amplitudes vary with load and selected power.

Load / power	t1, µs	u11, V	u22, V
No load	16 ± 3	16 ± 5	44 ± 15
500 Ω / 1 (min)	7 ± 3	11 ± 3	1 ± 0.5

Load / power	t1, µs	u11, V	u22, V
500 Ω / 99 (max)	330 ± 30	11 ± 3	25 ± 5
2 kΩ / 1 (min)	7 ± 3	16 ± 5	2 ± 1
2 kΩ / 99 (max)	330 ± 30	16 ± 5	90 ± 10
20 kΩ / 1 (min)	7 ± 3	16 ± 5	10 ± 3
20 kΩ / 99 (max)	330 ± 30	16 ± 5	400 ± 50

* These parameters apply to therapeutic-mode pulses and not to test pulses. Measure with 'Therapy without contact monitoring' enabled. Maximum-power measurements are made with Children's Doctor disabled.

4.9 Frequencies

1.0 to 9.9 Hz in 0.1 ± 0.05 Hz steps; 10 ± 2 Hz; 20 ± 2 Hz; 60 ± 2 Hz; 77 ± 3 Hz; 125 ± 4 Hz; 140 ± 4 Hz; 200 ± 5 Hz.

4.10 Special modes

Mode	Output
7710	Alternation of 77 ± 3 Hz and 10 ± 2 Hz, modulated at 2.0 ± 0.1 Hz
7720	77 ± 3 Hz for 2.0 ± 1.0 s alternating with 20 ± 2 Hz for 3.0 ± 1.0 s
77AM	Amplitude-modulated 77 ± 3 Hz signal, modulated at 2.0 ± 0.1 Hz
MED	10 ± 2 Hz
Screening	10 ± 2 Hz

4.11 Automated stimulation programs

Program	Stimulation sequence
Allergy	Zone 1: 7710 (5±1 min) + 3.8 Hz (5±1 min); Zone 2: 77 Hz (5±1 min) + 1.7 Hz (5±1 min) + 3.8 Hz (5±1 min)
Pain	Zone 1: pulses with quasi-random repetition-frequency variation from 75–135 Hz (15 min)
Severe Pain	Zone 1: 77±3 Hz pulse bursts with variable burst duration/fill frequency, 15±1 min
Bloating	Zone 1: 7710 (5±1 min) + 125 Hz (5±1 min)
VSD	Zone 1: 7710 (10±1 min) + 10 Hz (5±1 min) + 2.5 Hz (5±1 min)
Gynecologic Pain	Zone 1: 7710 (5±1 min) + 3.8 Hz (5±1 min) + 4.0 Hz (5±1 min)
Gynecology	Zone 1: 2.5 Hz + 4.0 Hz + 9.4 Hz, each 5±1 min; Zone 2: 7710, 15±1 min; Zone 3: 10 Hz + 20 Hz, each 5±1 min
Hypertension	Zone 1: 7710 (5±1 min); Zone 2: 7710 (5±1 min)
Hypotension	Zone 1: 77AM (15±1 min)
Head	Zones 1–3: 60 Hz (5±1 min each)
Throat	Zone 1: 60 Hz (10±1 min); Zone 2: 77 Hz (10±1 min)
Diarrhea	Zone 1: 125 Hz (10±1 min); Zone 2: 20 Hz (5±1 min)
GI Pain	Zone 1: 7710 + 3.8 Hz + 5.9 Hz, each 5±1 min
Constipation	Zone 1: 125 Hz (10±1 min); Zone 2: 20 Hz (5±1 min)
Cough	Zone 1: 7710 (5±1 min); Zone 2: 60 Hz (10±1 min)
Muscles	1-Hz bursts filled at 125 Hz; 15±1 min; pulse/burst parameters vary with power as specified in the Russian original
Muscles / Sports	1-Hz bursts filled at 77 Hz; 20±1 min; pulse/burst parameters vary with power as specified in the Russian original

