

# Millenium

MPS-850  
e-drum module



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## 1 General information

This user manual contains important information on the safe operation of the device. Read and follow all safety notes and all instructions. Save this manual for future reference. Make sure that it is available to all persons using this device. If you sell the device to another user, be sure that they also receive this manual.

Our products and user manuals are subject to a process of continuous development. We therefore reserve the right to make changes without notice. Please refer to the latest version of the user manual which is ready for download under [www.thomann.de](http://www.thomann.de).

### 1.1 Further information

On our website ([www.thomann.de](http://www.thomann.de)) you will find lots of further information and details on the following points:

Download	This manual is also available as PDF file for you to download.
Keyword search	Use the search function in the electronic version to find the topics of interest for you quickly.
Online guides	Our online guides provide detailed information on technical basics and terms.
Personal consultation	For personal consultation please contact our technical hotline.
Service	If you have any problems with the device the customer service will gladly assist you.

### 1.2 Notational conventions

This manual uses the following notational conventions:

#### Letterings

The letterings for connectors and controls are marked by square brackets and italics.

**Examples:** *[VOLUME]* control, *[Mono]* button.

#### Displays

Texts and values displayed on the device are marked by quotation marks and italics.

**Examples:** '24ch', 'OFF'.

#### Instructions


The individual steps of an instruction are numbered consecutively. The result of a step is indented and highlighted by an arrow.

#### Example:

- Switch on the device.
- Press *[Auto]*.
  - ⇒ Automatic operation is started.
- Switch off the device.


### Cross-references

References to other locations in this manual are identified by an arrow and the specified page number. In the electronic version of the manual, you can click the cross-reference to jump to the specified location.

Example: See  'Cross-references' on page 5.

## 1.3 Symbols and signal words

In this section you will find an overview of the meaning of symbols and signal words that are used in this manual.

Signal word	Meaning
<b>DANGER!</b>	This combination of symbol and signal word indicates an immediate dangerous situation that will result in death or serious injury if it is not avoided.
<b>CAUTION!</b>	This combination of symbol and signal word indicates a possible dangerous situation that can result in minor injury if it is not avoided.
<b>NOTICE!</b>	This combination of symbol and signal word indicates a possible dangerous situation that can result in material and environmental damage if it is not avoided.
Warning signs	Type of danger
	Warning – danger zone.

## 2 Safety instructions

### Intended use

Drum modules are intended to be used for converting digital trigger signals from drum pads to various percussion sounds. Use the unit only as described in this manual. Any other use or use under other operating conditions is considered to be improper and may result in personal injury or property damage. No liability will be assumed for damages resulting from improper use.

This device may be used only by persons with sufficient physical, sensorial, and intellectual abilities and having corresponding knowledge and experience. Other persons may use this device only if they are supervised or instructed by a person who is responsible for their safety.

### Safety

#### **DANGER!**

##### **Danger for children**

Ensure that plastic bags, packaging, etc. are disposed of properly and are not within reach of babies and young children. Choking hazard!

Ensure that children do not detach any small parts (e.g. knobs or the like) from the unit. They could swallow the pieces and choke!

Never let children unattended use electrical devices.

#### **CAUTION!**

##### **Possible hearing damage**

With loudspeakers or headphones connected, the device can produce volume levels that may cause temporary or permanent hearing impairment.

Do not operate the device permanently at a high volume level. Decrease the volume level immediately if you experience ringing in your ears or hearing impairment.

#### **NOTICE!**

##### **Operating conditions**

This device has been designed for indoor use only. To prevent damage, never expose the device to any liquid or moisture. Avoid direct sunlight, heavy dirt, and strong vibrations.

#### **NOTICE!**

##### **External power supply**

The device is powered by an external power supply. Before connecting the external power supply, ensure that the input voltage (AC outlet) matches the voltage rating of the device and that the AC outlet is protected by a residual current circuit breaker. Failure to do so could result in damage to the device and possibly the user.

Unplug the external power supply before electrical storms occur and when the device is unused for long periods of time to reduce the risk of electric shock or fire.

### 3 Features

- 550 voices
- 30 preprogrammed drum kits
- 20 user kits
- 100 preprogrammed songs
- 2 user songs
- Quick record
- Metronome
- EQ per kit
- Pitch, reverb, compressor
- Flexible assignment of pad voices
- 6 fader for the volume control of individual pads
- Reverb effect, voice tuning
- Individual adjustment of accompaniment and drum track
- Connections for headphones, AUX, USB and MIDI

## 4 Installation

### Setup, connecting pads and pedals

Setup and assembly of the pads and pedals are described in detail in the enclosed assembly guide. Finally check that all cables between the pads and the e-drum module have been properly connected.

### Connecting the power adapter

Use the Y cable to connect the supplied power adapter to the [9 V] port of the e-drum module and the hi-hat controller. Then plug the mains plug into the socket.

### Connecting headphones

Connect your stereo headphones to the [PHONES] output of the drum module.

### Connecting audio devices

Connect the inputs of your amplifier or active monitors to the [OUTPUT] sockets of the drum module. If you use a mono amplifier, connect its input to the [L/MONO] output socket of the module.

