

**DOEPFER**

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# **Organ Keyboard**

# **d3m**

## **User's Guide**



## Operating and Safety Instructions

Please follow the given instructions for use of the instrument because this will guarantee correct instrument operation. Due to the fact that these instructions touch on Product Liability, it is absolutely imperative that they be read carefully. Any claim for defect will be rejected if one or more of the items was observed. Disregard of the instructions can endanger warranty.

- The instrument may only be used for the purpose described in this operating manual. Due to safety reasons, the instrument must never be used for other purposes not described in this manual. If you are not sure about the intended purpose of the instrument please contact an expert.
- The instrument has to be shipped only in the original packaging. Any instruments shipped to us for return, exchange, warranty repair, update or examination must be in their original packaging! Any other deliveries will be rejected. Therefore, you should keep the original packaging and the technical documentation.
- The instrument may only be operated with the voltage written on the power input on the rear panel. Before opening the case disconnect the power plug.
- Every modification has to be carried out only at the manufacturer or an authorized service company. Any modification not released by the manufacturer leads to the extinction of the operation permission.
- With the introduction of a third person the warranty will be lost. In case of a destroyed warranty seal, any warranty claim will be rejected.
- The instrument must never be operated outdoors but only in dry, closed rooms. Never use the instrument in a humid or wet environment nor near inflammables.
- No liquids or conducting materials must get into the instrument. If this should happen the instrument must be disconnected from power immediately and be examined, cleaned and eventually be repaired by a qualified person.
- Never subject the instrument to temperatures above +50°C or below -10°C. Before operation the instrument should have a temperature of at least 10°C. Do not place the instrument into direct sun light. Do not install the instrument near heat sources.
- Keep the top side of the instrument free in order to guarantee proper ventilation, otherwise the instrument could be overheated. Never place heavy objects on the instrument.
- All cables connected with the instrument must be checked periodically. If there is any damage the cables must be repaired or replaced by an authorized person.
- Transport the instrument carefully, never let it fall or overturn. Make sure that during transport and in use the instrument has a proper stand and does not fall, slip or turn over because persons could be injured.
- Never use the instrument in the immediate proximity of interfering electronic devices (e.g. monitors, computers) since this could create disturbances within the instrument and corrupt memory data.
- The exchange of electronic parts (e.g. EPROMs for software update) is allowed only if the instrument is disconnected from power supply.
- When using the instrument in Germany, the appropriate VDE standards must be followed. The following standards are of special importance: DIN VDE 0100 (Teil 300/11.85, Teil 410/11.83, Teil 481/10.87), DIN VDE 0532 (Teil 1/03.82), DIN VDE 0550 (Teil 1/12.69), DIN VDE 0551 (05.72), DIN VDE 0551e (06.75), DIN VDE 0700 (Teil 1/02.81, Teil 207/10.82), DIN VDE 0711 (Teil 500/10.89), DIN VDE 0860 (05.89), DIN VDE 0869 (01.85). VDE papers can be obtained from the VDE-Verlag GmbH, Berlin.

## Servicing / Updates

There are no controls, adjustments or other elements inside the case that have to be operated by the user.

In case of an firmware update the case has to be opened to replace the main processor by the new version. This service has to be carried out normally by the representative or dealer where the device has been purchased. The service is offered by the manufacturer (Doepfer, Germany) or an authorized dealer or service company too. Please look at the web site [www.doepfer.com](http://www.doepfer.com) for a list of all authorized companies.

Any firmware update is not free of charge. The costs for material, working time and shipment is charged to the customer.

You may even carry out firmware updates yourself at your own risk. In this case the warranty is lost if a mistake is made during the firmware update.

*Pay attention that cases that are damaged while the device has been opened/closed (e.g. scratched surface, damaged screws) cannot be taken back and the warranty is void.*

Technical data are subject to change without notice.

The topical version of this guide is available for download as pdf file on the web site [www.doepfer.com](http://www.doepfer.com) (MANUALS section).

