

Grimm | *AUDIO*

MUI manual



Please read this manual before operating the unit!

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1 Introduction

Thank you for purchasing the Grimm Audio MU1 media player. It is designed to be the most sophisticated and best sounding music player on the market and at the same time blend seamless in your daily music playing routine. Core of the MU1 technology is an fpga processor board of our own design that offers the highest quality oversampling and de-jittering possible. The amount of work and knowledge that went into this project can hardly be overestimated. All this effort resulted in an elegant box of minimalistic design that humbly steps out of the way for the music. We are very proud that we were allowed to develop this gem and wish you many pleasurable hours of listening.

The Grimm Audio Team
info@grimmaudio.com

2 Important Safety Instructions

Grimm Audio gaat er van uit dat u deze Engelstalige tekst volledig begrijpt. Als u hier moeite mee heeft dient u contact op te nemen met Grimm Audio. Op verzoek sturen wij u een vertaling toe.

Grimm Audio nimmt an, dass Sie diesen Englischen Text völlig verstehen. Wenn notwendig, nehmen Sie bitte Kontakt auf mit Grimm Audio. Auf Wunsch wird Ihnen eine Übersetzung zugeschickt.

Grimm Audio suppose que le lecteur comprend parfaitement le texte en Anglais ci-dessous. En cas de doute s.v.p. contacter Grimm Audio. Si nécessaire, on pourra vous envoyer une traduction.

Grimm Audio da por supuesto que el texto en versión Inglesa no ofrece ninguna duda de interpretación y se entiende íntegramente. Si este no fuese su caso rogamos contacte con Grimm Audio quien, a petición, se encargaría de enviarle la correspondiente traducción.

Please follow these precautions when using this product:

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Dangerous voltage is inside this apparatus. Opening is only allowed by qualified service personnel.
6. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
7. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
8. Unplug this apparatus during lightning storms or when unused for long periods of time.
9. Do not use this apparatus near water.
10. Do not use this apparatus outside.
11. Do not expose the apparatus to dripping or splashing. Do not place objects filled with liquids (flower vases, drink cans, coffee cups, etc) on the apparatus.
12. Clean only with a dry, soft, non-fluffy cloth. Do not spray any liquid cleaner onto the cabinet, as this may lead to dangerous shocks.
13. Install in accordance with the manufacturer's instructions.
14. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Avoid exposure to direct sunlight.
15. Use only attachments or accessories specified by the manufacturer.
16. This unit runs slightly warm when operated normally. Operate in a normal ventilated area.
17. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
18. **WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

3 Installing

Unpacking and installation

Your MU1 was carefully packed at the factory and the packaging it came in was designed to protect it from the trials and tribulations of shipping. Keep the box and all packing materials, so that in the unlikely event that you need to return the MU1 for servicing, you can do so safely.

Placement

The MU1 does not produce strong RF fields nor is susceptible to them. You can position it near other digital gear such as computers and disk recorders without worry. In general it is a good idea to keep some distance between monitors (LCD and CRT) and audio cables because of risk of induced low level noise due to stray magnetic fields.

AC Power Hookup

The MU1 has a switch mode power supply that works with AC mains voltages from 90V to 240V +/- 10%. Make sure this complies with your local mains voltage. The MU1 is shipped with a proper mains cable. Grimm Audio cannot be held responsible for problems caused by using the MU1 with improper AC wiring or voltage. The MU1 has a power switch on the rear panel. Please use this switch to turn off the MU1 before unplugging the AC power hookup.

The MU1 relies on safety earth in the mains cable to guarantee your safety. It also needs this connection as low impedance path for mains leakage current to prevent hum in your system. For this reason, please connect all audio equipment in your system to a common mains outlet with safety earth connection.

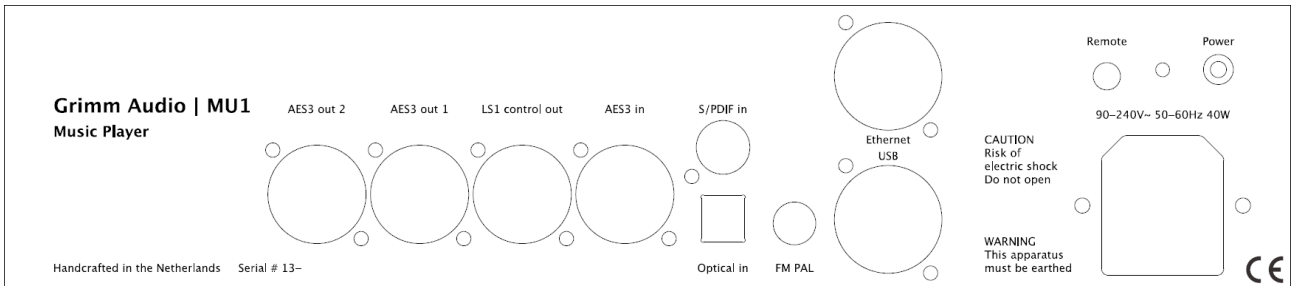
4 Signal connections

Front:



On the front you will find the MU1 activity LED in the ‘i’ of the Grimm logo. The display shows all user information.

Rear:



| | | | | | | | | |
|------------------|------------------|------------|--------------------|-----------------------|------------------------|----------------|------------------------|--------------|
| Digital output 2 | Digital output 1 | LS1 output | AES3 digital input | S/PDIF digital input | FM 75 Ohms cable input | Ethernet input | IR input | Mains switch |
| | | | | Optical digital input | | Dual USB input | Mains power connection | |

Top:



On the top of the MU1 you find the main control knob. This is used for all user input of the MU1 via twisting and pressing.

5 Setup

Interface description

On the front

MU1 activity led. Shows the current activity of the MU1 system. Table 1 below shows the modi.

| | |
|-----|---|
| Off | MU1 is off or is updating. ¹ |
| On | MU1 is on or booting ² |

Table 1

¹ The system will only update when the user has manually activated the update. See chapter “Control”.

² When the system is booting up the system will show an animation on the display.

The display shows information about the system depending on its state:

- System off: display is black, no information.
- System in stand-by: display is black, no information.
- System is booting up: Boot animation is running, after booting the welcome picture is shown until the software is ready.
- System on: This state has different menus where information can be shown and settings can be adjusted. These settings are described in the chapter “Control”.
- System shutting down: Display is black, no information (the activity led remains on until the system is fully shut-down).

