Quick Start

M

WAVETABLE
SYNTHESIZER

**Für deutsche Version
bitte umdrehen!**

Content

Foreword

Thank you for purchasing the Waldorf M. You now own a classic hybrid wavetable synthesizer featuring a wide range of unique sounds with approved Waldorf quality – made in Germany!

About this Quickstart

In this quickstart manual you will find the basic knowledge to get in touch with your M.

(!) The complete manual can be downloaded here: **waldorfmusic.com/m**

And now have fun with your M!

Your Waldorf Team

Hint

Waldorf Music is not liable for any erroneous information contained in this quickstart manual. The contents of this manual may be updated at any time without prior notice. We made every effort to ensure the information herein is accurate and that the manual contains no contradictory information. Waldorf Music extends no liabilities in regard to this manual other than those required by local law.

This quickstart or any portion of it may not be reproduced in any form without the manufacturer's written consent.

Waldorf Music GmbH, Lilienthalstraße 7, D-53424 Remagen, Germany

Rev.1, April 2021

Specifications

- **Oscillators**: 2 Wavetable oscillators with independent wavetables and two different tone generation models - classic Waldorf Microwave I model and modern Waldorf Microwave II model. 96 Factory Wavetables + 32 slots for User Wavetables

- **Filter**: Analog low-pass 24 dB/Oct VCF (SSI 2144 Improved Ladder Type) with saturation

- **Amplifier**: Analog stereo VCA for each voice

- **Envelopes**: 4 Envelope Generators; 8 point time/level Wave envelope generator, VCF and VCA ADSR envelopes and a free assignable 4 points time/level envelope

- **LFOs**: 2 LFOs with different waveforms

- **Arpeggiator** with 16 preset patterns, chord mode and the ability to synchronise to MIDI clock

- **Sound storage**: 2048 Sound programs + 128 Multi programs

- **Polyphony**: 8/16 voices polyphony (16 voices available with the expansion board installed)

- 4 Parts multitimbrality (4 parts can be assigned to 4 individual stereo outputs)

- Compatible with classic Waldorf Microwave I sysex messages (sound bank transfer/sound transfer)

- SD Card for loading / storing user content as soundbanks and wavetables

- **MIDI**: USB 2.0 and DIN (5-pin DIN connector with In/Out/Thru)

Control Features & Connections

Front Panel
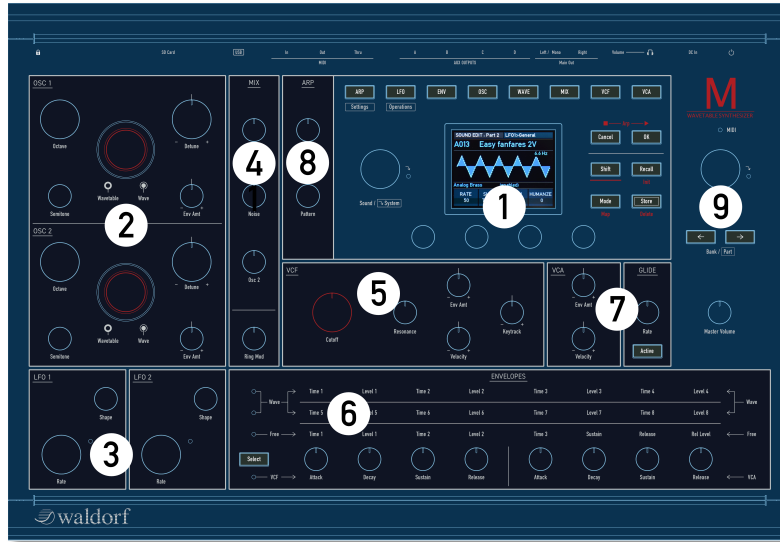
1) Display Section with encoders

2) Wavetable Oscillator Section

3) LFO Section

4) Mixer Section

5) Analog Filter Section (VCF)