### Connecting a CD or MP3 player

Connect a CD or MP3 player to the input socket [AUX IN] IN of the drum module.

### Connecting MIDI devices

Connect external MIDI devices to the [MIDI OUT] or [MIDI IN] socket of the drum module.

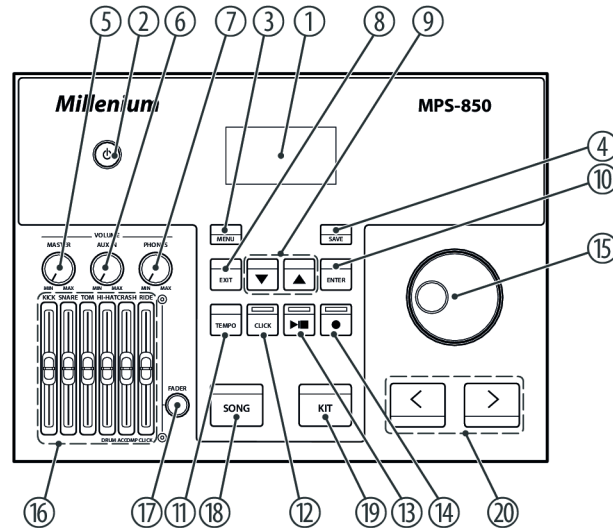
### Connecting USB devices

Connect external MIDI devices or your computer to the USB port [USB MIDI] of the drum module.



## 5 Connections and controls

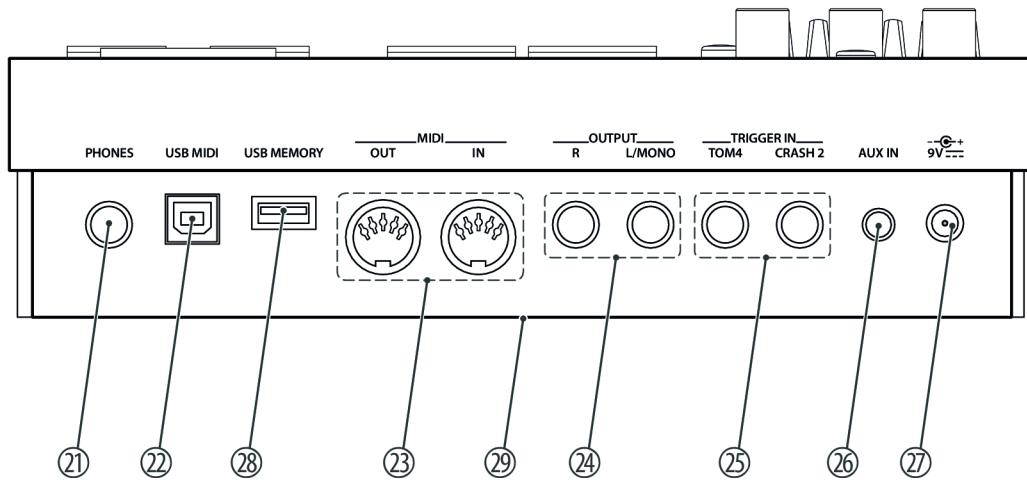
### Front panel



1	Display
2	[POWER] Main switch. Turns the device on and off
3	[MENU] Button to open the selection menu
4	[SAVE] Button to store settings
5	[VOLUME – MASTER] Overall volume control
6	[VOLUME – AUX IN] Volume control for the AUX input signal
7	[VOLUME – PHONES] Volume control for the headphone output of the device
8	[EXIT] Button to close and exit an open menu
9	▲/▼ Arrow buttons to select an option

10	<i>[ENTER]</i> Button to confirm a selection or setting
11	<i>[TEMPO]</i> Button to adjust metronome and playback tempo
12	<i>[CLICK]</i> Button to turn the metronome on and off
13	▶/■ Button to start and stop song playback
14	● Button to activate the recording function
15	Jog wheel to select a drum kit and quickly set values
16	Fader with switchable assignment for adjusting the volume of individual pads
17	<i>[FADER]</i> Button for switching the fader assignment
18	<i>[SONG]</i> Button to open the 'SONG' menu
19	<i>[KIT]</i> Button to open the 'KIT' menu
20	<i>[&lt;] / [&gt;]</i> Arrow buttons to select a drum kit and quickly set values

Rear panel



21	[PHONES] Connection socket for headphones
22	[USB MIDI] Connection socket for an external MIDI device with USB port
23	[MIDI OUT   IN] Connection sockets for an external MIDI device
24	[OUTPUT R   L / MONO] Output for external audio devices
25	[TRIGGER IN – TOM 4] [TRIGGER IN – CRASH2] Connection sockets for tom 4 and crash 2
26	[AUX IN] Input for external audio devices like MP3 or CD players
27	[9 V] Connection socket for the power adapter
28	[USB MEMORY] Connection for a USB memory device
29	Multi-pin socket (sub D) for connecting the pads (on the bottom of the device)

## 6 Operating

### 6.1 Functions

#### Turning on / off



Check all cable connections for correct fit before turning on  
Before switching on, turn the [MASTER VOLUME] control to minimum.