Program	Stimulation sequence
Runny Nose	Zone 1: 10 Hz (10±1 min); Zone 2: 7720 (10±1 min)
Potency	Zone 1: 2.6 + 4.0 + 9.4 Hz, each 5±1 min; Zone 2: 7710 (15±1 min); Zone 3: 10 + 20 Hz, each 5±1 min
Kidneys	Zone 1: 77 Hz + 20 Hz, each 10±1 min; Zone 2: 2.8 Hz + 8.1 Hz + 7710, each 5±1 min
Back	Zone 1: 140 Hz + 77 Hz + 20 Hz, each 5±1 min
Joints	Zone 1: 140 Hz + 77 Hz + 20 Hz + 1.6 Hz, each 5±1 min; Zone 2: 7710 (10 min)
Nausea	Zone 1: 7710 (10±1 min)
Trauma	Zone 1: 200 Hz + 140 Hz + 77 Hz, each 5±1 min
Choking / Dyspnea	Zone 1: 7710 (10±1 min); Zone 2: 1.0 + 8.0 + 3.6 Hz, each 3±1 min
Cellulite	1-Hz bursts filled at 60 Hz; 20±1 min; pulse/burst parameters vary with power as specified in the Russian original

4.12 Functions

• Favorites stores frequently used programs or frequencies for quick access.

• Constructor creates individualized treatment sequences and saves them in the device.

• Children's Doctor limits maximum stimulation power to 5 units.

The device automatically switches off when supply voltage falls to 1.9 ± 0.1 V, or no later than 3.0 ± 0.5 minutes after the last control-button press, loss of skin contact, or completion of stimulation, as applicable.

4.14 Electromagnetic compatibility

Electromagnetic compatibility is provided in accordance with GOST R IEC 60601-1-2-2014. No special commissioning measures are required. Portable RF communications equipment may affect operation.

> **WARNING / CAUTION. Do not use the device immediately adjacent to or stacked/interconnected with other equipment unless normal operation in that configuration has been verified.**

The device uses RF energy only for internal functions; RF emissions are low. CISPR 11 classification: Group 1, Class B. It is intended for use in all establishments, including domestic environments.

Recommended separation distances from RF transmitters follow the manufacturer's tables: d=1.2√P for 150 kHz–800 MHz and d=2.3√P for 800 MHz–2.5 GHz, where P is transmitter power in watts and d is distance in meters.

P, W	150 kHz–80 MHz	80–800 MHz	800 MHz–2.5 GHz
0.01	0.12 m	0.12 m	0.23 m
0.1	0.38 m	0.38 m	0.73 m
1	1.2 m	1.2 m	2.3 m
10	3.8 m	3.8 m	7.3 m
100	12 m	12 m	23 m

> **WARNING / CAUTION. Use of accessories or cables not specified by the manufacturer may increase electromagnetic emissions or reduce immunity.**

For electrostatic-discharge precautions, the user should avoid synthetic clothing during the procedure. If portable communications equipment has output power above 2 W, the manufacturer recommends approximately 3 m separation from DENAS-PCM Pro.

5 Working with the Menu

Main menu: Favorites; Constructor; MED; Screening; Programs; Frequencies; Children's Doctor; Settings.

5.1 Programs

Programs: Allergy, Pain, Severe Pain, Bloating, VSD, Gynecologic Pain, Gynecology, Hypertension, Hypotension, Head, Throat, Diarrhea, GI Pain, Constipation, Cough, Muscles, Muscles/Sports, Runny Nose, Potency, Kidneys, Back, Joints, Nausea, Trauma, Choking/Dyspnea, Cellulite.

5.2 Favorites

From Programs or Frequencies, open Additional Settings and select Add to Favorites. A Favorites symbol appears in the status line. To remove an item, select it, open Additional Settings, choose Delete, confirm Yes. In the Main Menu select Favorites to access stored items; the most recently added item appears first.

5.3 Constructor

Select Constructor → Create. Up to five individualized sequences may be created. Add a Program or Frequency to each sequence. For a frequency, treatment time can be set; for 1.0–9.9 Hz, the exact frequency can also be selected. Choose Save and enter a name of up to eight characters. A sequence can later be Run, Modified, or Deleted. When Run is selected, its programs and frequencies change automatically in the saved order, with an audible signal between stages and at completion.