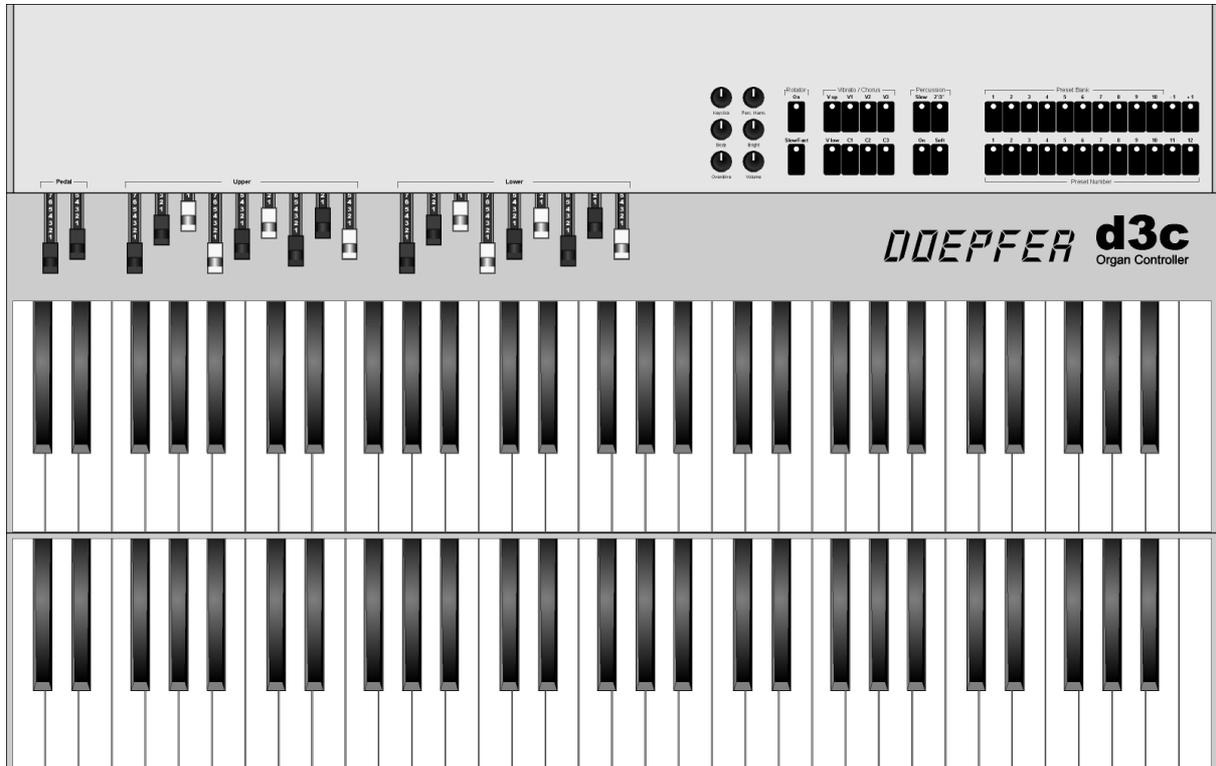
© 2005 by  
Doepfer Musikelektronik GmbH  
Geigerstr. 13  
82166 Graefelfing  
Germany  
Phone: +49 89 89809510  
Fax: +49 89 89809511  
[www.doepfer.com](http://www.doepfer.com)

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# Introduction

**d3m** is the first part of the **modular organ masterkeyboard system d3** that is intended as a control unit for organ emulations like Native Instruments B4 or Emagic evb3. The system has two modules available: the **keyboard unit d3m** and the **drawbar control unit d3c**. Each of the modules can be used alone or in combination with the other modules. The maximum system consists of two keyboards d3m and one control unit d3c.

