Diamond Shield Crystal

Wellness Device

Micro Currents - EMS

Instruction Manual

Index

Introduction

The Diamond Shield Crystal is a very effective Zapper:

- Very wide frequency range of 0.5 Hz to 2.5 MHz.

- Possibility of very small voltages (0.1 V)
  to high voltages (16 V)

- Impulse discharge

- Wobble functionality

- Modulation of the output frequencies

- Constant current control

- Running frequencies from special chip cards (optional
  accessory)

The operation can be done via a 9V battery or an appropriate rechargeable battery.

The device can be used to enhance the well-being.

Important Notices

Safety Instruction

- Use only the supplied grounding cable. Under no circumstances use a different cable for grounding.
- Under any circumstances never insert an electrode plug into an electrical outlet.
- Always insert the grounding cable to the Diamond Shield Crystal and then connect it to the power outlet.
- Never use this device to anyone who has a pacemaker.
- Never use this device in the eye area.
- Keep the Diamond Shield Crystal always clean and dry – wiping it with a damp cloth is permitted.

Using of the device according to the operating instructions is essential. DermaVit assumes no liability for misuse.

Note
In case of feeling a tingle or burning on your skin during the usage please lower the intensity. The efficiency is independent from the above. When hypersensitive to metal, we gladly exchange the metal bracelets with cloth bracelets.

The good effect of the earthing (so called negative ions) occurs only if the power socket is properly earthed. Be sure to check this with the power socket tester.

Warning
The use of the earthing plug (or any other electrical appliances) to an incorrect power socket can be perilous.
Do not use the earthing cable during a thunderstorm.

Unpacking

Before using this device, please check of the completeness of the supplied accessories:

- Connection cable for hand- or bracelet-electrodes
- Grounding cable and power socket tester
- 2 Bracelet electrodes
- Electrode belt
- 9V Battery

Storage and transportation

The equipment shall be always stored in dry, closed rooms. If the device is transported or stored in extreme temperatures, a period of at least 2 hours should be observed for acclimatization before handling.

Intended Usage

The device is used to increase the subjective well-being of people who are open to such an approach.

The devices are intended for use in clean, dry rooms. They cannot be used in extreme dust, damp, dusty air, danger of explosion or chemical vapours.

Protect the Diamond Shield Crystal from direct sunlight.

The permissible operating temperature ranges from +15°C to +30°C. During storage or transportation, the ambient temperature can be between -20 °C and +70 °C. If condensation has been formed during transportation or storage, the device must acclimate for about 2 hours and dried by appropriate circulation. Thereafter, the operation of the device is permitted. Nominal data with tolerances are valid after a warm-up time of minimal 30 minutes at an ambient temperature of 23 °C. A value without tolerances is a guiding value for the device.

Maintenance

The outside of the device should be cleaned regularly with a soft, non-linting cloth. The Diamond Shield Crystal should never be cleaned with alcohol or other solvents.

Feature Identification

Front Side

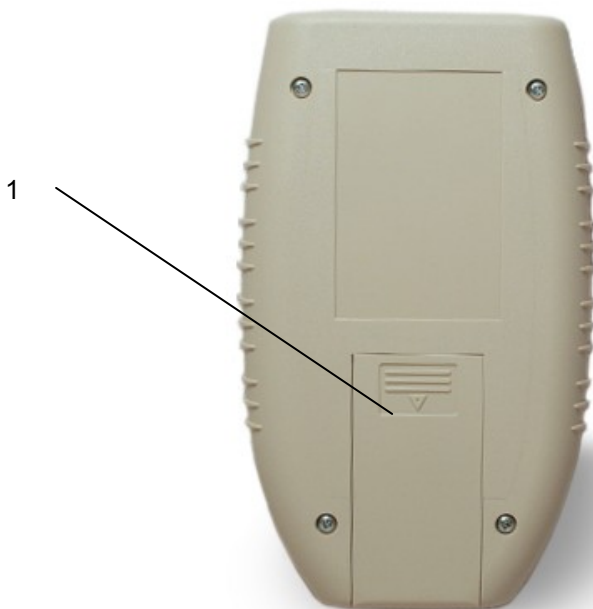|		
1. LED	4. Mute Switch	7. Start-button
2. LCD-Display	5. Memory key	8. EXIT-button
3. Arrow keys	6. On-Off switch	9. OK-button