On the rear

On the rear of the system various cable connections and the main power switch can be found.

From right to left:

1. The mains power socket (standard IEC60320 model). In case your country has a EU, US or UK type wall outlet, our MU1 came with a fitting power cord. Otherwise, please consult your dealer.

2. The mains power switch. this is a small recessed switch. If the system is off and the power cord is connected, press the switch once using your finger nail to boot the system. If the system is on, press the switch once to shutdown the system.

Hint: The power switch does not respond while the MU1 is updating.

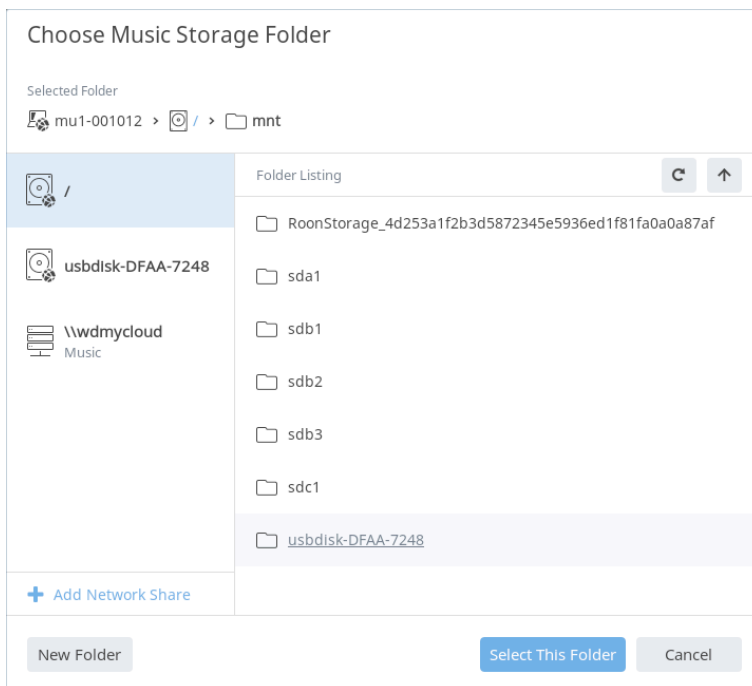
[To be implemented] 3. Mini jack input for infrared remote sensor. This will be implemented in a future software update.

4. Ethernet input. Connect your wired local network to the MU1 using this RJ45 connector. The cable type should be at least CAT5e to ensure that loss of network data packets is minimized. Please use high quality cables intended for use with computer systems and avoid cables with claimed special qualities for audio.

5. Dual USB input. These two general purpose USB3.0 connectors may be used for connecting an external USB drive (flash drive, SSD or HDD) for extending the disk space of the MU1 system. You may play music files from this drive. The MU1 supports the following filesystems: FAT32, NTFS, EXT2 and EXT4. When a USB device is plugged in, it will be automatically mounted in the system. It is not necessary to 'safely remove' the USB device from the system, the device is unmounted automatically.

The folder can be found through the Roon storage settings. Go to the Roon *Settings* → *Storage* and press the button “+ Add Folder”.

The USB disk should appear in the menu on the left as “usbdisk-XXXX-XXXX”. Where XXXX-XXXX is the device ID. If you don't see it here, go to the root directory “/” and open “mnt”. Here you will find “usbdisk-XXXX-XXXX”. Select this folder to add it.



[To be implemented] 6. Analog FM input. Will be added in a future software update.

7. Digital audio Inputs. The MU1 has three digital inputs on the back. These sources can be selected with the main control dial. Read chapter “Control” for instructions about how to do this. The selected source is routed via the fpga for oversampling and de-jittering and benefits from MU1’s high performance rendering.

- a) S/PDIF digital input: orange RCA connector, digital input for S/PDIF sources.
- b) Optical digital input: black Toslink connector, digital input for S/PDIF sources.
- c) AES3 digital input: XLR connector, digital input for AES3 sources.

8. Digital audio outputs. There are three digital outputs. These can be configured as stereo outputs that carry the same audio data or as six individual outputs for surround playback (*to be implemented*). From right to left:

a) LS1 output: a proprietary connection to the LS1 playback system, carrying both audio data and control data. The cable for this connection is supplied with the LS1 system. Connect this cable to the “Control in” input of the LS1.

Warning: Do not connect a network cable to this connection! Although a normal RJ45 connector fits, this output may only be used for LS1 control connection. Grimm Audio is not liable for damage to a local network system as a result of incorrect wiring by the user.

b) Digital output 1: transformer balanced XLR3 digital output for use in a surround LS1 system or connection to a 3rd party DAC. Digital volume control for 3rd party DAC’s will be added in a future software update.

c) Digital output 2: transformer balanced XLR3 digital output for use in a surround LS1 system or connection to a 3rd party DAC. Digital volume control for 3rd party DAC’s will be added in a future software update.

On the top

On top of the MU1 you will find the large main control dial. This knob can be turned left and right and can be pressed. Depending on the state of the system and the current menu selection this knob has different purposes.

The system will boot to the *Music View*. The use of the main control in this state is:

- Volume up (turn right)
- Volume down (turn left)
- Pause/mute (short press)
- Enter menu (long press)
- Press and turn selects the input.

A short press is shorter than 2 seconds, a long press is longer than 2 seconds. How to enter and leave menus is described in the “Control” chapter.