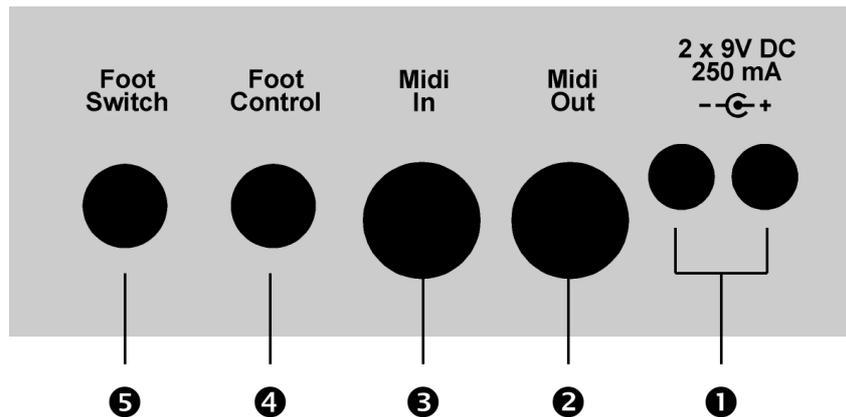


The first part of the modular concept is **d3m**: a 5 octave waterfall organ keyboard with 22 buttons for program change. Following previous organ designs the buttons are organized as 10 preset bank buttons and 12 preset number buttons. Each button is equipped with a blue LED. The 12 number buttons correspond to the different colored lowest octave that was available in previous organs. Additionally a foot controller and a foot switch can be connected. Both are programmable (e.g. volume for the foot controller and sustain or rotary speaker on/off for the foot switch). The keyboard is equipped with Midi In and Midi Out. Two (or even more) of these manuals can be daisy-chained via midi out/in as upper/lower manual. The keyboards are distinguished by different midi channels. The connection to the control unit d3c is established via Midi too.

Several keyboards can be mounted together. For this threads are available at the rear and bottom side of the case. By means of corner braces the keyboard can be mounted together in two ways: with hidden or accessible button section of the lower keyboard. These threads are even used to mount the optional control unit d3c and other options planned for the future. Provided that there are sufficient inquiries we think about some mechanical extensions: e.g. a support to put a laptop on the keyboard, a music stand, additional feet for the rear keyboard to avoid tip over and a wooden side plate for two d3m and one d3c. If these options will be available depends upon the inquiries.

The case is made of silvergrey coated aluminium. The measures are about L87xT25xH9 cm and the weight is about 6.5 kg.

## Connections (rear panel)



### Power Supply ①

**d3m** does not have a built-in power supply. Instead it uses a plug-in type external power supply (AC adapter). One reason for this feature is electrical safety. Keeping danger voltages (mains) out of the **d3m** increases the electrical safety. Another reason for the external power supply is the fact that line voltages and plug types vary considerably from country to country. Using a plug-in external supply the **d3m** can be used anywhere with a locally purchased power supply, thus keeping the retail price down.

In Europe a VDE approved power supply is included with the **d3m**. In other countries a power supply with suitable mains voltage and mains connector has to be purchased separately by the user provided that the dealer resp. representative does not enclose the power supply. The power supply must be able to deliver 7-13 VDC unstabilized or stabilized voltage, as well as a minimum current of 100 mA. The correct polarity of the DC voltage connector is: outside ring = GND, inside lead = +7...13V. An external power supply of high quality and safety should be used. If more than one **d3m** has to be powered by one power supply the minimum current has to be a multiple of 100 mA (e.g. 200 mA for two **d3m**, 300 mA for three **d3m**).

*Remark: The value "250mA" printed on the rear panel is no longer required. For the new series of d3m a current of 100 mA is sufficient (but a 250 mA supply would be fine also)!*

The **d3m** has two power supply sockets available that are internally connected. In case that two or more **d3m** are operated only one power supply is required. The power supply is connected to one of the **d3m**. The second **d3m** is connected to the second supply socket of the first **d3m** via a special DC cable that is equipped with a DC plug on each side.

The **d3m** is switched on by plugging the AC adapter into a wall outlet and connecting it to the appropriate jack of the **d3m**. There is no separate on/off switch. If the polarity of the power supply is incorrect, the **d3m** will not function. However, there is no danger of damage to the circuitry since it is protected by a diode.

### MIDI OUT ② / MIDI IN ③

This is the Midi output resp. input of the **d3m**. The connection of these sockets depends upon the type of operation:

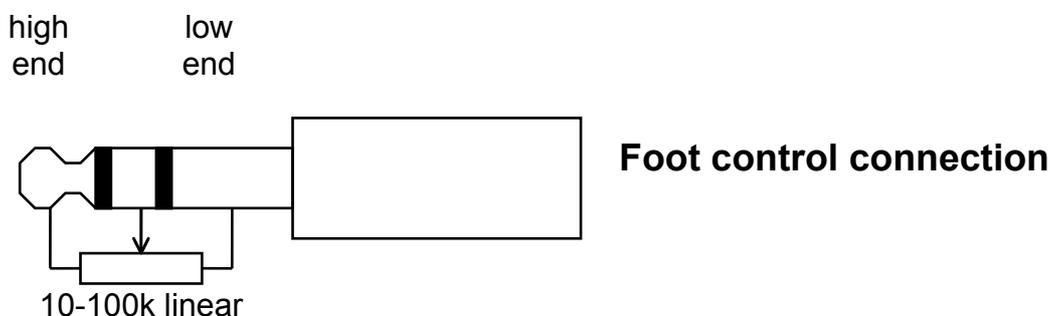
- Only one **d3m** is in use: In this case the Midi Out socket of d3m is connected to the Midi In socket of the device to be controlled by the d3m (e.g. a computer that runs Native Instruments' B4 or Emagic's evb3, or an organ sound generator) via a suitable Midi cable. The Midi input of the **d3m** remains unconnected in this case.