Switch the drum module on or off with the main switch [POWER].

#### Automatic shutoff



If the device is not in use, it shuts off automatically after a settable time.

To disable the automatic shutdown, use the Utility menu ( ↪ Chapter 6.10 'Utility menu' on page 22).

#### Adjusting the volume

To set the volume, hit a pad while slowly turning the [MASTER VOLUME] control clockwise.

#### Reset to factory defaults

To reset the entire drum module to factory settings, turn it off first. Then hold down the [<] and [>] simultaneously and additionally press [POWER] until the display shows 'Factory Resetting...'.  
'

### 6.2 Selecting and adjusting drum kits

A drum kit is a compilation in which a certain sound (Voice) and several sound parameters are assigned to each pad. Selecting different drum kits lets you customise the sound of your drum kit in seconds to the desired music genre. Besides the 30 preprogrammed drum kits you can also create, customise and save 20 user drum kits.

#### Selecting a drum kit

To select a certain drum kit, proceed as follows:

1. ➤ Press [KIT].  
⇒ The display shows the kit list.
2. ➤ Use the arrow buttons [<] / [>] or the jog wheel to select the desired kit.  
The setting is automatically stored.

### Assigning a Voice

To programme a certain Voice for a pad, proceed as follows:

1. ➤ Press **[KIT]**.
  - ⇒ The display shows the kit list.
2. ➤ Press **[MENU]**. Use the arrow buttons (**▲/▼**) to select the option 'VOICE' and press **[ENTER]**.
  - ⇒ The display shows the voice list.
3. ➤ Hit the respective pad to activate it.
  - ⇒ The display shows the name of the currently assigned voice.
4. ➤ Use the arrow buttons (**[<]** / **[>]**) or the jog wheel to select the desired voice.
  - The setting is automatically stored.

## 6.3 Playing the drum kit



*Using the black plastic side of the bass drum beater will considerably maximize the lifetime of the mesh head of the bass drum pad. Using the felt side will accelerate the abrasion of the mesh head and may cause the break.*

*The bass drum beater can be rotated by 180 degrees by loosening the locking screw.*

Like on an acoustic drum kit, the pads respond to different playing techniques and dynamics. All pads are velocity sensitive. Some voices change their timbre depending on the punch used.

- Drums
  - With the snare drum we distinguish between Head and Rimshot.
  - Head
    - Strike the head only.
  - Rimshot
    - Simultaneously strike the head and the rim or only the rim of the pad.
- Cymbals
  - We distinguish the following cymbal zones:
  - Bow
    - Play in the area between the edge and the bell of the cymbal.
  - Bell
    - Play the bell area of the cymbal.
  - Edge
    - Play at the edge of the cymbal.
  - Choke
    - Choke Play is possible with Crash and Ride cymbals but not with the Hi-hat. To do so, stop the sound of the Crash and Ride cymbals with the hand at the edge of the cymbal immediately after hitting it.

## ■ Hi-hat

With the Hi-hat we distinguish between Hi-hat pedal change, open Hi-Hat, closed Hi-hat, Hi-hat pedal and Splash.

- Hi-hat pedal change  
When the pedal is pressed in different positions, the voice changes when hitting the Hi-hat pad (similar to an acoustic drum kit).
- Open Hi-hat  
Strike the Hi-hat pad without pressing the pedal.
- Closed Hi-hat  
Strike the Hi-hat pad with fully pressed pedal.
- Hi-Hat pedal  
Press the Hi-hat controller pedal to generate a closed sound without striking the Hi-hat pad.
- Splash  
Play the Hi-hat with fully pressed pedal and then open it suddenly.

## 6.4 Modifying drum kits

### Selecting a drum kit

1. ➤ Press **[KIT]**.  
⇒ The display shows the kit list.
2. ➤ Press **[KIT]** again to go to the User Kits section.

### Customising a drum kit

You can assign a special sound to each individual trigger of the drum kit and set multiple sound parameters.

1. ➤ Select the desired drum kit with the arrow buttons (**[<]** / **[>]**). The selected drum kit is immediately active.
2. ➤ Use the arrow buttons (**▲** / **▼**) to select the parameter to be changed.
3. ➤ Use the arrow buttons (**[<]** / **[>]**) or the jog wheel to change the parameter value.

Parameter, display	Meaning	Value range
KIT NAME	Drum kit selection	Preset: 1 ... 30 User: 31 ... 50
VOLUME	Volume of the pads of the drum kit	0 ... 16
EQ HIGH	Boost / cut of the high EQ frequencies	-12 dB...12 dB
EQ MID	Boost / cut of the mid EQ frequencies	-12 dB...12 dB
EQ LOW	Boost / cut of the low EQ frequencies	-12 dB...12 dB

### Customising Voice parameters

Voice parameters always refer only to a single pad. For example, if you change the volume of the snare drum, the other pads are not affected.