6) Envelopes Section

7) VCA, Glide & Master Volume

8) Arpeggiator Section

9) Single/Multi Section

Rear Panel Connections
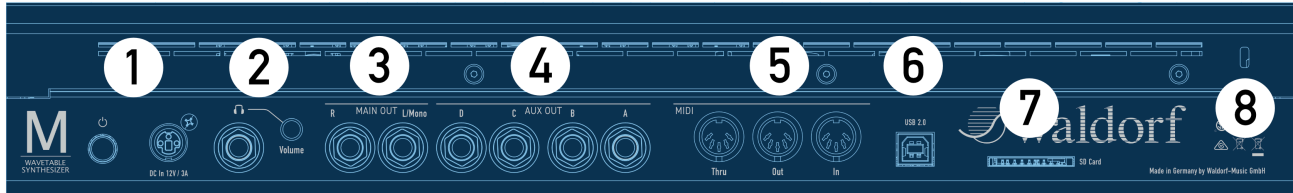
1)   Power Supply Jack & Power Switch

2)   Headphones Output with Volume control

3)   Stereo Audio Outputs L (Mono) + R

4)   Stereo Aux Outputs A - D

5)   MIDI Thru, MIDI Out, MIDI In jacks

6)   USB 2.0 MIDI Port

7)   SD Card Port

8)   Kensington® Compatible Receptacle

General Safety Guidelines

⚠️ Please read the following safety tips carefully! They include several precautions you should always observe when dealing with electronic equipment. Read all of the instructions before operating your device.

Suitable Operating Conditions

- Use the device in enclosed rooms only.

- Never use the device in damp conditions such as bathrooms, washrooms, or around indoor swimming pools.

- Do not use the device in extremely dusty or dirty environments.

- Make sure that adequate ventilation is available on all sides of the device.

- Do not place the device near heat sources such as radiators.

- Do not expose the device to direct sunlight.

- Do not expose the device to extreme vibrations.

Power Supply

- Only use the power cable that came with the M.

- Unplug the device when you are not using it for longer periods.

- Never touch the plug with wet hands.

- Always pull the plug when unplugging the device - never the cable.

Operation

- Never place objects containing liquids on or near the device.

- Place the device on a stable base only. Use a suitable platform.

- Make sure no foreign objects find their way into the chassis. If for some reason this occurs, switch the power off, unplug the device, and consult a qualified repair center.

- This device can generate volume levels that may do irreparable damage to your hearing when used on its own or with amplifiers, speakers, or headphones. For this reason you should keep the volume at tolerable levels.

Maintenance

- Do not open the device or remove the cover. Refer all service and repair tasks to qualified personnel. The interior of the chassis contains no components that require user maintenance.

- Use only a dry, soft cloth or brush to clean the device. Never use alcohol, cleaning solutions or similar chemicals. They will damage the surface of the chassis.

Proper Use

This device is designed exclusively to produce low-frequency audio signals for the purpose of generating sound. Any other use is prohibited and voids the warranty extended by Waldorf Music. Waldorf Music is not liable for damages due to incorrect use.

⚠️ **This M unit is not suitable for preparing convenience food. Please cook seasonal and regional whenever it is possible.**

Setup and Connections

The Waldorf M comes complete with:

- The Waldorf M Synthesizer
- An external power supply
- This printed Quick Start manual

Please ensure all the above items were included. If something is missing, contact your local dealer.

We recommend that you save the original packing material for future transport.

Setup

Place M on a clean, even surface.

Connections

In order to get started with your M you will need an AC power outlet, a mixing console, an amp, and/or an audio monitor such as a speaker cabinet or a headphone.

You can also use a computer or sequencer to make use of M's MIDI features.

⊘ **To connect the devices:**

1. Turn all devices off.

2. Connect M's **Main Out** audio outputs to your mixing console or your computer audio interface. If you want to connect an output monophonically, only use the **L/Mono** jack of the output pair with a 1/4 inch mono plug. Optionally connect the stereo **Headphones** outputs to a suited headphone.

3. If you want to use a computer, connect M's **USB 2.0** port with a USB cable to your computer (Windows or macOS). Thereafter, M becomes automatically available as a MIDI device.

4. To play M you need a MIDI master keyboard. Connect its MIDI Out jack to the M´s MIDI Input.

5. Connect the power supply cable or the power cable that came with your M with the power supply jack. Plug the other side of the power supply cable into a suitable AC power outlet.

6. Press the power switch on the rear panel of your M.

7. Then switch on your computer (if connected), the mixing console and finally the amplifier or active monitor speakers.

⚠ The startup procedure is about 4 seconds. After this, M is ready to play.