5.4 Programs menu

Select Programs, choose the required program, and confirm. The display shows the recommended treatment zone. Place the built-in or remote electrode on the displayed zone and set the required stimulation power. The display then shows the remaining time. If a program uses multiple zones, move the electrode to the next displayed zone when treatment of the current zone ends.

5.5 Frequencies menu

Select Frequencies and the required frequency. For 1.0–9.9 Hz, set the exact value using the navigation controls. Place the electrode on the treatment zone and set the required power. The default timer is 30 minutes.

Timer

The Timer is available only in Frequencies. Set 1–30 minutes in one-minute steps. If disabled, the session uses direct elapsed-time counting and the maximum session time is 30 minutes. Programs, MED and Screening have their own programmed durations.

Contact / Therapy without contact monitoring

Available in Programs and Frequencies. When enabled, electrical pulses are generated regardless of the quality or presence of electrode-to-skin contact and the device does not signal loss of contact.

MED - Minimum Effective Dose

Select MED. Place the integrated electrode on the He-Gu zone. Set a minimum or comfortable power. When skin contact is present and power is above zero, phase 1 begins. At the end of phase 1, its duration is shown; the program then proceeds according to its algorithm.

Screening

Select Screening and place the electrode on the skin. Operation begins automatically on contact. Power adjustment is unavailable; Screening uses a fixed power of 5 units and 10 Hz. The previous ΔLt value is displayed at the lower right.

Children's Doctor

Select Children's Doctor and choose the child's age category: under 1 year, 1–3 years, 4–7 years, or 7–12 years. The function limits stimulation power to 5 units. Select Off to disable it.

Settings

• Sound: overall volume 0–2; contact sound on/off; keypad sound on/off.

• Brightness: adjustable from 5 to 100 in steps of 5. Higher brightness increases battery consumption.

• Battery saving: reduces backlight duration regardless of selected brightness.

• Memory: when enabled, the device powers on in the therapeutic mode that was active when it was switched off.

• Clock: set current time.

• Alarm: off, once, or daily; set alarm time.

• Language: Russian, English, German, Czech, Italian.

• Color theme: dark or light.

6 Maintenance

Maintenance consists of inspection, cleaning/disinfection of the device electrode and care of accessories. Before and after each procedure, clean the device electrode with a 3% hydrogen peroxide solution in accordance with GOST 177 with addition of 0.5% detergent solution in accordance with GOST 25644, using soft lint-free wipes. Store the device with a dry electrode.

> **WARNING / CAUTION. Do not immerse the device in liquids. Do not use aggressive solvents. Do not use an electrode with a damaged conductive surface.**

Self-adhesive electrodes are intended for individual use. Keep the adhesive surface clean; do not apply alcohol-containing or oily substances to it. Replace the electrode when the adhesive or conductive layer is worn or damaged.

7 Installing / Replacing Batteries

Open the battery compartment and install two LR6/AA 1.5 V batteries, observing polarity. Close the cover securely. Replace batteries when the low-battery indication appears or operation becomes unstable.

> **WARNING / CAUTION. Do not use an external mains power supply. Remove batteries for prolonged storage. Do not mix old and new batteries or batteries of different types.**

8 Troubleshooting

Symptom	Possible cause / action
Device does not switch on	Check that two AA batteries are installed with correct polarity and have sufficient charge; replace if necessary.
Device switches off unexpectedly	Battery voltage may be low, or automatic shutoff may have occurred after inactivity, loss of contact, or end of stimulation.
No stimulation sensation	Check skin contact, power level, electrode condition, cable connection, and whether Therapy without contact monitoring is configured as intended.
Contact indicator does not appear	Clean the electrode and skin; check cable and remote electrode; moisten skin with water if appropriate.
Contact symbol remains when there is no skin contact	Electrodes may be contaminated; clean them as described in Section 6.
Self-adhesive electrodes do not adhere	Adhesive layer may be worn or contaminated by oil, cream, alcohol-containing or oily substances. Wash skin with soap and water; replace electrode if needed.