1. ➤ Press **[KIT]**.  
⇒ The display shows the kit list.
2. ➤ Press **[MENU]**. Use the arrow buttons (▲/▼) to select the option 'VOICE' and press **[ENTER]**.  
⇒ The display shows the voice list.
3. ➤ Use the arrow buttons (**[<]** / **[>]**) or the jog wheel to select the pad or play the pad whose parameters you want to adjust.
4. ➤ Use the arrow buttons (▲/▼) to select the parameter to be changed.
5. ➤ Use the arrow buttons (**[<]** / **[>]**) or the jog wheel to change the parameter value.

Parameter, display	Meaning	Value range
TRIGGER	Trigger	KICK, SNARE, SN-R, TOM1, T1-R...
VOICE NAME	Voice assigned to the trigger. The voices U01... U99 can be loaded from a USB stick.	1 ... 550, U01...U99
VOLUME	Volume	0...16
PAN	Trigger position within the stereo signal (panorama right / left)	-8...8
PITCH	Pitch	-8...8
REVERB	Reverb	0...16
DECAY	Decay	-5...0
PAD SONG	Pattern, Style	1 ... 100, Off

### Customising and storing user kits

The existing preset kits can be used as a basis for user kits. The user kits can then be stored in the device memory.

1. ➤ Press **[SAVE]**.  
⇒ 'Rename Kit' and the number and name of the first user kit appear on the display.
2. ➤ Change the name as desired. You change the letter on which the cursor is currently located with the jog wheel, you move the cursor with the arrow keys (**[<]** / **[>]**).
3. ➤ To save, select the option 'SAVE'. To cancel, select the option 'CANCEL'.
4. ➤ Use the arrow buttons (**[<]** / **[>]**) or the jog wheel to select a user kit. Press **[ENTER]**.  
⇒ The display briefly shows 'SAVE OK!'. The changes to the settings take immediately effect.



Any unsaved changes will be discarded when selecting another kit or the device is turned off.

## 6.5 Playing, customising and accompanying songs

### Style selection

Your digital drum module features a total of 100 preprogrammed songs with different styles: 70 patterns, 6 hits, 24 taps and 2 user songs. You can play the songs and accompany them on the drum module. A song contains a drum part (containing the rhythm in which you play the pads) and an accompaniment part (percussion and melody). The volume of both parts can be adjusted separately.

1. ➤ Press [SONG].
  - ⇒ The name and number of the current song appear in the display.
2. ➤ Use the arrow buttons (▲/▼) to select the parameter to be changed.
3. ➤ Use the arrow buttons ([<] / [>]) to change the parameter value.
4. ➤ Press ▶/■ to play and stop the songs.

Parameter, display	Meaning	Value range
NUMBER	Number of the song.	<ul style="list-style-type: none"> <li>■ 1...60: Patterns</li> <li>■ 61...70: Percussion Loops</li> <li>■ 71...76: Hits</li> <li>■ 77...100: Taps</li> <li>■ 101...102: User songs</li> </ul>
ACCOM VOL	Accompaniment volume	0...16
DRUM VOL	Drum kit volume	0...16



### Song playback from USB stick

The drum module first displays the music files recognized in the 'SONG' directory on the USB stick. But you can switch to any other directory on the medium. From each directory, the first 99 music files are displayed.

Requirements for the music files:

- MIDI: SMF 0, track number less than 16, PPQN 480 maximum, file size 128 kB maximum.
- WAV: Bit rate 1536 kbit/s maximum, sampling frequency 48 kHz maximum
- MP3: Bit rate 320 kbit/s maximum, sampling frequency 48 kHz maximum

If you want to play music files that do not meet these requirements, an error message will appear in the display.

1. ➤ Press [SONG].
  - ⇒ The name and number of the current song appear in the display.
2. ➤ Press [SONG] again.
  - ⇒ The display shows the list of WAV, MP3 or MIDI files detected on the USB stick.
3. ➤ Use the arrow buttons (▲/▼/[<] / [>]) to navigate in the list.
4. ➤ Press [MENU] to open the 'SONG' menu.
  - Use the arrow buttons (▲/▼) to select the option 'USB FOLDER' to change to another directory on the USB stick. Confirm with [ENTER].
5. ➤ Press ►/■ to play and stop the songs.

## 6.6 Metronome function

Press [CLICK] to turn the click function on and off again. When the Click is running the indicator LED of the button is flashing.

### Settings

1. ➤ Use the arrow buttons (▲/▼) to select the parameter to be changed.
2. ➤ Use the arrow buttons ([<] / [>]) or the jog wheel to change the parameter value.

All changes are immediately effective. Exit the Settings menu by pressing [CLICK] again.

Parameter, display	Meaning	Value range
TIME SIGNATURE	Emphasis on beats	0 ... 9/2, 0 ... 9/4, 0 ... 9/8, 0 ... 9/16
VOLUME	Click volume	0 ... 16
INTERVAL	Beats per measure	1/2, 3/8, 1/4, 1/8, 1/12, 1/16
NAME	Name and number of the corresponding Click voice	METRO, CLAVES, STICKS, COWBELL, CLICK, VOICE
OUTPUT	Click output for headphones only or also for the line output	PHONES, ALL (PHONES+OUTPUT)

The click volume is also influenced by the fader [RIDE/CLICK]. The click is only audible if this fader is not set to zero.