⚠ The overall volume of M can be controlled with the **Master Volume**. This also affects the Headphones output. To adjust the level of your headphones, use the headphones gain control as well.

⚠ If you do not choose to connect a mixing console, you can patch M's output signals directly to an amplifier or an audio interface. Use an input usually called Line, Aux or Tape input.

⚠ M's audio outputs deliver unbalanced line levels. When connecting to an amplifier, a mixing console or an audio interface with automatic balanced/unbalanced sensing inputs, please make sure to use TS mono jack cables and not TRS stereo jack cables.

⚠ Before connecting and disconnecting M to a power supply source, turn your amp's volume control all the way down to avoid damage due to on/off switching noise. M produces a high level output signal. Please take care that the connected playback device is suitable for the high level of an electronic instrument. Never use the microphone or phono input of the connected amp!

The Rear Panel Connections

M provides an analog stereo audio output, 4 additional stereo aux outputs and a headphones output. The main audio and headphones outputs are affected by the setting of the **Master Volume** control dial.

Headphones Output and Headphone Volume

Here you can connect any headphone with a 1/4-inch stereo plug. The headphone output uses the same signal as the main output. The **Headphones Volume** controls the M's headphone volume in addition to the **Main Volume** knob. Use this knob to amplify or attenuate headphones level to adjust for individual headphone loudness and impedance.
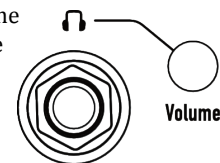
Main Audio Output

Use 2 TS mono jack cables to connect the Main audio output to a mixer. Use your mixing console to appropriately distribute the stereo channels in case. If you want to connect an output monophonically, only use the **L/Mono** jack of the output pair with a 1/4 inch mono plug.
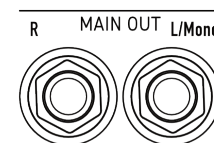
Stereo Aux Outputs A - D

M offers 4 stereo audio aux outputs that can be used to route each of the 4 multi parts to diffe-

rent outputs, if desired. Connect M's **Aux** audio outputs to your mixing console ace by using a cable with a stereo TRS jack.
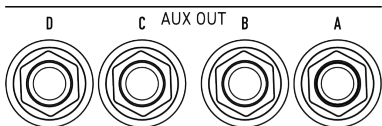
The USB 2.0 Connection

The **USB 2.0** port connects M to your computer or iOS device with the following system requirements:

• Windows PC: Windows 7 or newer, a USB 2 port

• Apple: Intel or Apple Silicon Mac with macOS 10.9 or newer, a USB 2 port

• Apple iPad with iOS 9 or newer by using an optional Apple 'Lightning to USB Camera Adapter' cable
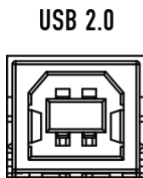
The USB connection of M allows transmitting and receiving of MIDI data transmitting.

SD Card Slot

(!) It is important to use a FAT or FAT32 file system formatted SD card. Other file formats won´t work.

(!) Please insert the SD Card **upside**, i.e. with the contacts not visible to you. Please insert the card with normal force to avoid any damage.

A connected SD card allows:

• Updating M's firmware.

• Importing and saving sound patches.

• Importing and saving M-specific data – e.g. User wave-tables

MIDI In/Thru/Out Jacks

Although we can hardly believe it, M might not be enough for some people, so we added an elegant way to control external sound modules

with M: just connect the DIN MIDI out to your external gear and use the knobs to control certain functions. For use with a computer we recommend the **USB 2.0** port.
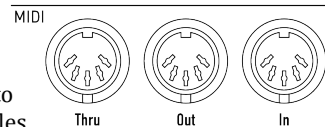
Physical Security

Users that operating with M in areas with public or shared access such as live gigs, public studios or educational establishments can attach a Kensington® compatible security lock to the slot on the rear panel of M.

First Start

Switching On / Off

M is equipped with a power switch.

⊙ **To switch M on:**

- Press the **Power** switch to switch on M.
  The boot procedure may take a few seconds. After this, the display is lit and M is ready to play.

⊙ **To switch M off:**

- Press the **Power** switch to switch off M.