6 Roon Labs setup

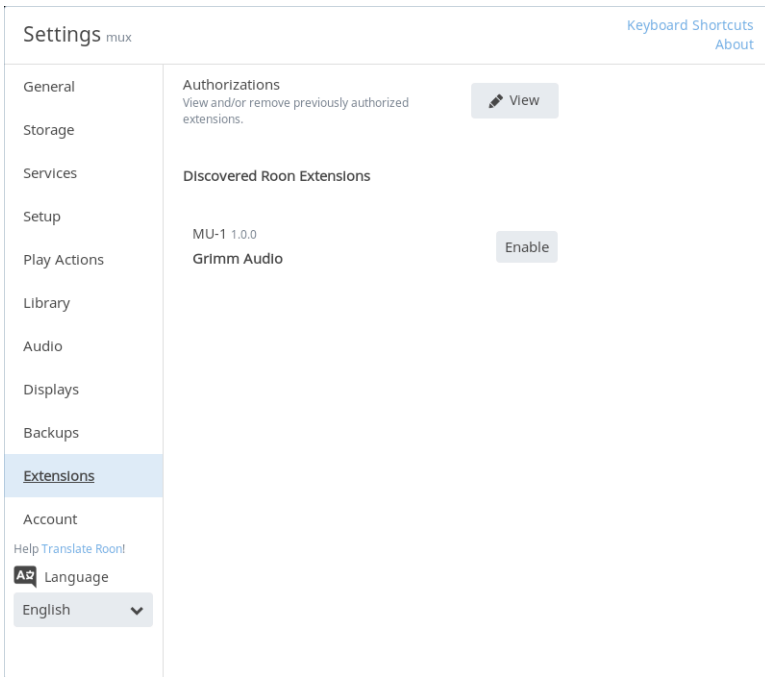
Grimm Audio selected Roon Labs for the user interface and audio engine for file and stream playback on the MU1 (an alternative UI and engine will be added later). In our opinion Roon offers the best High-End user experience to date, a real must have. Both Roon Core and Roon End Point are pre-installed, so no other computer is needed. Please mark that Roon Labs is a paid subscription so you need to enter your account details via the Roon app. Roon Lab supports Tidal and Qobuz lossless music streaming services. These are separately paid subscriptions. You need to enter your account details of these services via the Roon interface.

Operating the Roon system in the MU1 is identical to that of any other Roon equipped system. First you need to install the Roon remote control software for a tablet or smart phone to get access to the Roon Core server in the MU1. Please visit the app store of your OS manufacturer, or use this link: <https://roonlabs.com/downloads.html>. For general operational guide lines of the user interface, we refer you to the Roon Labs documentation: <https://roonlabs.com/support.html>. The MU1 can perform all processes that Roon offers, but we recommend to use the MU1 fpga oversampling and downsampling algorithms in stead of the Roon offerings, and use Roon just for audio playback. Roon is a capable multi room system. If you like you can use the Roon Core in the MU1 to stream music to other Roon End Points in your network (for instance a system in the kitchen). Please note that the oversampling and de-jittering qualities of the fpga in the MU1 can only be enjoyed with the digital audio outputs on the MU1.

Enabling track information on the MU1 display

To show the song that currently plays on the MU1 display, you need to enable the MU1 software to communicate with the Roon Labs software. This is facilitated by a 'Roon Extension'. Since Roon Extensions can only be enabled by the account owner of the Roon software, you need to perform this step yourself. Mark that the Roon Extension enabling function is not offered on the smart phone interface of Roon, only on tablets and the PC or Mac interface. So please connect a tablet, PC or Mac computer to the same network as the MU1 and install the 'Roon' (not 'Roon Server') software: <https://roonlabs.com/downloads.html>. Then start Roon on your computer. Next, please follow the following steps:

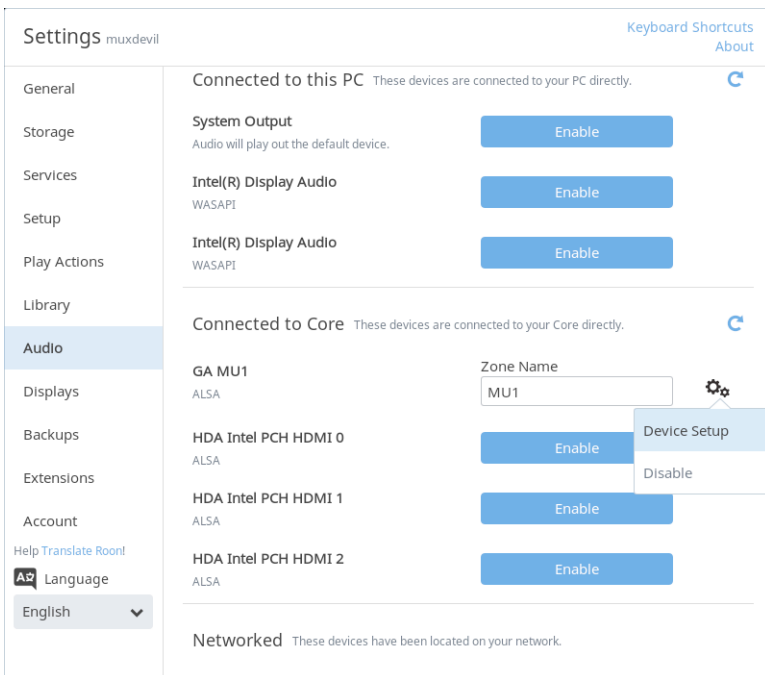
- Turn off all other Roon devices in the network.
- Switch on the MU1 for the first time
- Start Roon on the tablet or PC/Mac software, wait until the MU1 pops up as a device and select it.
- Log in with your Roon account.
- Go to the settings menu and select the tab 'Extensions'.
- Add the Grimm Audio extension to your MU1 by clicking the Enable button in the menu as shown below.



Volume control of the LS1 DSP via the Roon app and the MU1 main control should now both work, just like the progress bar and information about the currently playing track.

Volume settings

We recommend to set a comfort limit in the device setup so you cannot accidentally set the volume to maximum by sliding the volume bar far to the right. In case you do like to play louder than the limit, you can still press the + and – buttons in the Roon interface to increase or decrease the volume of the LS1 playback system. To set the comfort limit, please browse to the Audio tab of the Roon settings, tap the ‘cog-wheel’ configuration logo on the right of the GA MU1 device and select ‘Device Setup’, as shown in the picture below.