## Changing the tempo

1. ➤ Press [TEMPO].
2. ➤ Use the arrow buttons ([<] / [>]) or the jog wheel to change the click tempo.
3. ➤ Confirm with [ENTER] or wait three seconds to reactivate the originally set tempo.

## 6.7 Fader

The drum module offers six separate faders that can be used to directly adjust the volume of individual pads, the song, or the click. The faders have double assignment. To change from one assignment to another, press [FADER]. The two control LEDs next to the faders indicate which assignment is currently set.

Fader label	Assignment 1	Assignment 2
[KICK]	Kick drum	–
[SNARE]	Snare	–
[TOM]	Tom 1, 2, 3, 4	–
[HI-HAT]	Hi-hat	Drum module
[CRASH]	Crash 1, 2	Accompaniment
[RIDE/CLICK]	Ride	Click

## 6.8 Recording functions

This feature allows you to use the drum module for recording. You can record your own drum track with or without an accompanying song. The recording can be stored in one of the two user songs as a MIDI file directly in the drum module or stored in an MP3 file on a USB stick.

### Recording preparation

1. ➤ Before recording, set the parameters as desired: Tempo, kit, emphasis on beats, beats per measure and song as accompaniment.
2. ➤ Press ●.
  - ⇒ The display shows 'REC'.
3. ➤ If no USB stick is connected, you can use the arrow buttons ([<] / [>]) to choose whether to save the recording as user song 1 or 2.

**Starting and stopping recording**

**1.** ➤ When the unit is ready to record ('REC'), press ▶/■ or play a pad.



*From the 'SONG' and 'KIT' menus, you can switch to recording standby directly. To do so, just press ●.*

⇒ As long as the recording is running, the control LED of the ● button lights up, the display shows 'RECORDING'.

**2.** ➤ To stop recording, press ▶/■.

## 6.9 Trigger settings

### Adjusting trigger settings

The touch responsiveness can be adjusted to your needs and preferences by the settings of this menu.

1. ➤ Press *[KIT]*.  
⇒ The display shows the kit list.
2. ➤ Press *[MENU]*. Use the arrow buttons (▲/▼) to select the option 'TRIGGER' and press *[ENTER]*.  
⇒ The display shows the list of trigger parameters.
3. ➤ Use the arrow buttons (▲/▼) to select the parameter to be changed.
4. ➤ Strike the pad whose parameter you want to modify.

5. ➤

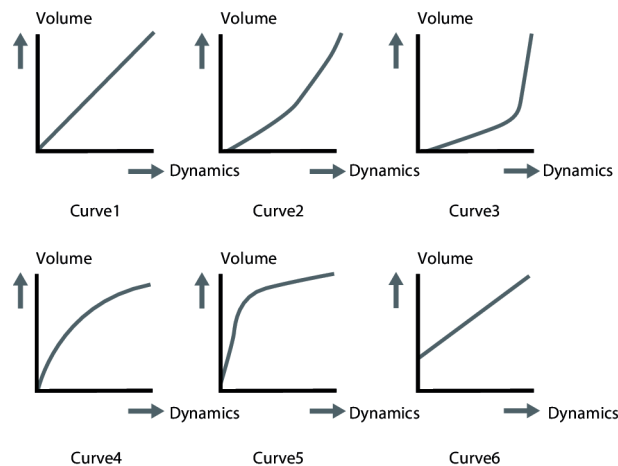


*For non-changeable parameters, the display shows '–'*

Use the arrow buttons (*[<]* / *[>]*) or the jog wheel to change the parameter value. Please note the information in the table below.

6. Press [EXIT] to save the changes and to exit the menu.

Parameter, display	Meaning	Value range
SENSITIVITY	Volume behaviour of a pad regardless of the actual strike intensity. The higher the value, the higher the volume when playing, and vice versa.	1...16
RIM SEN	Touch sensitivity of the rim trigger (snare and toms).	1...16
HEAD-RIM-ADJ	Ratio of touch sensitivity of head and rim.	1...16
THRESHOLD	Threshold value, that determines from what tough intensity a trigger generates a sound. The higher the value, the less sensitive the trigger responses to vibrations of other pads.	1...16
XTALK	If several pads are mounted on a rack vibrations can be transmitted to other pads when you hit a trigger and unintentionally trigger sounds. This cross-talk can be avoided by the appropriate setting. The value should be set as low as possible.	1...16
CURVE	The trigger curve regulates the velocity, i.e., the ratio between the punch and volume. Use setting 'Curve 1' for the most natural ratio between punch and volume. When using 'Curve 2' or 'Curve 3', a strong strike will cause a bigger change. When using 'Curve 4' or 'Curve 5', a light strike will cause a bigger change. With the setting 'Curve 6' the volume changes less upon a change of the strike. High volumes are already reached at a relatively low strike intensity.  The figure below shows the various options schematically.	1...6
RETRIG CANCEL	We call it 'double trigger' when multiple sounds are successively produced when playing a pad. This effect can i.a. be caused by irregular waveforms especially in the decaying of the trigger. With this parameter, these distortions can be suppressed. The higher the value is, the higher the likelihood that rapidly successive strikes – such as in a drum roll – are no longer detected. So the value should be set as low as possible.	1...16
MIDI NOTE	Assigned MIDI note	0...127
SPLASH SENS	Touch sensitivity of the Splash trigger. The higher the value, the less sensitive the trigger responses.	1...6



## 6.10 Utility menu

### Adjusting device settings

In this menu, you can change various settings of the device.