Master Volume

Use the **Master Volume** to control M's overall volume. The volume setting is global and affects the level of the Main audio outputs including the Headphones output.
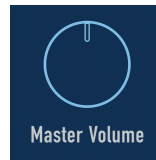
The M Mode Pages

M offers mode pages in addition to the panel parameters. To enter a desired mode page, just press the corresponding mode button above the display. The following mode pages are available:

| ARP | LFO | ENV | OSC | WAVE | MIX | VCF | VCA |

| Settings | Operations |

- **ARP** mode pages
- **LFO** (2x Low Frequency Oscillators) mode pages
- **ENV** (VCF, VCA, Wave and Free envelopes) mode pages
- **OSC** (Oscillators 1 and 2) mode pages
- **WAVE** (Wavetable 1 and 2 generator) mode pages
- **MIX** (Mixer) mode pages
- **VCF** (Voltage Controlled Analog Filter) mode pages
- **VCA** (Voltage Controlled Amplifier) mode pages

⊙ For some modes, press a mode button several times to switch through between the corresponding settings (e.g. for OSC mode between Osc 1 and Osc 2).

> ⚠ All modes will be described in detail in the corresponding chapters in the main manual.
>
> ⚠ ARP and LFO buttons are also used to switch between **System Settings** and **System Operations** when in System mode.

The Option Button Section

This section offers six buttons regarding arpeggiator and basic operation functionality. Some buttons offers a second option that can be reached by holding down Shift and pressing the corresponding button with the red text. Here, you find functions for sound initializing or storing a sound program.
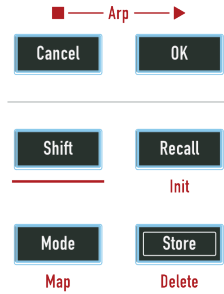
> ⚠ With the **Mode** button, you switch between two oscillator models: Classic Microwave 1 and modern Microwave II.

The Display and the 4 encoders

The display gives you an overview of the actual Mode page, parameter changes and delivers additional information. The 4 endless dials below the display control the corresponding parameter that is shown in the lower part of the display next to the dials. The display representation depends on the selected mode, for example in Envelope mode, a graphical envelope is displayed for a clearer editing.
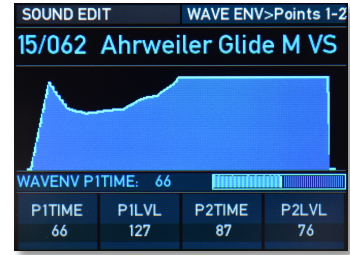
M Display (Wave Envelope page)

The upper display area always shows the current mode/mode page, e.g. *WAV ENV>Points 1-2* which means, that the first curve points of the Wave envelope are selected.

Below the mode description, the current loaded Sound or Multi program is displayed. Left to the sound name, the program number is shown.

Loading Programs

M offers a total of 2048 sound programs, divided into 16 banks with 128 sounds each.

⚠ To avoid accidental overwriting, you must confirm before finally loading a new sound program.

⊗ **To load a sound program:**

1. When in Single mode, use the the **Single/Multi** dial to select the desired sound program. The bank number, sound slot number and name of the chosen sound is displayed in the lower area of the display.

2. Hold down the **Shift** button and turn the **Single/Multi** dial to skip 16 sound slots in one go. This allows a faster navigation within one sound bank.

3. Use the **Bank/Part** buttons to navigate through the 16 sound banks.

4. If you want to finally load your desired sound program, press the **Recall** button. This will overwrite the internal edit buffer and you will lose all edits.

Editing Parameters

In order to change or edit a sound program, you must access the appropriate parameters. Depending on the type of parameters, there are different ways to achieve this:

•   The controls on M's front panel offer direct access to the most important sound parameters. The panel is divided into several sections, each containing knobs and dials associated with that section. By adjusting the controls on the panel you have instant access to the sound. These parameters are called **Panel Parameters**. When editing a Panel parameter, this is displayed in the lower part of the touchscreen display (parameter name and corresponding value with a bar graph).

•   Most sections offer additional sound parameters that are available through the display. To edit an additional parameter, press the corresponding mode button above display (e.g. **LFO**). Use the **Sound/System** encoder to scroll through the available parameter display pages. These parameters are called **Display Menu Parameters**. The lower area of the display always shows one to four parameters that can directly edited with the corresponding silver display encoder.