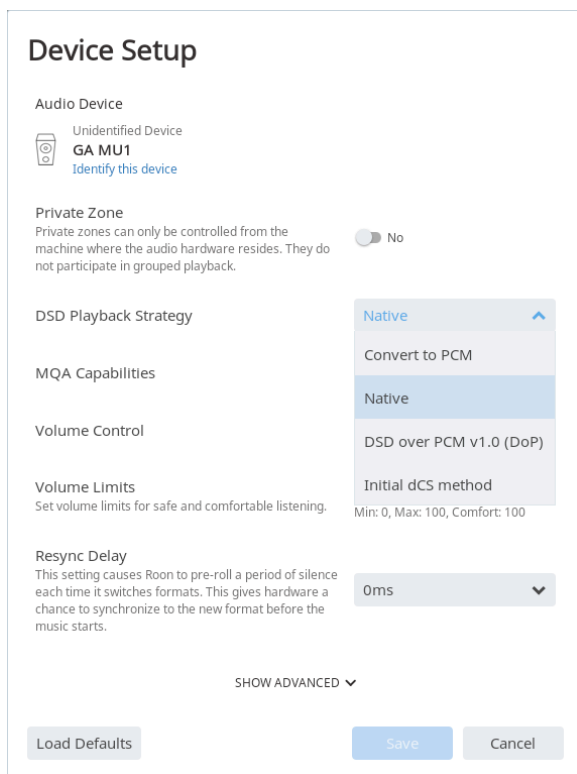


Here you select “Set volume limits” and set it to ‘64’ which corresponds to an acceptable comfort level for most music. If your taste mainly covers softly recorded tracks, you may decide to set a higher level.

Warning! In the Device setup menu you can also change the volume settings type of Roon. You should always keep the “Volume Control” set to “Device volume”. Switching to “DSP Volume” or “Fixed Volume” will give problems with volume control. If you accidentally did change the settings you can get out of this state by pressing the “Load Defaults” button in ‘Device Setup’. This will restore the system to the normal state. More information can be found here: https://kb.roonlabs.com/Audio_Setup_Basics in chapter Volume Control Mode. This page states about the volume settings: “It's there to solve problems - if you don't have problems, you don't need it!”

DSD playback setting

While you are in the Device Setup page, please set the “DSD playback strategy” to “Native” if it is not already. The MU1 fpga processor has a superior quality DSD downsampler and we recommend to use this feature to play DSD files to the LS1 system or other PCM DAC’s.



Updates of Roon software

Roon Labs offers frequent updates to both the Roon Core app in the MU1 and the Roon Remote app in your tablet or smart phone. Updates on your phone/tablet are usually installed automatically. If a Roon Core update is available the Roon Remote app will inform you about that. You are permitted to start a Roon Core update process in the MU1 from the Roon Remote

phone/tablet app, but we do not take any responsibility for the impact of problems that may occur. We always test Roon Core updates on the MU1 before they are offered to the public, but nevertheless it may happen that something goes wrong. Of course we will in that case offer support to help you solve the problem.

Known issues with Roon on the MU1

#1 Hampered playback when analysing a large catalog.

When you add a folder with lots of albums, Roon will analyse the files and download artwork etc. It will also do an analysis of the audio data to store waveforms that are shown in the user interface and to store the average loudness of the track for loudness normalization use. Roon will use all 4 cores of the MU1 CPU board for this analysis, which can cause the system to be less responsive. Although it should be possible, we recommend to not use the system for music playback while Roon runs this analysis for the first time on a large set of albums. If you let it run overnight, it is usually finished the next day. If you add a few albums only, playback is not hampered and this will not affect the playback. In case you still like to play music while the system runs the analysis, please limit the amount of cores that are used for the analysis to 3. This can be done in the Roon settings. Consult the Roon manual for more information.

#2 Soft glitches in DSD album playback.

Please mark that when playing albums in DSD format, the end and start of the files are not reproduced 100% gapless by design, which means that a very soft glitch can be heard at the start of a new track. This glitch is in the master files and cannot be solved in the MU1 or Roon software. Also, a short moment after playback of a DSD file has stopped, Roon will switch to a 'silent' PCM stream and this also causes a soft glitch.

#3 Adding the root system folder to Roon.

When adding the root directory or "/" in the storage settings of Roon, problems may occur. Roon tries to index the OS filesystem making it slow and in some cases might even make Roon crash. Instead of adding the root directory, please add the proper music folders as explained in the next chapter.

Internal disk

The MU1 optionally has an internal disk for music files. Adding music to the folders of this drive is done via the network, how to do this is described below for Windows and Mac-OS.

First of all, open the help page of the MU1 menu (see chapter "Control") and note the hostname and IP-address.

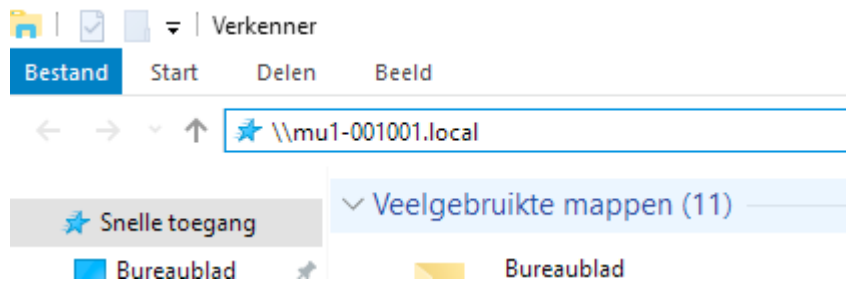
Windows users:

Note: Not all Windows computers can use the hostname for finding an internal disk in the network. This is because "mDNS" is not natively supported by Windows. However, on many Windows computers software has been installed that added support for this protocol and therefore we advice to first try to use the hostname and if this doesn't work, use the IP address.

1. Open the File Explorer (this is done by opening a random folder).

2. Enter '\\“hostname”' in the address bar as shown in the image below.

Note: If you do not have “mDNS” this doesn't work. Use the ip-address: '\\“ip-address”'

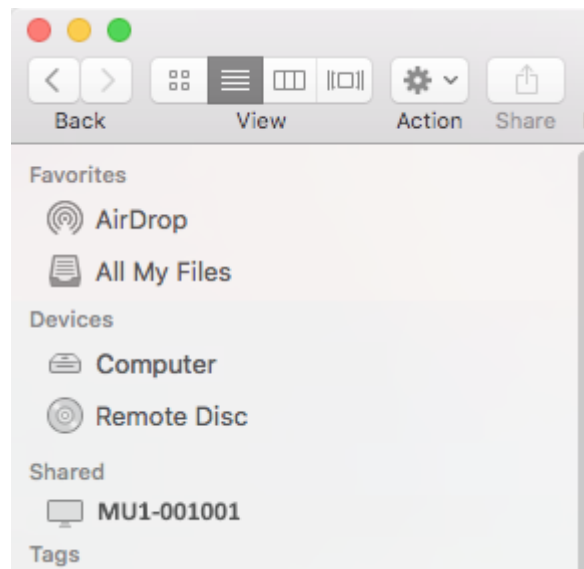


3. The internal disk is now shown in the File Explorer. You can now add, delete and move music to the MU1 internal disk from your Windows computer.