1. Press **[KIT]**.  
⇒ The display shows the kit list.
2. Press **[MENU]**. Use the arrow buttons (**▲/▼**) to select the option 'UTILITY' and press **[ENTER]**.  
⇒ The display shows the list of utility parameters.
3. Use the arrow buttons (**▲/▼**) to select the parameter to be changed.
4. Use the arrow buttons (**[<] / [>]**) or the jog wheel to change the parameter value. Please note the information in the table below.
5. Press **[EXIT]** to save the changes and to exit the menu.

Parameter, display	Meaning	Value range
GM MODE	Defines the processing of programme change commands: ON: Programme change commands for MIDI channel 10 are processed as selection (GM kit). OFF: Programme change commands for MIDI channel 10 are processed as selection (local kit).	ON, OFF
LOCAL CTRL	ON: Drum module and MIDI sound are present at the output. OFF: Drum module is muted, only MIDI sound.	ON, OFF
L-R EXCHANG	Allows to switch from left-handed to right-handed configuration of the entire set without having to change the wiring.	ON, OFF
AUTO POWER	Defines the behaviour of the automatic shutoff: <ul style="list-style-type: none"> <li>■ '30' (automatic shutoff after 30 minutes)</li> <li>■ '60' (automatic shutoff after 60 minutes)</li> <li>■ 'OFF' (automatic shutdown off).</li> </ul>	30, 60, OFF

## 6.11 Compression

### Adjusting compression settings

In this menu, you can adjust the compression setting of the device to your requirements.

1. ➤ Press *[KIT]*.
  - ⇒ The display shows the kit list.
2. ➤ Press *[MENU]*. Use the arrow buttons (▲/▼) to select the option 'COMPRESS' and press *[ENTER]*.
  - ⇒ The display shows the list of compression parameters.
3. ➤ Use the arrow buttons (▲/▼) to select the parameter to be changed.
4. ➤ Use the arrow buttons (*[<]* / *[>]*) or the jog wheel to change the parameter value. Please note the information in the table below.
5. ➤ Press *[SAVE]* to store the changes.

Parameter, display	Meaning	Value range
THRESHOLD	Threshold value for compression	0...16
GAIN	Compression intensity	0...16

## 6.12 USB stick functions

A USB stick can be used to save or play sound files (as songs) or kit settings.

The USB stick must have a capacity of at least 4 GB and be formatted with the FAT file system.

### USB stick formatting



*Formatting erases all data on the USB stick irretrievably.*

1. ➤ Press *[KIT]*.
  - ⇒ The display shows the kit list.
2. ➤ Press *[MENU]*. Use the arrow buttons (▲/▼) to select the option 'USB' and press *[ENTER]*.
  - ⇒ The display shows the 'USB MEMORY' menu.
3. ➤ Use the arrow buttons (▲/▼) to select the option 'FORMAT'.
  - ⇒ A confirmation prompt appears on the display.
4. ➤ Confirm with *[ENTER]* or press *[EXIT]* to exit the menu.

### Loading a sample from the USB stick and saving it as a user voice

Samples stored on the USB stick can be loaded into the drum module and saved there as a user voice. The user voices can be used in the same way as the supplied voices. Maximum sample size is 15 MB. It must be stored as a WAV file (mono) with a resolution of 16 bit and a sampling rate of maximum 48 kHz.

1. ▶ Press *[KIT]*.
  - ⇒ The display shows the kit list.
2. ▶ Press *[MENU]*. Use the arrow buttons (▲/▼) to select the option 'USB' and press *[ENTER]*.
  - ⇒ The display shows the 'USB MEMORY' menu.
3. ▶ Use the arrow buttons (▲/▼) to select the option 'SAMPLE LOAD'. Confirm with *[ENTER]*.
  - ⇒ The display shows the list of WAV files detected on the USB stick.
4. ▶ Use the arrow buttons (▲/▼) to select a file. Confirm with *[ENTER]*.
  - ⇒ The display shows 'Load to User Voice'.
5. ▶ Confirm with *[ENTER]*.
  - ⇒ The sample is being loaded. This can take about a minute, depending on the file size.

### Storing kit settings on the USB stick

The settings you have made for a kit can be saved on the USB stick and used again later.