⚠ Some parameters can be found on the panel and also as display parameters.

- Some rotary controls consist of endless dials or potentiometers. Turning a dial clockwise increases the corresponding value; turning it counterclockwise decreases it. Bipolar parameters (parameters with positive and negative values) use special gradation when changing their values. As soon as the value *0* is reached, the sweep is stopped for a short period to make it easier to edit.

- You can press on some dials to set its parameter value to a default setting.

- Both Wavetable/Wave dials offer a special edit function. The silver outer ring selects the wavetable while the inner dark dial selects the wave position of the current selected wavetable.

⚠ If you are lost, press the **Recall** button to restore all parameters of the original sound program.

🎚 Want to start with a clean initialized sound? By clicking **Shift + Init**, you can initialize the current loaded sound. Keep in mind, that the current sound program is lost

Storing Programs

After you have finished editing a sound program you must save it if you intend to use it again. All of M's memory locations are available for this purpose.
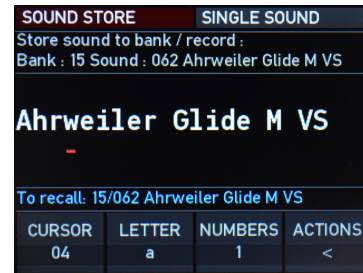
⊘ **To save a sound program:**

1. Press the **Store** button to activate the Sound Store display page (see display graphic above).

2. Edit the **Name** (if desired). Use the first display encoder (CURSOR) to position the cursor. A sound name can have up to 23 characters. With the second encoder (LETTER) you can determine the desired letter. Press on the encoder to switch between capital and lower letters. The third encoder (NUMBERS) lets you enter num-

bers or special character. Press on the encoder to switch between both. With the fourth encoder (ACTIONS), you can set action characters.

3. Use the **Single/Multi** dial to select a desired storing location. This is displayed below the sound name. With the **Bank/Part** buttons, you can determine a desired bank.

4. Finally, press the **OK** button to store the sound program at the selected location.

5. Press the **Cancel** button to return to the last selected display page.

6. By pressing the **Cancel** button, you can discard the storing process at any time.

⚠ Whenever you save a program, the selected memory location is overwritten. Therefore, any previously stored program at this location will be erased and there is no way to get it back. So, you should do backups of your sounds regularly by using the corresponding option in the System Operations.

ⓘ Use the **Store** function for copying sound programs. There is no need to edit a program before storing it.

What about System Settings?

Press the **Sound/System** dial to enter the System mode. The LED on the right of the dial lits in white.
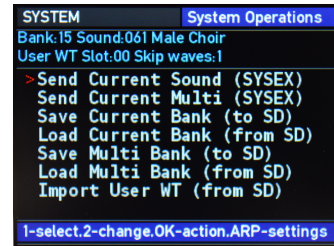
System Operations display page

By clicking on the ARP or LFO button, you can switch between the **Settings** and **Operation** pages.

On the **Settings** pages, you have access to utility options like Display Brightness, Master Tune, basic MIDI Settings and MIDI Controller assignment.

On the **Operation** pages, you can load and save sounds and banks via MIDI dump or on a SD card. Here, you also can update the M DSP firmware.

To switch back to normal operation mode, press the **Sound/System** dial again.

A Short Overview

Waldorf M consists of numerous sound-shaping components.

- Sound synthesis: Oscillators with wavetable generators, VCF Analog Filters and VCA Amplifier. These modules represent the audio signal flow. Sound generation actually occurs within the oscillators. They can produce different wavetables. The VCF analog filter shapes the sound by amplifying (boosting) or attenuating (dampening) certain frequencies. The VCA amplifier are located at the end of the signal chain. It determine the overall volume of the signal.

- Modulators: LFOs, Envelopes. These modules are called Modulators. The Modulators are designed to manipulate or modulate the sound generating components to add dynamics to sounds. The Low-frequency Oscillators (LFOs) are designed for periodic or recurring modulations while Envelopes are normally used for modulations that only occur once on each note. These generators are assigned to parameters on the corresponding display pages and influence these parameters to alter a sound.