Tip: Make a shortcut to this folder so you can easily find it instead of typing in the hostname.

Mac users:

The shared folder can be found in the Finder, in the left hand column under “Shared”.



After selecting this folder, you can add, delete and move music here from your Mac.

Note: On the internal disk you will find a directory lost+found, you can ignore or delete this folder.

Tip: After mounting you can make a backup of the music that is stored on the MU1 internal drive via your Windows or Mac computer by using your favourite backup application.

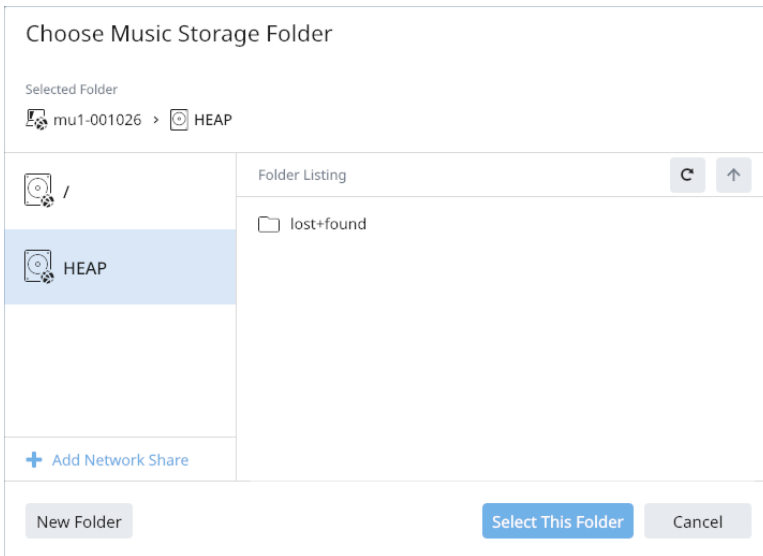
How to add the internal disk to Roon

To add the internal disk to the Roon catalog, first remove any memory stick or USB drive that you connected to a USB receptor on the back of the MU1. Next open the Storage settings in Roon and click on “Add folder”. The internal disk should show up in the menu on the left as “HEAP”. Select this folder to add the disk to Roon as music folder.

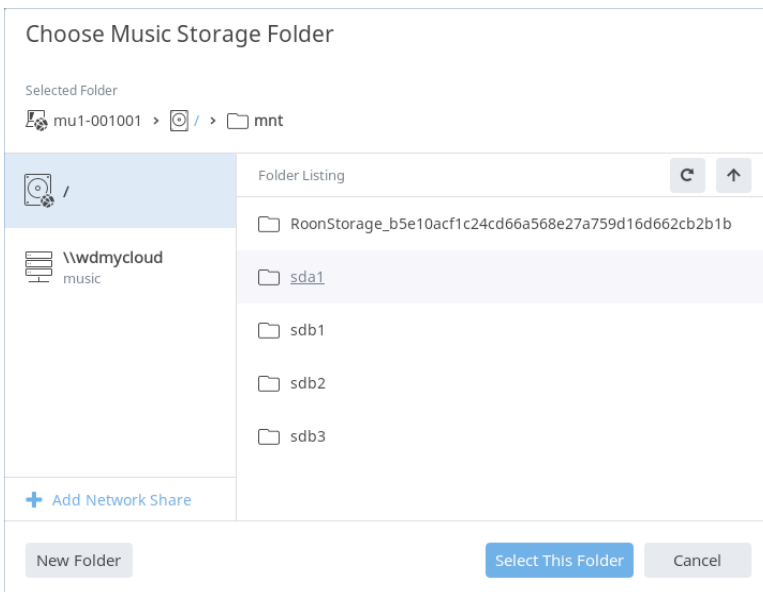
If the disk does not appear as HEAP you must add it manually. Please note that the procedure for this is dependent on the serial number of your MU1. For serial numbers starting with 13.0.001.xxx the label is **sda1**. MU1 serial numbers starting with 13.0.002.xxx the label is **sdb1**.

Click on “Add folder” and go to the root directory “/”, open “mnt” and choose “sdx1” (the name of the internal SSD drive, depending on the serial number). Your music folders are on sda1 or sdb1 and will now be added.

Tip: Roon will automatically append music that you later add to your music folder.



Select the HEAP drive if it is available.



Select sda1 or sdb1 (depending on serial number, see text) in “/mnt/” if the HEAP drive is not available.

7 Control

This chapter describes the user menus and settings of the MU1.

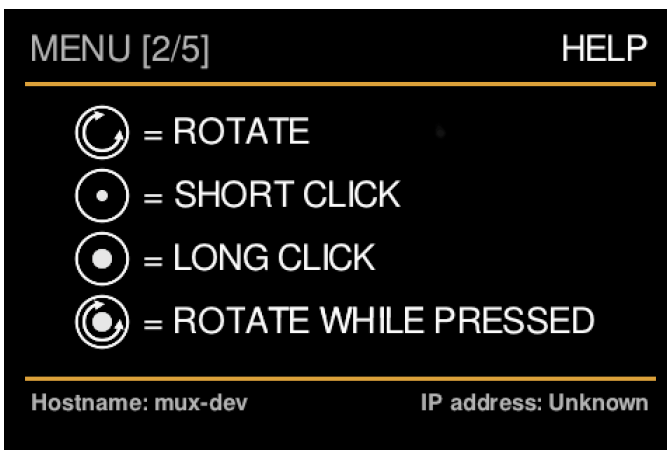
Music View

Function of the main control knob:

- Turn left for lowering volume.
- Turn right for increasing the volume.
- Short press pauses or starts playback.
- Long press enters the settings menu.
- Press and turn selects the input.

A short press is shorter than 2 seconds, a long press is longer than 2 seconds.