Connection Side

1 2 3

1. Grounding connection
2. Chip card slot
3. Connection for hand-, bracelet-, belt-electrodes

Back side

1. Battery compartment

Bringing into service

Insert the battery

1. Open the battery compartment cover on the back of the device.
2. Insert the supplied battery. Please keep in mind that the battery has to be inserted correctly according to its polarity. (If however the battery is inserted incorrectly, the device will not be damaged by that.) We recommend using alkaline batteries or rechargeable batteries)

Changing the battery

The clock setting is maintained for only a few seconds without battery. Therefore, the battery should be changed quickly. Proceed as follows:

1. Turn off the device.
2. Remove the new battery from its package.
3. Open the battery cover on the rear panel.
4. On the basis of the old battery you will see the correct direction of insertion.
5. Remove the old battery and replace it as quickly as possible with the new one. (The device is not damaged by an incorrectly inserted battery).
6. If you are using the auto-start programs, you should check the clock setting.

Connecting the cables

1. Connect the connection cable for the electrodes in the right socket (above LED)
2. Connect the bracelets or the belt.
3. If you want to work with grounding: Connect the grounding cable to the left socket. Then connect the ground wire to the outlet.

Operation

Switch On
For switching on the device please press briefly the *POWER* button.

Switch Off
Press the *"POWER"* button and hold it for about 1 second until the device is turned off.

Switch off automatically
If the unit is not performing a frequency program and/or is not used for 12 minutes, it will switch off automatically to save battery life.

Charge condition of the battery
The state of charge of the battery is displayed on the LED. If the device is switched on, the LED flashes. When the battery is full, the flashing frequency is slow. When the battery charge is low, the flashing frequency is faster. If the battery is empty, a message appears, and the device can no longer be used.
The device is fully functional even if the battery is almost empty.

Activate / deactivate the loudspeaker
Press the sound button to switch the loudspeaker on or off. The current state is then displayed briefly.

Keypad lock
The device has a keypad lock to prevent accidental operation of buttons.
To activate or deactivate the keypad lock briefly press the "Power" button and then press "Ok". The device will display the status of the keypad lock then.

Menu Navigation

Navigation through the menu structure of the Diamond Shield Crystal is simple and identical for all functional areas:

- The currently selected item is marked with a small black rectangle. Use the up arrow key ("+") to select the next higher element and down ("-") arrow key to select the following.

- If you have already selected the last item in the menu and then you press the down arrow key, the first item in the menu will be selected. If you press the up arrow key it will go back to the last entry. This allows you to change quickly between the last and the first item in the menu.

- A scroll bar on the display's right edge appears, when the current list has more entries than can be displayed. The scroll bar then indicates where you are in the list.

- Confirm your selection with the *OK* button. Then a new display that corresponds to the selected item appears depending on the selected element.

- Press the *EXIT* key to return one level up (if you are not already in the main menu).

Important Definitions

- *Frequency Program:* A frequency program includes all features of a single application, such as the frequency, intensity or duration.

- *Sequence:* A sequence is a serial arrangement of several frequency programs. For example, there is a sequence with the name *"Diamond Shield"*, including the frequency programs *DS1, DS2* ... up to *26 DS*.

Main Menu

A few seconds after switching on the device, the main menu will be displayed. You can always go back to the main menu by pressing the EXIT button.

The Main Menu shows the following items:

- *Chip card:* This entry is only shown if a chip card is inserted. It allows you to execute, the content of the chip card. To make sure that the Chip Cards are identified by the device, it's recommended to insert the Chip Cards when the device is turned off.

- *Standard:* Via this menu you can use the preinstalled sequences and frequency programs.

- *Settings:* Via this menu point you conduct various settings.

„Standard" menu

Under *Standard* you find the pre-installed frequency programs the Diamond Shield Zapper Crystal is supplied with by default.

The first level of the menu shows the available sequences. When a sequence is selected and the OK button is pressed, a list of the frequency programs of the selected sequence will be shown.

Executing a sequence

Select the desired sequence with the + and - button. Then press the Start button. All individual programs of this sequence will be performed now.

The device first checks the electrical contact (see "Contact Control"). After that all the individual programs of the selected sequence are executed successively.