Symptom	Possible cause / action
Other malfunction	Stop use and contact the manufacturer or its representative. Other faults are to be corrected at the manufacturer's facility.

9 Transportation and Storage

Transport the device in the manufacturer's consumer packaging by any covered means of transport in accordance with TU 26.60.13-023-44148620-2020 and applicable transport rules.

• Transportation temperature: -50 to +50 °C.

• Transportation relative humidity: up to 100% at +25 °C.

• Storage temperature: -50 to +40 °C.

• Storage relative humidity: up to 98% at +25 °C.

After transportation or storage below +1 °C, keep the packaged device under operating-temperature conditions for at least two hours before use.

10 Manufacturer's Warranty

The manufacturer warrants compliance with TU 26.60.13-023-44148620-2020 when the consumer follows the operating, storage and transportation rules.

• Warranty storage period: 3 years from date of manufacture under the specified storage conditions.

• Operating warranty: 12 months from transfer of the product to the consumer. If the transfer date is absent, the warranty is calculated from the manufacturing date stated in the Certificate of Acceptance.

• Service life: 5 years. Actual intended-use life may significantly exceed this period if all operating, storage and transportation rules are followed.

• Warranty does not cover batteries.

• Warranty does not apply when defects arise from violation of transport/storage/care/operation rules, mechanical damage, actions of third parties, force majeure, or a broken factory warranty seal.

If the product fails during the warranty period, the owner should send the device, operating manual, and a repair request to the manufacturer or its representative, including the owner's name, address, telephone number, brief description of the fault, and the circumstances and date when it occurred.

11 Manufacturer Address

TRONITEK LLC
15 Akademika Postovskogo St.
Yekaterinburg 620147, Russia
Tel.: +7 (343) 267-23-30
E-mail: mail@tronitek.ru
www.tronitek.ru

12 Disposal

Technical disposal of the device is possible. At the end of its service life the device does not require special preparation before its components are sent for disposal. In medical institutions it is disposed of according to the applicable Russian sanitary rules for Class A medical waste.

The device contains valuable materials that may be recycled in accordance with environmental-protection requirements. Deliver it to an appropriate collection/recycling point. Dispose of batteries through specialized collection points or according to local authority guidance.

13 Product, Container and Packaging Markings

- Caution - consult instructions for use / important warnings and precautions.
- Follow the operating instructions.
- Fragile - handle with care.
- Keep dry.
- Temperature limits.
- Humidity limits.
- Type BF applied part / protection against electric shock.
- Direct current.
- Date of manufacture.
- Manufacturer.
- Serial number.
- Ingress-protection rating.
- Mobius loop / recyclable packaging; PAP 21 identifies cardboard.
- Separate collection of electrical and electronic equipment; do not dispose of with household waste.
- Mandatory certification conformity mark.

14 National Standards Applied by the Manufacturer

Standard	Subject
GOST 177-88	Hydrogen peroxide - technical specifications
GOST 15150-69	Climatic versions; operation, storage and transportation environmental conditions
GOST 25644-96	Synthetic powdered detergents - general technical requirements
GOST R 50444-92	Medical instruments, apparatus and equipment - general technical specifications
CISPR 11:2004 / GOST R 51318.11-2006	RF equipment - industrial radio disturbance limits and measurement methods
GOST R IEC 60601-1-2010	Medical electrical equipment - general requirements for basic safety and essential performance
GOST R IEC 60601-2-10-2019	Particular requirements for nerve and muscle stimulators
GOST R IEC 60601-1-2-2014	Electromagnetic compatibility - requirements and tests
SanPiN 2.1.7.2790-10	Sanitary and epidemiological requirements for handling medical waste

Part II. Instructions for Use

15 General Information

The device may be used for various diseases and syndromes to obtain analgesic, antispasmodic, vascular, anti-inflammatory, trophic and general regulatory effects, as stated by the manufacturer.