- Two or more **d3m** are in use: In this case the Midi in/outputs of all **d3m** are daisy chained. Midi out of the first d3m is connected to Midi in of the second, Midi out of the second d3m is connected to Midi In of the third and so on. The Midi output of the last d3m in the chain is connected to Midi In of the device to be controlled by the d3m (e.g. a computer that runs Native Instruments' B4 or Emagic's evb3, or an organ sound generator) via a suitable Midi cable. The Midi input of the first **d3m** remains unconnected in this case. Each **d3m** requires a different Midi channel to be able to distinguish the keyboards (see operation how to assign a Midi channel).
- Two or more **d3m** are in use in combination with a **d3c** controller: The **d3m** and **d3c** are daisy chained as described above but the **d3c** has to be the last link in the chain. The Midi output of the **d3c** is connected to Midi In of the device to be controlled by the d3m (e.g. a computer that runs Native Instruments' B4 or Emagic's evb3, or an organ sound generator) via a suitable Midi cable. The Midi input of the first **d3m** remains unconnected. Even in this case each **d3m** requires a different Midi channel to be able to distinguish the keyboards (see operation how to assign a Midi channel).

Remark: The Midi input of **d3m** should be used only for connection to another **d3m** module. The Midi input is not suitable for large amounts of Midi data (e.g. SysEx strings or Midi messages coming from a computer sequencer) but only for small data rates like the messages of another **d3** module. In case of large amounts of incoming Midi messages data loss or delay may occur.

## FOOT CONTROL ④

This stereo jack socket can be used to connect a foot controller. Do not connect the foot controller unless the **d3m** is switched off. The foot controller function is programmable (e.g. volume, expression). For details please refer to the operation chapter. We recommend the usage of the foot controller FP5. The foot controller is not included with the d3m and has to be ordered separately if required. You may use even another foot controller that is connected in this way:



If you do not want to use a foot controller the socket remains unconnected.

## FOOT SWITCH ⑤

This monophonic jack socket can be used to connect a (single) foot switch. Do not connect the foot switch unless the **d3m** is switched off. The foot switch function is programmable (e.g. rotary speakers, sustain). For details please refer to the operation chapter. We recommend the usage of the foot switch VFP1. The foot switch is not included with the d3m and has to be ordered separately if required. You may use even another foot switch that uses a contact that is closed at rest (and opens when operated).

If you do not want to use a foot switch the socket remains unconnected.

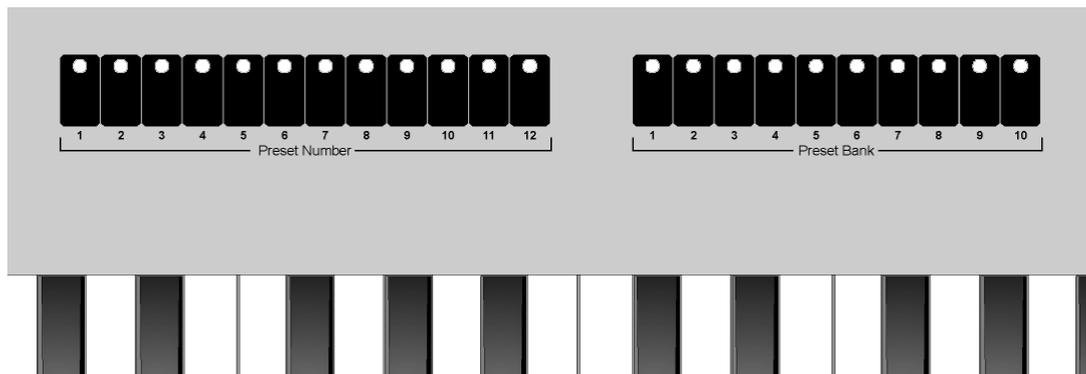
## Operation

The **d3m** is switched on by plugging the AC adapter into a wall outlet and connecting it to the appropriate jack of the **d3m**. There is no separate on/off switch.

