Diamond Shield

Professional

Instruction Manual

Valid for version 2.0

Index

Introduction

The Diamond Shield Professional is a very effective Zapper:

- Very wide frequency range of 0.5 Hz to 2 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

The Diamond Shield Professional allows you to define your own frequency programs and save them to your Master Chip Card (optional accessory). These individual chip cards can then be played on any other Diamond Shield.

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 (optional accessory). Under no circumstances use a different cable for grounding.

- Under any circumstances never insert a plug into an electrical outlet.

- Always insert the grounding cable to the Diamond Shield 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 always clean and dry – wiping it with a damp cloth is permitted.

Unpacking

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

- Connection cable for hand- or bracelet-electrodes
- Grounding cable (optional accessory)
- 2 Bracelet electrodes
- 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, danger of explosion or chemical vapours.

Protect the Diamond Shield 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 should never be cleaned with alcohol or other solvents.

Feature Identification

Front Side

1. LED
2. LCD-Display
3. Numeric Keypad
4. Arrow keys
5. START-button
6. On-Off switch
7. Mute Switch
8. OK-button
9. EXIT-button

Connection Side

1   2   3

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

Back side

1. Battery compartment

1

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)

Connecting the cables

1. Connect the connection cable for the bracelet-electrodes in the right socket (above LED)

2. Connect the bracelets.

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.

Turn 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.

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

Menu Navigation

Navigation through the menu structure of the Diamond Shield 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, review and edit (only for Master Chip Cards) the content of the chip card.

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

- *Individual:* Via this menu point you can create or execute self-defined 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 Professional is supplied with by default.

These programs cannot be changed or deleted.

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.
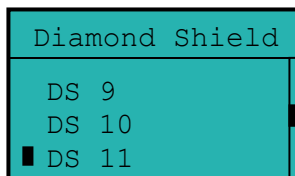
Executing a sequence

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
00:07
0.6V   0.30mA

DS 11
00:07
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.

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

- Pressing the *EXIT* button cancels the execution.

„Individual" Menu

This menu allows you to define and run individual frequency programs. It can store up to 20 programs. The stored frequencies are conserved even when the device is switched off or the battery is changed.

It displays a list of all the programs which have been already defined. (For a new device, this list will be of course blank). The selected program is executed by pressing the start button.

Pressing the *OK* button you enter a submenu that allows you to edit the selected frequency program. The following actions are possible:

- **Edit:** The frequency characteristics of the program can be changed. See chapter *"Define or change a frequency program."*

- **Delete:** The frequency program is deleted.

- **Move up:** The frequency program is moved one place up in the "Individual" menu.

- **Move down:** The frequency program will be moved down one in the list.

The entry *<New Freq.>* allows you to define a new frequency. See chapter *"Define or change a frequency program".*

Define or change a frequency program

This menu allows you to define a frequency program. The following entries are available:

- **Name:** The name of the frequency program, under which it is shown in the "Individual" menu or on an individual chip card. The entry of the name is described in this chapter.

- **Frequency 1:** fundamental frequency of the program (must be between 0.5 Hz to 2 000 000 Hz). A new number is entered using the numeric keys. The previous number is automatically deleted. If only individual digits are to be deleted, this is possible by pressing the arrow key to the left. It is not necessary to specify a decimal place.

- **Offset:** Offset of the signal. The input is done with the arrow keys left and right. You can switch between the options *no* (no offset), *pos* (positive offset) and *pos +* (positive offset + 0.3V).

- **Wobble:** Enable wobble mode. When wobbling, the device varies continuously and cyclically the output frequency between the frequency 1 and frequency 2. The input is done with the arrow keys left and right.

- **Frequency 2:** Second (higher frequency) for wobbling. This input is only available if *Wobble* is enabled. The 2nd frequency must be higher than the 1st frequency. However, it must not be greater than twice the first frequency. The input is done as described at 1st frequency.

- **Wobble Time:** time in which a wobble cycle is complete (frequency 1 → frequency 2 → frequency 1). This input is only available if *Wobble* is enabled. The input is done with the arrow keys left and right. The time must be between 6 and 30 seconds.

- **Constant amps:** This input is not available when Const power has been disabled in the configuration.
  In the **constant current control** the device maintains the current flowing through the body constant. For this purpose,

the voltage is increased or decreased according to the instantaneous resistance of the skin and the electrodes. The input is done with the arrow keys left and right.

- **Intensity:** intensity in milliamps (1/1000 amps) or volts. Depending on whether the constant current control is enabled or not. The input is done with the arrow keys left and right.

- **Duration:** Execution time of the program in minutes and seconds. Using the arrow key to the left the current time can be deleted. A new time can be entered by using the numeric keys. The comma key is used to separate minutes and seconds. If the comma key is not pressed, the number entered will be used in seconds.
  For Example: The input of 5.15 results in a time of 5 minutes and 15 seconds.

- **Modulation:** enables or disables modulation. The input is done with the arrow keys left and right.

- **Mod-factor:** modulation factor between 2 and 254. This command is available only when modulation is enabled. The (multiplication) product of frequency and modulation factor must not exceed 2 000 000 Hz. E.g. at a frequency of 100 000 Hz, a 20-fold modulation is just permissible, a frequency of 500.000 Hz may be modulated only up to 4-fold, a frequency of 7874 Hz can be modulated by 254, thus approaching the modulation threshold (1999.996 Hz).
  A new number is entered using the numeric keys. The previous number is automatically deleted. If only individual digits are to be deleted, this is possible by pressing the arrow key to the left.