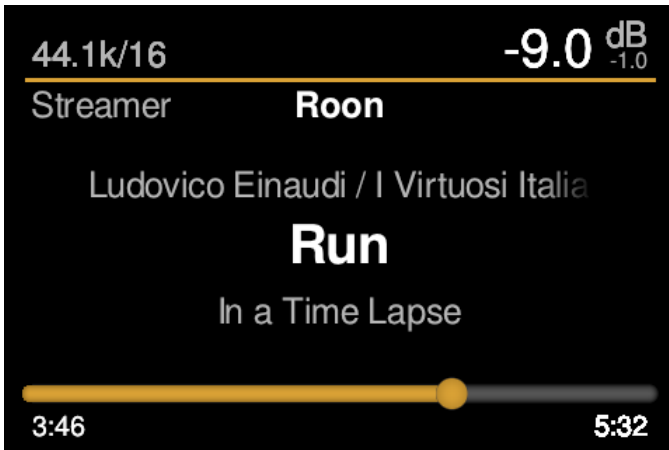
For your information, in the Help page of the Menu (page 2) the pictograms for these actions are described:



Below is an image of the view when the MU1 is fully booted, with playback paused.



When playing the progress bar gets a position indicator point as follows:



In Music View, the display offers the following information:

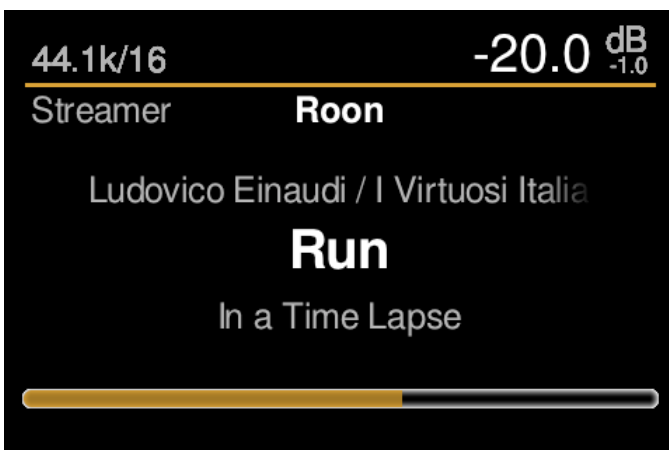
- Sample rate and format¹
- Current user set volume in dB
- Mismatch volume in dB²
- Streaming service³
- Artist
- Song title
- Album name
- Progress bar
- Current time stamp
- Track length

¹ This is the indicated file or stream information by Roon. The output of the MU1 may run at a higher sample rate because of the optional upsampling in the fpga of the MU1. *Note: There is a known issue with the indicated bit depth (16/24/32), we are looking for a solution of this problem.*

² The mismatch shows the difference between the user set volume and the actual volume, for instance when loudness normalization (*to be implemented*) affects the file volume. It also indicates a -10 dB attenuation when previewing a source.

³ At the moment only Roon is supported.

When turning the MU1 main control knob, the volume changes and the track progress bar at the bottom is replaced by a bar that indicates the current volume setting.

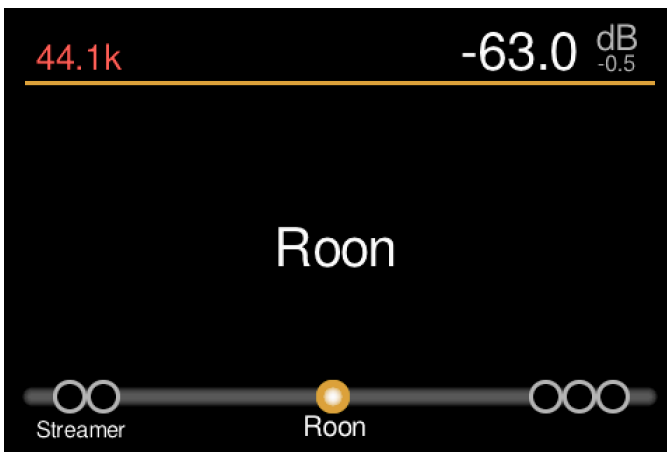


Source selection

By pressing and then rotating the main knob you enter the source selection menu. Here you can select sources. To leave this menu just release the main knob when the desired input is selected.

There are 3 source categories and each has one or more inputs. The list below shows each category and their available inputs:

- LS1:
 - LS1 Analogue
 - LS1 Digital 1
- Streamer:
 - Roon
- Digital in:
 - AES-XLR
 - AES-RCA
 - Toslink



By turning the main knob (while holding it down) the different sources are selected.

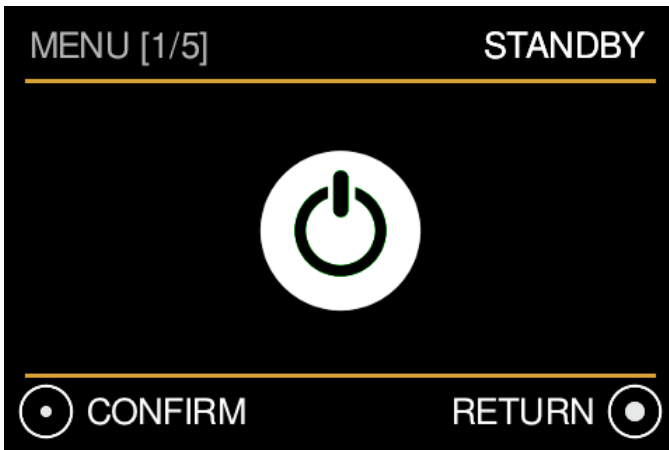
If you 'hover' over a certain input this input will be selected in preview mode after 1 second, this means that you can listen to the selected source (at a 10dB lower volume as the current volume) to check if the desired input is what you want. When releasing the main knob the selected input is chosen and the volume goes back to the normal setting.

Note: The Toslink input is an 'LS1 low-latency' input. This is the recommended input for TV audio as the low latency is better synchronised with the video. This only works with the LS1 playback system since the latency issue is related to the LS1 internal settings. Please refer to the [LS1 manual](#) for more information about its low latency mode.

Menu View

By pressing and holding the main control knob for 2 seconds or longer, the MU1 display enters the 'Menu View' mode.