Running a single program from a sequence

Select the desired sequence with the + and - button. Press the *OK* button. The individual programs of this sequence are displayed. Then select the desired single program.

This program is executed by pressing the *START* button.

Beforehand the device checks the electrical contact (see "Contact Control").

Contact Control
Before a sequence or a single program will be executed, the device checks whether the required electrical contact exists.

If the contact is not good enough, the unit will beep every 3 seconds. By pressing the "OK" button, the frequency program can be executed. However, this is only useful for testing purposes.

If the required contact is made, the unit will display for a short time the resistance in Kiloohm (kΩ) and then automatically start the execution of the frequency program.

During the execution of frequencies

Display

```
┌─────────────────────┐     ┌─────────────────────┐
│   Diamond Shield     │     │        DS 11         │
│                      │     │                      │
│       00:07          │     │       00:07          │
│                      │     │                      │
│  0.6V     0.30mA     │     │  0.6V      0.30mA    │
└─────────────────────┘     └─────────────────────┘
```

- In the headline the sequence name and the name of the current single frequency program are shown in turns.

- Below the remaining execution time is displayed (minutes: seconds).

- Below the intensity is displayed.

  ○ For frequency programs with current control the actual voltage is displayed on the left side. On the right side the selected intensity is displayed in milliamps (1/1000 amps).

  ○ For frequency programs without current control the actual voltage in volts is displayed.

Operating options

- Pressing the start button will stop the execution. Pressing the start button again allows the execution to proceed from the point of interruption.

- Intensity is set by using the arrow keys to move up and down (*"+"* - keys and "–").

- Pressing the *EXIT* button will quit the current application.

Continuing an interrupted sequence

If the execution of a sequence has been interrupted for some reason, you can continue by pressing the "Memory" button. This applies even if the sequence was interrupted because the battery has become empty during program execution. Obviously, the correct chip card must be inserted, if the interrupted sequence was stored on a chip card.

Menu „Settings"

This menu is used to configure the device. The settings made here are retained even after turning off or changing the battery.

- **Language**: Select from English or German. The input is done with the arrow keys left and right.

- **Contrast**: Adjusts the contrast of the LCD display. The input is done with the arrow keys left and right.

- **Time:** The current time is displayed. To set the time, press the OK button. The clock is stopped and the arrow keys left and right change the hours.
  By pressing the OK button you switch to the minutes. The arrow keys left and right change the minutes now.
  Pressing the OK button will change to the seconds.
  In order to take over the adjusted time, move to a different configuration entry by means of the arrow keys up or down. Please also note the instructions in section *Changing the battery*.

- **AutoStart1 and AutoStart2:** This shows whether the auto-start of a program is active at a configured time. By pressing the OK button you switch to the screen which provides the appropriate configuration. See chapter Configuring the Auto-Start function

- **Const amps:** enables or disables constant current control. If you press the left and right arrow then the input is done. If *'NO'* is selected, the intensity of all the frequency programs (including those that are stored on the chip cards) is usually set on the voltage and does not have a constant current control.

- **Speaker:** the tone pitch of the internal speaker. Use the arrow keys left and right to choose 4 or 5 kHz.

- **HW Rev.:** Displays the hardware version of the device.

Configure the AutoStart function

The device can be configured to turn on automatically at a configured time and execute a sequence. There are two separate auto-start configurations allowing two different sequences at different time points to be executed automatically. The corresponding configuration menu can be reached as follows:

1. Select the menu item "configurat." From the main menu and press the OK button.
2. Select either the menu item "AutoStart1" or "AutoStart2" and press the OK button.

The configuration menu has the following entries:

- The input is done with the arrow keys left and right.
- Message: The auto-start function can immediately begin executing the configured sequence or it may first display a prompt that is connected with an alarm signal. The input is done with the arrow keys left and right.
- Time: Time of the auto-start feature.
  The left and right arrow keys change the hours or minutes. The OK button switches back and forth between hours and minutes.
- Run every: The auto-start function can be configured so that it is not carried out every day, but e.g. every other day or every third day.
  The input is done with the arrow keys left and right.
- Start: Next day the auto-start should occur. This configuration is only possible, if the auto-start function is not configured for each successive day.
  The input is done with the arrow keys left and right.
- Start from: If a chip card is inserted, you can specify whether the auto-start sequence is on the chip card or whether it is in internal memory.
  The input is done with the arrow keys left and right.
- Sequence: The desired sequence can be selected. The input is done with the arrow keys left and right.