It is intended for use in healthcare and preventive-care institutions and at home in accordance with a physician's directions. Medical personnel and individual users should use it only after reading the operating manual.

Treatment may be performed with the integrated electrode or remote electrodes (Appendix A). The connector accepts the supplied remote self-adhesive electrodes and compatible remote therapeutic electrodes. The manufacturer states that course-based treatment may increase effectiveness.

16 Intended Purpose, Indications, Contraindications and General Directions

16.1 Intended purpose

DENAS-PCM Pro is intended for dynamic electroneurostimulation over a wide frequency range, with the option to use preset automated programs or select an individualized treatment program.

16.2 Indications stated in the manufacturer's Russian manual

• Acute and chronic pain syndromes: acute pain of various locations, postoperative pain, chronic headache, dental pain, back and neck pain, joint pain.

• Injuries: bruises, fractures, dislocations, rehabilitation after sports injuries.

• Respiratory conditions: cough, choking/dyspnea, difficulty breathing.

• Digestive/GI conditions: abdominal pain, heartburn, nausea, vomiting, bloating, constipation, diarrhea.

• ENT conditions: nasal congestion, impaired nasal breathing, sore throat, hoarseness.

• Cardiovascular conditions: arterial hypertension and arterial hypotension.

• Musculoskeletal conditions: muscle pain; ligament, tendon and muscle injuries; back and neck pain; postural disorders; joint pain and stiffness; consequences of injuries.

• Nervous-system conditions: headache, dizziness, migraine, vegetative-vascular dystonia, weather sensitivity, impaired performance and sleep.

• Genitourinary conditions: kidney-area pain, urinary disorders, painful or irregular menstruation, inflammatory conditions, erectile dysfunction, prostatitis.

• Skin conditions: urticaria, acute allergic reactions, insect bites, cellulite.

• Rehabilitation after illness, surgical interventions, and injuries.

• Support of adaptive capacity under adverse factors, intense physical or mental work, fatigue, chronic-fatigue syndrome, difficulty falling asleep/insomnia, increased irritability, depressive states, sexual-function disorders, and prevention of colds, as stated in the source manual.

16.3 Contraindications

Absolute - use is prohibited:

• Individual intolerance to electric current.

• Presence of an implanted cardiac pacemaker.

Relative - use should be agreed with the treating physician:

• Status epilepticus.

• Neoplasms of any etiology or location.

• Acute febrile states of unclear etiology.

• Venous thrombosis.

• States of acute mental, alcohol-related, or drug-related excitation.

The manufacturer states that no adverse effects have been identified when the operating conditions and rules in the manual are observed.

16.4 General directions

WARNING / CAUTION. Do not discontinue medications prescribed by a physician because of use of this device. Changes to medication regimens should be made only in consultation with the treating physician.

WARNING / CAUTION. Remote therapeutic electrodes may be used only in Frequencies and Programs modes.

No special conditions are required for treatment. Sessions may be performed independently or with an operator. After a session, the patient is advised to rest for 10–15 minutes. Skin may be moistened with water before treatment to improve contact.

16.4.2 Treatment methods

Stable method: electrodes remain stationary on the selected zone for the entire treatment time. Used for small zones and biologically active points; on larger zones, electrodes may be moved sequentially between adjacent skin areas.

Labile method: electrodes are moved smoothly over the treatment zone at approximately 0.5 to 2–3 cm/s using linear, circular or other movements with slight pressure.

Labile-stable method: combines movement with brief pauses at selected locations, for example areas of maximum pain.

Treatment duration

When the main objective is urgent relief, for example analgesia, the criterion for sufficient treatment is disappearance or substantial reduction of complaints. During course treatment, average session durations may be used:

• Infants under 1 year: 5–10 min total; 1–3 min per zone.

• Children 1–3 years: 10–15 min total; 3–5 min per zone.

• Children 3–5 years: 15–20 min total; 5–7 min per zone.

• Children 5–12 years: 20–25 min total; 7–9 min per zone.