For operation **d3m** has 22 buttons available. Each button is equipped with a corresponding LED (light emitting diode). The buttons are organized in two groups:

- **Preset Number:** 12 buttons 1...12
- **Preset Bank:** 10 buttons 1...10

The 12 number buttons correspond to the reverse colored lowest octave that was available in some previous organs.



There are two main modes available: the *play mode* and the *programming mode*.

The *play mode* is the normal operation mode that is used to play on the keyboard, send program change messages with the buttons and operate the foot controller and foot switch to transmit the corresponding Midi messages. The *play mode* is called up when d3m is turned on without operating one of the 22 buttons during power on. Corresponding to the previous adjustments in the *programming mode* (see below) one of the three *play modes* is available after power on:

- *B4 play mode*
- *EVB3 play mode*
- *Remote play mode*

The *programming mode* is used to adjust several parameters of the d3m (e.g. Midi channel, play mode, functions of foot controller and foot switch). The *programming mode* is called up when d3m is turned on while one of the 22 buttons is held down during power on.

The different modes are now described in detail.

## Play Mode

To call up the normal play mode no button is allowed to be operated during power on. After power on all LEDs turn on and go out from left to right. Now you are in the normal *play mode* and are able to play on the keyboard as usual. The lowest key of the manual (C) is assigned to Midi note number 36.

According to the adjustments in the *programming mode* the 22 buttons have different functions. In the *B4 mode* they transmit Midi program change messages, in the *EVB3 mode* both note and control change messages, in the *Remote mode* note messages only.

Which of the three play modes is called up after power on is adjusted in the *programming mode* (refer to page 11).

- **B4 Mode**

This mode is planned for the combination of **d3m** with the **organ emulation B4 of Native Instruments**. Because of the more versatile functions – compared to the EVB3 and Remote mode – the B4 mode can be used for other applications too, e.g. to control any Midi sound module via the note and program change messages that are available in B4 mode.

After power on the two LEDs *Number 1* and *Bank 1* light up and the Midi program change message 0 is transmitted.

*Pay attention that most manufacturers count the Midi program change numbers from 0...127 others from 1...128. In this manual we use the range 0...127 as this is more common. If the device connected to the Midi output of d3m does not respond as expected the different counting ranges may be the reason. In this case you simply have to add "1" to the program change number stated in this manual. Same applies for Midi channels too (i.e. counting from 0 to 15 resp. 1 to 16).*

In the B4 mode the 22 buttons are used to transmit *Midi Program Change Messages*. The *number* buttons generate the program numbers 0...11 (resp. 1...12 in the 1...128 counting system). The *bank* buttons are used to add a fixed value ("offset") to the program number generated by the *number* buttons. The offset value generated by the *bank* buttons is a multiple of 12. The offset is 0 for bank #1, 12 for bank #2, 24 for bank #3 and so on. The table below shows an overview of the available program change numbers for each bank:

Bank	Program number range for counting system	
	0 – 127	1 – 128
1	0 – 11	1 – 12
2	12 – 23	13 – 24
3	24 – 35	25 – 36
4	36 – 47	37 – 48
5	48 – 59	49 – 60
6	60 – 71	61 – 72
7	72 – 83	73 – 84
8	84 – 95	85 – 96
9	96 – 107	97 – 108
10	108 – 119	109 – 120

The corresponding formula for the resulting program change number generated by the number and bank buttons is this:

$$\text{Number} - 1 + 12 \times (\text{Bank} - 1)$$

Example: Number = 5, Bank = 3

The resulting program number is  $5 - 1 + 12 \times (3 - 1) = 4 + 24 = 28$ .

The last available program change number is 119 (number #12 in bank #10). The program change numbers 120...127 are not available. In practice the Midi program number generated by the number and bank buttons is of minor importance as one will remind the number and bank buttons used for a certain sound but not the program change number that is assigned to this sound.

- **EVB3 Mode**

This mode is planned for the combination of **d3m** with the **organ emulation EVB3 of Emagic**. This software is e.g. included with Emagic's Logic.

Remark: The EVB3 has to be set to the **RK** mode. For details please refer to the EVB3 user's manual.

In this mode the *number* buttons transmit the Midi note messages 24 – 35. They correspond to the inverse colored lowest octave of the original B3 and work like an additional lower octave of the **d3m** manual. If a normal Midi sound generator is connected to the Midi output of **d3m** in this mode the *number* buttons generate normal tones and no program change is activated. Consequently this mode makes sense only in combination with the EVB3 as only this software uses the Midi note numbers 24 – 35 to change the program.