Settings menu[1/5]: Standby



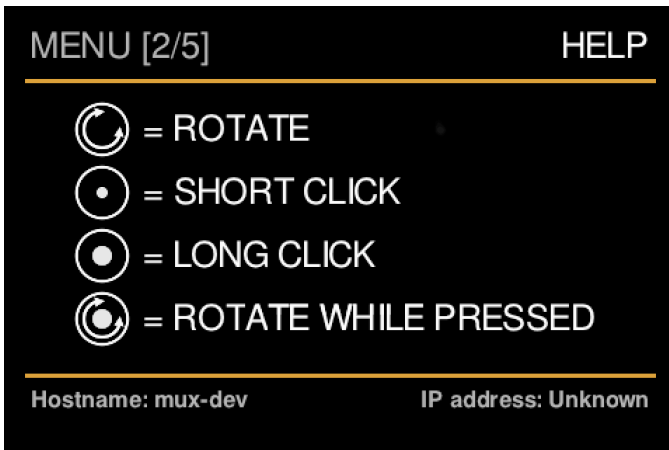
[To be implemented] In this menu you can put the MU1 in standby mode.

- Turn right to go to the second menu.
- A short press ('confirm') will put the MU1 in standby mode. To get the MU1 back in normal mode you can simply press or rotate the main control knob again.
- With a long press you will exit the menu and go back to the *Music View*.

When in standby the power consumption decreases and the screen is turned off. The internal electronics are largely shut down, but some of it still functions. Please do not unplug the mains power connector in standby since this may cause damage to the computer system. If you like to turn off the system, first switch off the device with the main power button on the rear of the device instead. *(The standby mode will be implemented in an upcoming software update).*

Hint: The LED on the front indicates if the device is in stand-by (LED 'breathes') or if the MU1 is shut down (LED off).

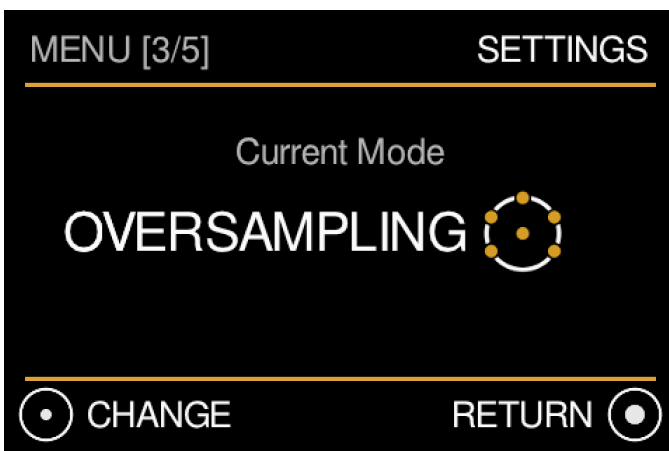
Settings menu[2/5]: Help



This menu explains the pictograms that are used in the MU1 for operating the main knob. At the bottom the network information is shown. When the IP address is unknown, there is no network connection and the MU1 cannot be found by the Roon control app in your tablet or smart phone.

- Turn left to go to the first menu, turn right to go to the third menu.
- With a long press you will exit the menu and go back to the *Music View*.

Settings menu[3/5]: Playback Settings



In this menu you can change some playback settings of the MU1.

- Turn left to go to the second menu, turn right to go to the fourth menu.
- To change the playback setting, short press the main control knob.
- This setting is saved in the MU1.
- With a long press you will exit the menu and go back to the *Music View*.

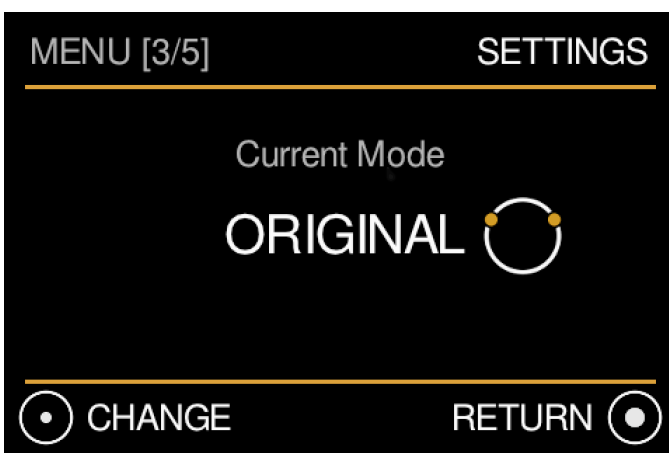
After a short press the following choice appears:



- Turn left to change playback to Original PCM.



- To confirm the selection of the 'Original PCM' setting, short press the main control knob.
- Turn right to select fpga Oversampling on 1fs and 2 fs sources again.

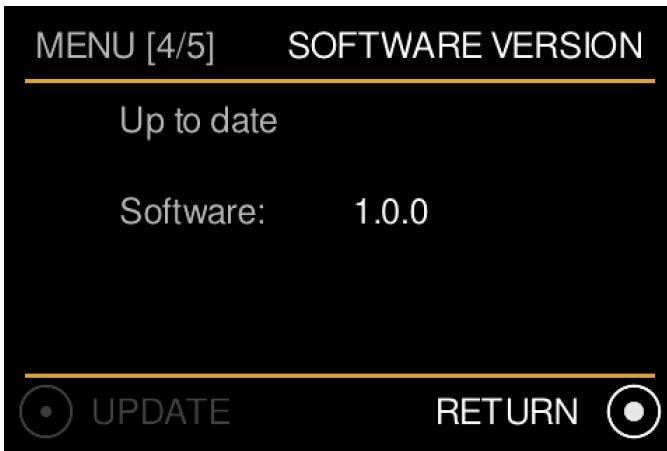


After the mode change is confirmed, the display returns to the settings menu.

- Turn left to go to the second menu, turn right to go to the fourth menu.

- To change the playback setting again, short press the main control knob.
- With a long press you will exit the menu and go back to the *Music View*.