1. ▶ Press *[KIT]*.
  - ⇒ The display shows the kit list.
2. ▶ Press *[MENU]*. Use the arrow buttons (▲/▼) to select the option 'USB' and press *[ENTER]*.
  - ⇒ The display shows the 'USB MEMORY' menu.
3. ▶ Use the arrow buttons (▲/▼) to select the option 'KIT SAVE'. Confirm with *[ENTER]*.
  - ⇒ The display shows the list of the kits (01...99). If there is no name next to a kit number, then no kit has yet been saved for this number.
4. ▶ Use the arrow buttons (▲/▼) to select a kit. Confirm with *[ENTER]* or press *[EXIT]* to exit the menu.
  - ⇒ The kit is being saved.



### Loading kit settings from a USB stick

The settings for a kit stored on the USB stick can be loaded.

1. ▶ Press *[KIT]*.
  - ⇒ The display shows the kit list.
2. ▶ Press *[MENU]*. Use the arrow buttons (▲/▼) to select the option 'USB' and press *[ENTER]*.
  - ⇒ The display shows the 'USB MEMORY' menu.
3. ▶ Use the arrow buttons (▲/▼) to select the option 'KIT LOAD'. Confirm with *[ENTER]*.
  - ⇒ The display shows the list of the kits (01...99). If there is no name next to a kit number, then no kit has yet been saved for this number.
4. ▶ Use the arrow buttons (▲/▼) to select a kit. Confirm with *[ENTER]*.
  - ⇒ The display shows 'Load to User \_\_\_?'.
5. ▶ Use the arrow keys (*[<]* / *[>]*) or the jog wheel to select the number of the user kit under which the settings are to be stored in the drum module.
 

Confirm with *[ENTER]* or press *[EXIT]* to exit the menu.

  - ⇒ The kit is being loaded. This can take about a minute, depending on the file size.

### 6.13 Reset to defaults

The settings of the drum module can be reset to factory defaults, separated into kits, songs, pad trigger settings, and voices.

1. ▶ Press *[KIT]*.
  - ⇒ The display shows the kit list.
2. ▶ Press *[MENU]*. Use the arrow buttons (▲/▼) to select the option 'FACTORY SET' and press *[ENTER]*.
  - ⇒ The display shows the 'FACTORY SET' menu.
3. ▶ Use the arrow buttons (▲/▼) to select one of the 'KIT' options (reset of settings in the kits section), 'SONG' (reset user songs), 'VOICE' (reset user voices), 'PAD SETTING' (reset trigger pad settings) or 'ALL' (reset all settings). Confirm with *[ENTER]* or exit the menu with *[EXIT]*.
  - ⇒ 'Reset OK!' appears in the display.

## 7 Technical specifications

Input connections	Power supply	Connector socket for plug-in power supply
	USB port	USB MIDI
	Trigger	1 × combined trigger connection (sub D plug-in connector)
	Tom-Pad	1 × 1/4" phone socket
	Crash-Pad	1 × 1/4" phone socket
	AUX-in	1 × 3.5 mm stereo phone socket
	MIDI	MIDI socket
Output connections	Line out (R/L mono)	2 × 1/4" phone socket
	Headphones	1 × 1/4" phone socket
	MIDI	MIDI socket
Tonal colours	550	
Drum kits	30 preset kits, 20 user kits	
Demo and practice songs	100 preprogrammed songs, 2 user songs	
Power supply	Plug-in power supply (9 V $\overleftrightarrow{=}$ ), positive centre	
Dimensions (W × H × D)	249 mm × 186 mm × 76 mm	
Weight	kg	
Ambient conditions	Temperature range	0 °C...40 °C
	Relative humidity	50 %, non-condensing

### Further information

Rack included	Yes
Seat included	No
Bass drum pedal included	Yes
Headphones included	No
Mesh Head Pads	Yes
Pads in Stereo	Yes
Number of direct outputs	0

## 8 Plug and connection assignment

### Introduction

This chapter will help you select the right cables and plugs to connect your valuable equipment in such a way that a perfect sound experience is ensured.

Please note these advices, because especially in 'Sound & Light' caution is indicated: Even if a plug fits into the socket, an incorrect connection may result in a destroyed power amp, a short circuit or 'just' in poor transmission quality!

### Balanced and unbalanced transmission

Unbalanced transmission is mainly used in semi-professional environment and in hifi use. Instrument cables with two conductors (one core plus shielding) are typical representatives of the unbalanced transmission. One conductor is ground and shielding while the signal is transmitted through the core.

Unbalanced transmission is susceptible to electromagnetic interference, especially at low levels, such as microphone signals and when using long cables.

In a professional environment, therefore, the balanced transmission is preferred, because this enables an undisturbed transmission of signals over long distances. In addition to the conductors 'Ground' and 'Signal', in a balanced transmission a second core is added. This also transfers the signal, but phase-shifted by 180°.

Since the interference affects both cores equally, by subtracting the phase-shifted signals, the interfering signal is completely neutralized. The result is a pure signal without any noise interference.

### 1/4" TS phone plug (mono, unbalanced)



1	Signal
2	Ground, shielding

### Three-pole 1/8" mini phone jack (stereo, unbalanced)



1	Signal (left)
2	Signal (right)
3	Ground, shielding

# 9 Cleaning

### Device parts

Clean the accessible parts of the device regularly. The frequency of cleaning depends on the operating environment: moist, smoky or particularly dirty environments may cause a higher accumulation of dirt on the components of the device.