The *bank* buttons are used in the EVB3 mode for certain functions that cannot be stored in the EVB3 presets. These functions are controlled "live", i.e. while playing on the keyboard. The following table shows the function of the *bank* buttons in the EVB3 mode :

Bank	Function	Remark
1	Vibrato UpperManual On/Off	toggle function
2	Vibrato LowerManual On/Off	toggle function
3	Vibrato C1	radio buttons
4	Vibrato C2	
5	Vibrato C3	
6	Percussion On/Off	toggle function
7	Percussion 2 <sup>nd</sup> /3 <sup>rd</sup>	toggle function
8	Leslie Slow (Chorale)	radio buttons
9	Leslie Off (Brake)	
10	Leslie Fast (Tremolo)	

- **Remote Mode**

This mode is planned for the combination of **d3m** with special software (e.g. Ableton Live). In combination with normal Midi sound generators this mode does not make sense.

In the Remote mode the *number* buttons transmit the Midi note messages 0-11 and the *bank* buttons the Midi note messages 14-23. In this mode the LEDs are not managed by the the **d3m** but have to be controlled by the external software via incoming Midi note messages (0-11 for the LEDs assigned to the *number* buttons and 14-23 for the LEDs assigned to the the *bank* buttons). All other functions (e.g. foot switch, foot controller) are the same as for the B4 mode.

Consequently this mode requires an external software that allows to assign certain functions to the Midi note messages 0-11 and 14-23 and to control the LEDs of the **d3m** via Midi note messages in a suitable way. For example Ableton's Live can be used for this purpose.

## Programming Mode

The *programming mode* is used to adjust several basic parameters of the **d3m**. This mode is called up when **d3m** is turned on while one of the 22 buttons is held down during power on. Even in this mode all LEDs light up after power on and go out from left to right. After that all LEDs with exception of number 1 light up again to indicate the programming mode.

The *bank* buttons are used to select the parameter that has to be changed. As soon as one of the *bank* buttons is operated all LEDs turn off and only the LED of the button that has been operated lights up. After that the *number* buttons are used to adjust the value for the selected parameter.

The following table shows the parameters that are assigned to the *bank* buttons (first and second column) and the values that can be adjusted with the number buttons (third and fourth column):

Bank	Parameter	Number	Value/function of the parameters		
1	Midi channel	1-12	Midi channel 1-12		
2	Selected device in play mode	1	B4		
		2	EVB3		
		3	Remote		
3	Function of the foot control	1	Expression (Controller #11)		
		2	Volume (Controller #7)		
4	Function of the foot switch	1	Leslie Slow/Fast (toggle)		
		2	Leslie On/Off (toggle)		
				Foot control operated	Foot control released
		3	Leslie	Fast	Slow
		4	Leslie	Slow	Fast
		5	Leslie	On	Off
		6	Leslie	Off	On
		7	Sustain	On	Off
		8	Sustain	Off	On
		9	Vibrato On/Off (toggle)		
		10	Vibrato	On	Off
11	Vibrato	Off	On		
5	Velocity mode	1	dynamic (velocity activated)		
		2	fixed velocity value 20		
		3	fixed velocity value 30		
		....	...		
		11	fixed velocity value 110		
		12	fixed velocity value 127		

For some of the switch functions of the foot control (Leslie Slow/Fast, Leslie On/Off, Vibrato On/Off) two different switching modes are available:

- Toggle mode: in this mode the state changes with each operation of the foot switch, e.g. slow → fast → slow → fast and so on.
- Momentary mode: e.g. foot control operated = slow, foot control released = fast

As soon as a parameter has been changed by operating the corresponding *bank* and *number* buttons the new value is stored into the non-volatile memory of the **d3m**. As soon as all parameters are set to the desired values the **d3m** has to be turned off by removing the power supply. Please wait about 10 seconds and then turn on again the **d3m** without operating one of the buttons. Then the **d3m** enters the normal *play mode* as described on page 8 and uses the new parameters that have been adjusted in the *programming mode*. (e.g. another Midi channel or play mode or foot controller/switch function).

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**Doepfer Musikelektronik GmbH**

Geigerstr. 13

82166 Graefelfing

Germany

Phone: +49 89 89809510

Fax: +49 89 89809511

email: [sales@doepfer.de](mailto:sales@doepfer.de)

Web Site: [www.doepfer.com](http://www.doepfer.com)