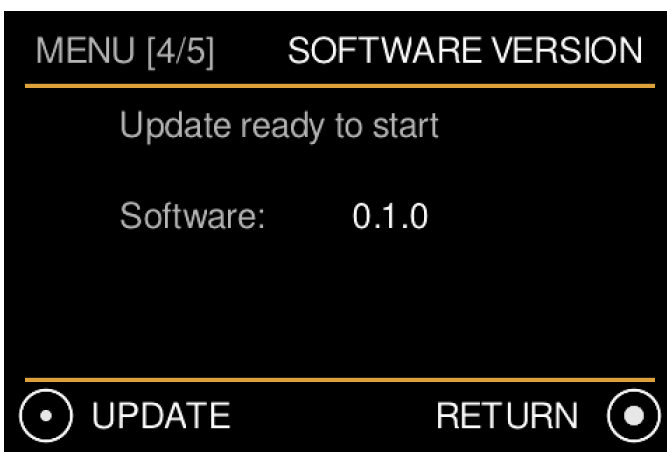
Settings menu[4/5]: Software Version and Update



In this menu you can view the current software version and start an update. The MU1 automatically checks for an update every hour, from the moment the unit is turned on. If your software is up to date this is indicated in the display and the bottom left icon stays greyed out.

- Turn left to go to the third menu, turn right to go to the fifth menu.
- With a long press you will exit the menu and go back to the *Music View*.

The image below shows the case that there is an update available.



In case an update is available the text “Update” is shown in white.

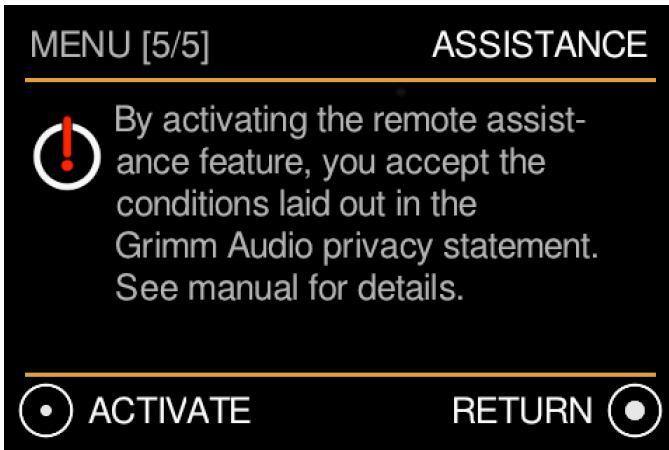
- Start the update with a short press and confirm by another short press.

Please note: Depending on the type of update the install can take up to about 10 minutes. You will not see information on the display during the update and the power button on the back is disabled. Please do not unplug the device while updating as this causes the update to fail and the procedure has to start again when the device is powered up.

During the update process the internal PC will shut down and reboot at least twice. When the update is complete the system will turn back on in the normal mode.

Updates for third party software like Roon is not included in the MU1 software update, this is done via the Roon app.

Settings menu[5/5]: Assistance



[To be implemented] In this menu you can activate the assistance mode. It should only be activated when you have a reported problem with your MU1 and Grimm Audio support asked you to enter assistance mode. In this mode Grimm Audio engineers can get remote access to your device to help solve your problem.

This mode reboots the MU1 and establishes a secure connection to a Grimm Audio server. Through this secure connection we can log in to your device and read out logfiles and change settings.

- Activate the remote assistance mode with a short press on the main control knob, confirm by another short press.
- With a long press you will exit the menu and go back to the *Music View*.

8 Specifications

General:

- Maximum ambient temperature for operation: 50 °C.
- Fuse (worldwide): 200mA fast blow.
- Weight: 4.5 kg
- Dimensions: width x depth x height: 355 x 295 x 100mm or 14" x 11.6" x 3.9".
- Package dimensions: 536 x 392 x 219mm

Clock specifications:

- Internal intrinsic clock jitter <0.6 ps RMS (> 10 Hz).
- Can slave to 44.1kHz and 48kHz based digital sources +/- 50ppm.

Sample rate conversion with fpga processor:

- Oversampling of 1FS and 2FS files and streams to 4FS with "Pure Nyquist" decimation filter.
- Downsampling of DSD64 files and streams to 4FS with "Pure Nyquist" decimation filter.

Power supply:

- Mains voltage range: 90 – 240V AC +/- 10% (50 and 60Hz)
- Power factor: > 0.98
- Power consumption: Normal use 15W, maximum 40W.

Internal computer properties:

- Intel 2.4GHz
- 2 cores, 4 threads, with Hyper-threading
- 4GB DDR4-2133 RAM 2400MHz
- 1000Mb/s Ethernet
- 2x USB 3.0 port
- Internal SSD for OS
- Optional internal SSD for music data storage

Display specifications:

- Full colour TFT LCD
- 3.5 inch diagonal
- 480 x 320 pixels

9 Grimm Audio Limited Warranty

Grimm Audio BV (“Grimm Audio”) warrants this product to be free of defects in material and workmanship for a period of two (2) years for parts and for a period of two (2) years for labor from the date of original purchase. This warranty is linked to the serial number of the device and can be transferred to second hand owners if they can show their purchase bill. The original owner can extend his limited warranty to a period of five (5) years for labor and parts if he sends the original warranty card that came with the unit to the Grimm Audio factory. The extended warranty is enforceable only by the original retail purchaser and cannot be transferred or assigned. The extended warranty does not apply to the built in computer and SSD drive parts of the MU1.

During the warranty period Grimm Audio shall, at its sole and absolute option, either repair or replace free of charge any product that proves to be defective on inspection by Grimm Audio or its authorized service representative. In all cases disputes concerning this warranty shall be resolved as prescribed by law. To obtain warranty service, the purchaser must first call or write Grimm Audio at the address and telephone number printed below to obtain instructions where to send the unit for service. All enquiries must be accompanied by a description of the problem. All authorized returns must be sent to Grimm Audio or an authorized Grimm Audio repair facility postage prepaid, insured and properly packaged. Proof of purchase must be presented in the form of a bill of sale or some other positive proof that the product is within the warranty period. Grimm Audio reserves the right to update any unit returned for repair. Grimm Audio reserves the right to change or improve design of the product at any time without prior notice.

This warranty does not cover claims for damage due to abuse, neglect, alteration or attempted repair by unauthorized personnel, and is limited to failures arising during normal use that are due to defects in material or workmanship in the product.

In no event will Grimm Audio be liable for incidental, consequential, indirect or other damages resulting from the breach of any express or implied warranty, including, among other things, damage to property, damage based on inconvenience or on loss of use of the product, and, to the extent permitted by law, damages for personal injury.

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