Wobble (maximum up to twice the base frequency, at very high frequencies possibly a little less)

Working with the chip cards

Overview

As accessory, three different types of chip cards are available:

- Predefined chip cards contain permanently stored sequences and frequency programs.

- Master chip cards are delivered empty and can be programmed for you by your therapist with individual sequences and frequency programs.

Playing frequency programs from a chip card

Regardless of the type of chip card, their sequences and frequency programs can be played as follows:

1. Insert the chip card in the device.

2. Select the menu item "chip card" from the main menu and press the *OK* button.

3. A submenu will pop up displaying the sequence(s) of the chip card.

4. If you want to play an entire sequence, then select this sequence, and then press the *START* button.

5. If you want to play a single frequency program, you first select the corresponding sequence. Then press the *OK* button to enter the submenu. Then select the desired frequency program and press the *START* button.

Technical Data

General
- Operating temperature: +15 °C – +30 °C
- Storage temperature: -20 °C – +70 °C
- Power supply: 9V alkaline (manganese) battery or comparable accumulator.

Connections
- 3.5 mm socket (stereo) for grounding plug
- 3.5 mm socket (stereo) for signal outputs (electrodes)
- Chip card slot

Characteristic of the output signals
- Frequency range 0.5Hz – 2,5MHz
- Waveforms: square wave signal
- Minimum accuracy of the frequencies: 100 ppm
- Output Voltage: 0.1 - 16V (measured from the 0V line)
- Offset: No offset, positive offset, positive offset + 0.3V
- Modulation up to 254 times the output frequency (2,5 MHz must not be exceeded).
- Wobble (maximum up to twice the fundamental frequency)
- Voltage control to keep the output current constant (only at frequencies above 20 Hz)
- Internal resistance: 1 kOhm

Declaration of Conformity

**KONFORMITÄTSERKLÄRUNG /
DECLARATION OF CONFORMITY**

Hersteller / Manufacturer:
Dermavit GmbH + Co KG, Unterer Anger 15/Rgb., 80331 München, Germany

**Die Dermavit GmbH & Co KG bescheinigt die Konformität des Produkts /
Dermavit GmbH + Co KG herewith declares conformity of the product**

Bezeichnung / Productname: Funktionsgenerator / Function Generator
Typ / Type: Diamond Shield Crystal

mit den folgenden Bestimmungen / with applicable regulations:

EMV Richtlinien / EMC Directives:
2004/108/EG;

Elektromagnetische Verträglichkeit / Electromagnetic compatibility:
DIN EN 61326-1; VDE 0843-20-1:2006-10 Elektrische Mess-, Steuer-, Regel-
und Laborgeräte - EMV-Anforderungen - Teil 1: Allgemeine Anforderungen
(IEC 61326-1:2005); Deutsche Fassung EN 61326-1:2006
DIN EN 61326-2-6; VDE 0843-20-2-6:2006-10 Elektrische Mess-, Steuer-, Regel-
und Laborgeräte - EMV-Anforderungen - Teil 2-6: Besondere Anforderungen -
Medizinische In-vitro-Diagnosegeräte (IVD) (IEC 61326-2-6:2005);EN 61326-2-
6:2006

Datum / Date:
13. 04. 2015
Unterschrift / Signature:

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HP Ulla Burgard
Geschäftsführerin / Managing Director)

For disposal

The Diamond Shield Crystal device must – as well as other electronic devices – not be disposed with normal household waste. You can submit to the local separate collection system for electrical appliances or return it to the address below (unfree postage will not be accepted).

Please also note that the disposal of batteries is prohibited on the normal household waste for environmental reasons. You can return them free of charge to the public collection of communities or wherever batteries are sold.

You are welcome to return the batteries to the following address (unfree postage will not be accepted):

DermaVit GmbH & Co. KG
Unterer Anger 15/Rgb.
80331 Munich

DermaVit GmbH & Co. KG
Unterer Anger 15/Rgb.
80331 Munich
Germany

Tel: +49 (0) 89-18 90 84 6-0
Fax: +49 (0) 89-18 90 84 6-15
E-Mail: info@derma-vit.com
Web: http://www.derma-vit.com