• Children over 12 and adults: up to 30–40 min total; 10–15 min per zone.

Stimulation power / intensity

Minimum: no sensation or only slight vibration. The source manual recommends this level for children under 12 and for certain cardiovascular/neurologic complaints.

Comfortable: above sensory threshold, with painless vibration, tingling or mild burning. This is the level most often used in practice.

Maximum: sensations at the pain threshold, including painful burning/tingling and possible involuntary muscle contraction. The source manual describes its use for intense pain syndromes.

WARNING / CAUTION. Power may need to be increased or decreased as individual sensitivity changes and pain decreases. Do not exceed the patient's pain-tolerance threshold.

16.4.3 Stimulation modes - Programs

Program	Zones	Manufacturer's stated use
Allergy	Epigastric abdominal area; C7 area	Urticaria, acute allergic reactions, insect bites
Pain	Painful area	Chronic headache, dental pain, back/neck pain, joint pain
Severe Pain	Painful area	Acute pain of various locations; postoperative pain
Bloating	Anterior abdominal wall	Abdominal bloating
VSD	Cervical-collar zone	Vegetative-vascular dystonia, weather sensitivity, impaired performance/sleep
Gynecologic Pain	Painful abdominal area	Painful menstruation
Gynecology	Soles; cervical-collar; lumbosacral	Menstrual irregularity; inflammatory conditions
Hypertension	C2 and C7 areas	Arterial hypertension
Hypotension	Cervical-collar zone	Arterial hypotension
Head	C2; cervical-collar; hand head-zone by Su-Jok	Headache, dizziness, migraine
Throat	Hand neck-zone by Su-Jok; submandibular zone	Sore throat, hoarseness
Diarrhea	Anterior abdominal wall; lumbosacral	Diarrhea
GI Pain	Painful abdominal area	Abdominal pain, heartburn
Constipation	Anterior abdominal wall; lumbosacral	Constipation
Cough	Submandibular; jugular notch	Cough
Muscles	Area of injury or pain	Muscle pain; ligament, tendon and muscle injury
Muscles/Sports	Affected muscle area*	Muscle pain; altered muscle tone
Runny Nose	Hand nose-zone by Su-Jok; nasal wings/sinus projections	Nasal congestion; impaired nasal breathing
Potency	Lumbosacral; cervical-collar; feet	Erectile dysfunction; prostatitis
Kidneys	Lumbosacral; feet	Kidney-area pain; urinary disorders
Back	Spinal projection / painful area	Back and neck pain; postural disorders
Joints	Affected joint; segmental zone	Joint pain/stiffness; consequences of injury
Nausea	Epigastrium; right and left hypochondria	Nausea, vomiting
Trauma	Affected body area	Bruises, fractures, dislocations; rehabilitation after sports injuries
Choking/Dyspnea	Jugular notch; C7	Choking/dyspnea; difficulty breathing
Cellulite	Problem area - buttocks, abdomen, thighs*	Cellulite

* Used with self-adhesive electrodes.

Frequencies - manufacturer's stated therapeutic purposes

Mode	Manufacturer's description
1.0–4.0 Hz	Directed influence on lymphoid, bone and connective tissue.
4.0–7.0 Hz	Directed influence on structures of the autonomic nervous system.
7.0–9.9 Hz	Correction of function of parenchymal organs.

Mode	Manufacturer's description
10 / 20 Hz	General regulatory action; acute-period and rehabilitation applications; stabilization/enhancement of effects of other frequencies.
60 / 77 Hz	General-purpose frequencies for pronounced local complaints; analgesia, local/regional blood flow and inflammatory-process applications in acute and rehabilitation periods.
125 / 140 Hz	Musculoskeletal conditions and neuralgias accompanied by pronounced pain.
200 Hz	Rapid analgesia for musculoskeletal conditions, neuralgia and injuries.
7710	For signs of arterial hypertension, hypertensive-type vegetative dystonia and sleep disorders.
7720	For normalization of autonomic support and reduction of swelling.
77AM	For signs of hypotonic or atonic states of internal organs.