- **Pulse:** enables or disables pulse discharge. The input is done with the arrow keys left and right.

- **Active time:** time (in seconds) during which the output frequency is active. This command is available only if a pulse is activated. The input is done with the arrow keys left and right.

- **Pause time**: (in seconds) time when the frequency output is inactive. This command is available only if a pulse is activated. The input is done with the arrow keys left and right.

After the input is done, you have the option to run the frequency program by pressing the start button.

If you press the *EXIT* button to leave the editing menu, the device asks whether you want to save the entered frequency program or not.

Name input

When saving individual frequency programs or sequences for Master Chip Cards, a name can be entered. The following describes what possibilities exist for that:

The input of the text is done with the numeric keys by repeatedly pressing the different keys – similar to the text input with simple mobile phones without T9 predictive text technology.

An existing name is automatically cleared when the first letter of a new name is entered. However if individual letters should be erased, then this can be done with the arrow key to the left.

The device already suggests a name. Should this only be completed, then this can be done pushing the arrow key to the right before entering the first character.

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.

- **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.

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. This can be played but neither modified nor copied into the individual memory.

- Master chip cards are delivered empty and can be programmed with user-defined sequences and frequency programs.

- Database-chip cards contain predefined frequency programs that you can copy to the individual memory, edit and copy from there to a Master Chip Card.

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 *RUN* 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 *RUN* button.

Working with a Master Chip Card

Copying all individual frequency programs to a Master Chip Card
The individual frequency programs which are stored on the device can be copied to a Master Chip Card. It will then create a new sequence on the Master Chip Card and all individual frequency programs will be stored on that sequence.

1. Define one or several individual frequency programs (see *"Define or change a frequency program"* and *"Custom Menu"*)

2. Insert a Master Chip Card into the device

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

4. A submenu will appear displaying the current contents of the chip card and the additional menu items *"Indiv→CC"* and *"Delete"*.

5. Select the menu item *"Indiv→CC"* and press the *OK* button.

6. A new screen will appear so that you can enter the name of the new sequence. Please do this as described in the chapter *"Name input"*. Then follow the instructions and press the *OK* button.

7. All individual frequency programs are now stored as a new sequence on the Master Chip Card.

Deleting a Master Chip Card
The entire contents of a master-chip card can be deleted as follows:

1. Insert a Master Chip Card into the device.

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

3. A submenu will appear displaying the current contents of the chip card and the menu items *"Indiv→CC"* and *"Delete"*.

4. Select the menu item *"Delete"* and then press the *OK* button.

5. Confirm the deletion by pressing the *OK* button.

Depending on the size of the Master Chip Card this can take up to a few minutes.

Copying a sequence of the Master Chip Card to an individual memory

A sequence, which is stored on a Master Chip Card, can be copied to the memory of the personal device. In this case, all frequency programs of individual memory will be overwritten.

The frequency programs of this sequence can then be changed in the individual memory and – if desired – be later copied back to a Master Chip Card.

1. Insert a Master Chip Card into the device.

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

3. A submenu will appear displaying the current contents of the chip card and the menu items *"Indiv→CC"* and *"Delete"*.

4. Select the desired sequence, then press the *OK* button.

5. A menu will appear that displays all the frequency programs of the selected sequence and the additional menu items.

   - *Seq.→Indiv.*

   - *Rename*

   - *Move up* (if the selected sequence is not the first one)

   - *Move down* (if the selected sequence is not the last one)

   - *Delete Seq.*

6. Select *"Seq.→Indiv."* and then press the *OK* button.

7. Confirm the prompt by pressing the *OK* button.

Rename, delete, or move a sequence of a Master Chip Card

A sequence that is stored on a Master Chip Card can be renamed, deleted or moved up or down.

1. Insert a Master Chip Card into the device.

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

3. A submenu will appear displaying the current contents of the chip card and the menu items *"Indiv→CC"* and *"Delete"*.

4. Select the desired sequence and press the *OK* button.

5. A menu will appear that displays all the frequency programs of the selected sequence and the additional menu items.

6. Select the desired option and follow the instructions.

Copy a frequency program of the Master Chip Card into the individual memory

A frequency program can be copied from a Master Chip Card into an individual memory. Here, the individual memory is not overwritten, but the new frequency program is added.

1. Insert a Master Chip Card into the device.

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

3. A submenu will appear displaying the current contents of the chip card and the menu items *"Indiv→CC"* and *"Delete"*.

4. Select the desired sequence and then press the *OK* button.

5. A menu will appear that displays all the frequency programs of the selected sequence and some additional menu items.

6. Select the desired frequency program and press the *OK* button.

7. Confirm the prompt by pressing the *OK* button.

Working with a Database Chip Card

Copying a program from the data base frequency chip card into the individual memory

A frequency program can be copied from a Database Chip Card into the individual memory. Here, the individual memory is not overwritten but the new frequency program is added.

1. Insert a Database Chip Card into the device.

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

3. A submenu will appear, showing the current contents of the chip card.

4. Select the desired sequence and then press the *OK* button.

5. A menu will appear that displays all the frequency programs of the selected sequence.

6. Select the desired frequency program and press the *OK* button.

7. Confirm the prompt by pressing the *OK* 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
- Chip card slot

Characteristic of the output signals
- Frequency range 0.5Hz - 2MHz
- 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 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

<table>
<tr>
<td>CE</td>
<td>dermavit</td>
</tr>
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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 Professional

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. 2013
Unterschrift / Signature:

U. Burgard
_____
HP Ulla Burgard
Geschäftsführerin / Managing Director)

For disposal

The Diamond Shield 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