Signal routing

M Quickstart
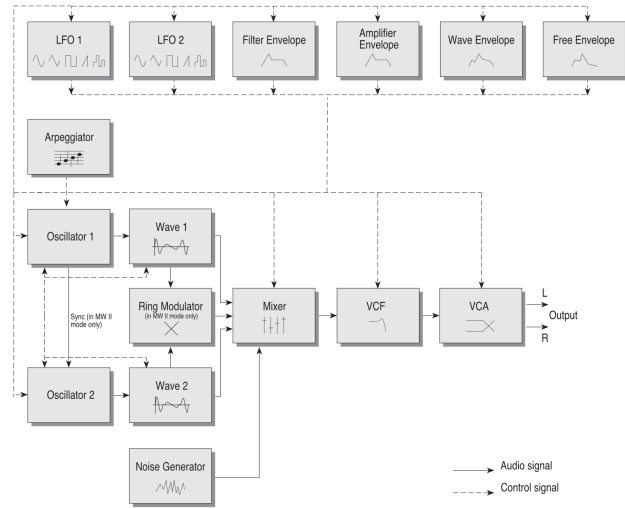
Wavetable Oscillator Section

M offers two oscillators with independent wavetable generators.

> ⚠ With the **Mode** button, you switch between the two oscillator models: Classic Microwave 1 and Modern Microwave II.

Oscillator 1 Tune display page

A wavetable is a table consisting of single waveforms. Each waveform is classified by its own special sound character. The main difference of wavetable synthesis in comparison with other sound-generation principles is the ability to not only to play one waveform per oscillator but also to step through the wavetable via different modulations, thereby creating wavetable sweeps. The results can be dramatic – much more so than anything any sample playback-based system could ever produce.

This principle offers powerful capabilities. To give some examples:

• The Wave Envelope can modulate the position within the wavetable.

• Each note on a keyboard can access a different wave of a wavetable.

• An LFO can modulate the position within the wavetable. You can create subtle to drastic sound changes.

• User-selected controllers, such as the Mod wheel, can change the position within the wavetable. When you turn the wheel while playing a chord, each note's wave will be modified instantly.

Oscillator Mixer (MIX) Section

In the Oscillator Mixer section you control the volumes of both oscillators and the Noise generator. If an oscillator volume dial is turned fully counterclockwise, no signal is passed. The Ring Modulator is available, if the Modern Microwave II mode is active.
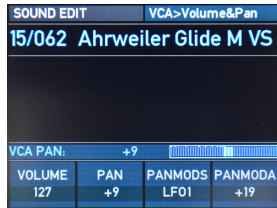
VCF Section

M offers an analog lowpass filter with 24dB/Oct and reso-nance. This is a SSI 2144 Ladder type with saturation.
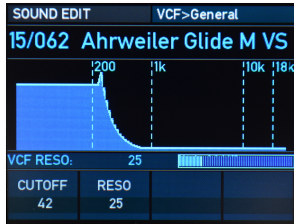
VCF General display page

VCA Section

M offers an a true stereo analog VCA with panning option. Right beside the VCA section, a Glide function can be found.

VCA Volume & Panning display page

Envelopes Section

M's envelopes allow you to manipulate sound parameters via rate or timed modulations. M offers four independent programmable envelopes for every sound program:

• VCF Envelope. This envelopes is designed to control the VCF, but can also be used for other modulations.

• VCA Envelope. This envelope is designed to control the sound volume, but can also be used for other mo-dulations.

• Wave Envelope. This envelope with 8 different times and levels (multi segment envelope) is designed to control the wave scanning for a wavetable, but can also be used for other modulations.

• Free Envelope. This envelope with 4 different times and levels (multi segment envelope) can be used freely to perform additional modulations on any mo-dule.

An envelope is started by pressing a key. It ascends to its maximum value at the rate determined by the **Attack** parameter. It then descends at the rate determined by the **Decay** value until it reaches the predetermined **Sustain** value. It remains at this value until the key is released. The envelope then descends to zero at the rate determined by the **Release** parameter.