MED - Minimum Effective Dose

MED is an automated program described by the manufacturer for rehabilitation and prevention during physical overstrain, psycho-emotional overload, chronic-fatigue syndrome and internal-organ conditions, including prevention of colds during epidemics. The source recommends at least once daily for 8–12 days. Recommended power is minimum or comfortable. MED has two phases and an audible signal is produced at the end of each phase.

> **WARNING / CAUTION. MED is performed only with the device's integrated electrode. Keep the electrode stationary on the skin while MED is running. Do not exceed the pain-sensitivity threshold.**

Screening

Screening is intended to help select treatment zones and identify latent trigger zones by comparing changes in the skin's electrical characteristics during stimulation at different points.

When skin contact is detected, a 5-second measurement interval begins. At the end, the device sounds and displays ΔLt from 0 to 100. Record the value, lift the electrode for 1–2 seconds and move to an adjacent area. Areas with values that differ substantially upward or downward are treated as latent trigger zones. The source manual recommends additional treatment of identified trigger zones for 1–5 minutes at 60 or 77 Hz.

> **WARNING / CAUTION. Keep the electrode stationary during each Screening measurement.**

17 Operating Procedure

17.1 Preparation

Remove the protective film from the display. Clean the electrodes.

> **WARNING / CAUTION. Before use, perform maintenance as described in Section 6. Before and after each procedure, treat the device electrode with 3% hydrogen peroxide plus 0.5% detergent solution using a soft lint-free wipe. An untreated electrode may cause cross-infection when the device is shared. Store with a dry electrode.**

17.2 Batteries

Install batteries as described in Section 7.

17.3 Patient position

During treatment the patient may sit or lie in a comfortable position.

> **WARNING / CAUTION. Do not perform DENAS-PCM Pro procedures while standing, in order to reduce the risk of an unfavorable patient reaction.**

17.4 Switching on

Press the power button. After the audible signal and startup screen, the device opens the Main Menu if Memory is disabled, or the mode active at shutdown if Memory is enabled.

17.5 Selecting a mode or function

Use the navigation buttons to select the required program, mode or function and press the selection/confirm button.

17.6 Returning through menus

Use Back to move to the parent menu and Main Menu to return directly to the Main Menu.

17.7 Switching off

Press and hold the power button for approximately 3 seconds. The display shows the manufacturer's farewell message and the device switches off after an audible signal.

17.8 Connecting self-adhesive electrodes

Connect the cable to the electrode and to the device.

WARNING / CAUTION. Self-adhesive electrodes are intended for individual use to prevent cross-infection. They may be reused by the same user while the adhesive layer remains intact.

WARNING / CAUTION. Do not apply alcohol-containing or oily substances to self-adhesive electrodes, and do not apply oils or creams to the skin before using them. These substances can damage the adhesive layer and accelerate electrode wear.

Appendix A. Accessories Used

Accessory	Purpose
Remote zonal therapeutic electrodes	Non-invasive therapeutic stimulation of painful areas, lesion areas and reflexogenic zones on intact skin. Fix to the skin with conductive straps.
Remote therapeutic foot electrode	Stimulation of reflexogenic zones on the plantar surfaces of the feet.
Remote therapeutic massage electrodes	Stimulation of painful areas, injury areas, reflexogenic zones and acupuncture points.
Remote paraorbital therapeutic electrode	Preventive and therapeutic non-invasive stimulation of biologically active points around the eyes in the paraorbital zone.
Remote point therapeutic electrode	Therapeutic stimulation of biologically active points.

Appendix B. Atlas of Zones for the Programs Menu

The original manual contains anatomical drawings for these zones. The English translation below identifies the captions and zone names. Use the corresponding drawings in the manufacturer's Russian original when locating a zone.

Program	Translated atlas caption
Allergy	Zone 1: epigastric abdominal area. Zone 2: area of the 7th cervical vertebra.
Pain / Severe Pain	Treat the painful area. For large areas, reposition the electrode sequentially over adjacent points.
Bloating	Anterior abdominal wall.
VSD	Cervical-collar zone.
Gynecologic Pain	Painful abdominal area.
Gynecology	Zone 1: soles of feet. Zone 2: cervical-collar zone. Zone 3: lumbosacral zone.
Hypertension	Zone 1: area of the 2nd cervical vertebra. Zone 2: area of the 7th cervical vertebra.
Hypotension	Cervical-collar zone.
Head	Zone 1: C2 area. Zone 2: cervical-collar zone. Zone 3: hand projection of the head according to Su-Jok.
Throat	Zone 1: hand projection of the neck according to Su-Jok. Zone 2: submandibular area.
Diarrhea	Zone 1: anterior abdominal wall. Zone 2: lumbosacral zone.
GI Pain	Painful abdominal area.
Constipation	Zone 1: anterior abdominal wall. Zone 2: lumbosacral zone.
Cough	Zone 1: submandibular zone. Zone 2: jugular notch.
Muscles	Area of muscle injury or pain.
Muscles / Sports	Affected muscle area; the original atlas shows self-adhesive-electrode placement examples.
Runny Nose	Zone 1: hand projection of face/nose according to Su-Jok. Zone 2: nasal wings and projections of the paranasal sinuses.
Potency	Zone 1: lumbosacral. Zone 2: cervical-collar. Zone 3: feet. This program is unavailable when Children's Doctor is enabled.
Kidneys	Zone 1: lumbosacral. Zone 2: feet.

Program	Translated atlas caption
Back	Zone 1: cervical spine for neck pain. Zone 2: thoracic/lumbar/sacral spine for back pain; the atlas distinguishes severe from dull aching pain.
Joints	Zone 1: affected joint. Zone 2: lower back for leg joints or cervical-collar zone for arm joints.
Nausea	Epigastric area and right/left hypochondria.
Trauma	Around the affected area. Do not apply directly to wounds or areas of broken skin.
Choking / Dyspnea	Zone 1: jugular notch. Zone 2: 7th cervical vertebra.
Cellulite	Affected zone. The source manual describes courses of at least two weeks per zone (abdomen, buttocks, outer/posterior/anterior thighs).

WARNING / CAUTION. Where the original atlas states that the device electrode or remote electrodes must be applied to bare skin, follow that instruction. Never stimulate through damaged skin.

Warranty Repair Coupon - Translation

Product: DENAS-PCM Pro Universal Transcutaneous Electrostimulator

Product serial number: _____

Date of manufacture: _____

Date of purchase: _____

Owner: _____

Address: _____

Telephone: _____

Date sent for repair: _____

Reason for repair: _____

Repair record: _____

Buyer signature: _____

Date received: _____

The warranty for a repaired product is six months from receipt after repair. If the remaining warranty from original purchase is longer than six months, the longer period applies. The warranty period is also extended by the time the product remains under repair.

Certificate of Acceptance - Translation

The DENAS-PCM Pro Universal Transcutaneous Electrostimulator complies with TU 26.60.13-023-44148620-2020 and is declared fit for operation.

Date of manufacture: _____

Serial number: _____

Acceptance mark: _____

Seller signature: _____

Date transferred to consumer: _____

Buyer signature: _____

Date: _____

WARNING / CAUTION. Inspect the device carefully at purchase. Housing or display defects such as scratches, cracks, or chips are not treated as warranty cases in the source manual. The operating warranty is calculated from the date of transfer to the consumer; if that date is absent, it is calculated from the date of manufacture. Warranty obligations do not apply after the warranty storage period or when the factory warranty label has been broken.

Translator's Note

This English PDF was prepared as a faithful working translation of the Russian DENAS-PCM Pro operating manual identified on its title page as TRTK 23.0-03.70-02 RE. It is intended to improve English-language accessibility. It does not replace professional medical advice, applicable U.S. labeling requirements, or an official manufacturer-issued English IFU/Operating Manual. Technical values, contraindications, warnings, and program names should be cross-checked against the manufacturer's original before regulatory or clinical use.