LFO Section

In addition to the main oscillators, M is equipped with two low frequency oscillators (LFOs) that can be used for modulation purposes. Each LFO generates a periodic waveform with adjustable frequency and shape.
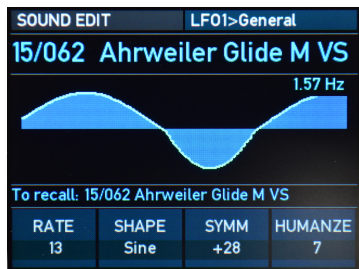
LFO1 General display page

The Modulation Assignment

A modulation can be described as a signal-generating unit's influence upon a sound parameter. The terms used in this context are 'Source' and 'Destination'. There is no Modulation matrix as in our other Waldorf synthesizers. We made a conscious decision to set up the modulation facilities directly on the corresponding display page, i.e. in the respective sections as Oscillators, VCF or VCA.

⚠ Keep in mind that some modulation sources are hardwired, for example the Wave envelope or the Filter envelope. Therefore, you find an amount control in the corresponding section of the user interface, e.g. the **Env Amt** knobs.

The Arpeggiator

An arpeggiator is a device that splits an incoming chord into its individual notes and repeats them rhythmically. Different play modes can be defined for the arpeggiator to cover a wide range of applications.

⊙ Press **Shift + Arp Play** to start the arpeggiator. By pressing **Shift + Stop**, the arpeggiator stops playing.

Single Mode vs. Multi Mode

M offers a 4 part Multi mode. As soon as you want to do multi track recordings in a studio, you should start to use Multi parts. Each sound in a Multi setup based on a so-called **Part**.

⊙ Press the **Single/Multi** dial to enter the Multi mode. The LED near to the dial lits in white. If you want to return to single mode, press the dial again .

≡ waldorf

Appendix

Updating the Firmware & DSP Firmware

M has a service-friendly feature that makes it possible to update the system and/or DSP firmware without changing any parts.

All firmware updates come in the form of a .dfu file that can be copied on every FAT file formatted SD card. The fastest way to get this file is by downloading it from our web site at:

<div align="center">

www.waldorfmusic.com/m

</div>

⊘ To update M's firmware:

- Copy the .dfu file onto the top-level of a SD card.
- Insert the SD card into M's card slot.
- Switch your M off.
- Hold down both **Bank/Part** buttons and switch M on again.
- The firmware update should be recognized automatically. To start the firmware update process, press the **OK** button.
- After the firmware is installed correctly, M burns it into its FLASH memory.

- Wait until the operation is completed. If updating was successful, the M will perform a system reset and start by pressing the **OK** button again.

Sometimes, a dedicated update of the internal DSP firmware is necessary.

⊘ To update M's DSP firmware:

- Copy the .dfu file onto the top-level of a suitable SD card. Insert the SD card into M's card slot.
- Press the **Sound/System** dial to enter the System mode. The LED on the right of the dial lits in white.
- Click on the **LFO** button to switch to the **System Operation** pages.
- Use the **Sound/System** dial to navigate to the System Service page, where the *Update DSP Firmware* command is located. Use the silver display dial 1 to select this command.
- Press the **OK** button and follow the instructions.

⚠️ Do not under any circumstances turn off M while the update process is in progress. A complete loss of data may occur and it will be impossible for you to make your machine work again!

Technical Data

Power Supply

Supply Voltage Input	100 – 240 V AC / 50-60 Hz
Nominal Voltage Output	12 V DC
Maximum current consumption:	1.8 A max.

Dimensions and Weight

Width:	440 mm
Depth:	305 mm
Height (including knobs):	85 mm
Total weight:	5.7 kg

Product Support

Service & Repair

M does not contain any user-serviceable parts. If your M develops a fault or needs servicing, please refer to a Waldorf authorised service center. For more information, please ask your musicians dealer or your local Waldorf distributor.

Any Questions?

If you have any questions about your Waldorf product, feel free to contact us. We're here to help.

① Use the support form at our website. This is the most efficient and fastest way to contact us. Your questions will be forwarded immediately to the resident expert and you will quickly receive an answer.

support.waldorfmusic.com

② Send us a letter. It will take a bit longer, but it is just as dependable as an email.

Waldorf Music GmbH
Lilienthalstr. 7
53424 Remagen, Germany

③ Visit our support area at **waldorfmusic.com**