- Use a dry soft cloth for cleaning.
- Remove stubborn stains with a slightly damp cloth.
- Never use cleaners containing alcohol or thinner.
- Never put any vinyl items on the device, as vinyl can stick to the surface or lead to its discolouration.

## 10 Protecting the environment

### Disposal of the packaging material



For the transport and protective packaging, environmentally friendly materials have been chosen that can be supplied to normal recycling.

Ensure that plastic bags, packaging, etc. are properly disposed of.

Do not just dispose of these materials with your normal household waste, but make sure that they are collected for recycling. Please follow the notes and markings on the packaging.

### Disposal of your old device



This product is subject to the European Waste Electrical and Electronic Equipment Directive (WEEE) in its currently valid version. Do not dispose with your normal household waste.

Dispose of this device through an approved waste disposal firm or through your local waste facility. When discarding the device, comply with the rules and regulations that apply in your country. If in doubt, consult your local waste disposal facility.

# 11 Appendix

## 11.1 Voice list

No.	Name	No.	Name	No.	Name
<b>Kick</b>		<b>Snare</b>		55	Vintage Snare
1	22" Acoustic Kick 1	28	14" Acoustic Snare	56	Vintage Snare Rim
2	22" Acoustic Kick 2	29	14" Acoustic Snare Rim	57	Live Snare
3	24" Standard Kick	30	14" Standard Snare	58	Live Snare Rim
4	Brush Kick 1	31	14" Standard Snare Rim	59	Reggae Snare
5	Brush Kick 2	32	14" Funk Snare 1	60	Reggae Snare Rim
6	24" Jazz Kick	33	14" Funk Snare Rim 1	61	R&B Snare
7	22" Rock Kick	34	14" Funk Snare 2	62	808 Snare Rim
8	Room Kick	35	14" Funk Snare Rim 2	63	808 Snare
9	Fusion Kick	36	Brush Snare 1	64	808 Snare Rim
10	1970's Kick	37	Brush Snare Rim 1	65	909 Snare
11	Vintage Kick	38	Brush Snare 2	66	909 Snare Rim
12	HipHop Kick	39	Brush Snare Rim 2	67	Electronic Snare
13	Reggae Kick	40	14" Jazz Snare	68	Power Snare
14	Big Band Kick	41	14" Jazz Snare Rim	69	Dance Snare
15	Old School Kick	42	14" Rock Snare	70	Dance Snare Rim
16	Lo-Fi Kick	43	14" Rock Snare Rim	71	Old School Snare
17	Junkyard Kick	44	13" Damped Snare 1	72	Old School Snare Rim
18	Noise Kick	45	13" Damped Snare 2	73	House Snare
19	Drum & Bass Kick	46	13" Damped Snare 3	74	House Snare Rim
20	808 Kick	47	Orchestra Snare	75	Lo-Fi Snare
21	909 Kick	48	Orchestra Snare Rim	76	Lo-Fi Snare Rim
22	Electronic Kick	49	Room Snare	77	Junkyard Snare
23	Power Kick	50	Room Snare Rim	78	Junkyard Snare Rim
24	Dance Kick	51	Fusion Snare	79	Noise Snare
25	FX Mix Kick	52	Fusion Snare Rim	80	Noise Snare Rim
26	Techno Kick	53	Big Band Snare	81	Drum & Bass Snare
27	Magic Kick	54	Big Band Snare Rim	82	Drum & Bass Snare Rim

No.	Name	No.	Name	No.	Name
83	Techno Snare	114	Acoustic Tom 5	146	Funk Tom 3
84	Techno Snare Rim	115	Acoustic Tom 5 Rim	147	Funk Tom 3 Rim
85	Magic Snare	116	Acoustic Tom 6	148	Funk Tom 4
86	Magic Snare Rim	117	Acoustic Tom 6 Rim	149	Funk Tom 4 R
87	Acoustic Snare Stick	118	Standard Tom 1	150	Funk Tom 5
88	Standard Snare Stick 1	119	Standard Tom 1 Rim	151	Funk Tom 5 Rim
89	Brush Snare Stick	120	Standard Tom 2	152	Funk Tom 6
90	Standard Snare Stick 2	121	Standard Tom 2 Rim	153	Funk Tom 6 Rim
91	Rock Snare Stick 1	122	Standard Tom 3	154	Jazz Tom 1
92	Rock Snare Stick 2	123	Standard Tom 3 Rim	155	Jazz Tom 1 Rim
93	Live Snare Stick	124	Standard Tom 4	156	Jazz Tom 2
94	Room Snare Stick	125	Standard Tom 4 Rim	157	Jazz Tom 2 Rim
95	Fusion Snare Stick	126	Standard Tom 5	158	Jazz Tom 3
96	808 Snare Stick	127	Standard Tom 5 Rim	159	Jazz Tom 3 Rim
97	909 Snare Stick	128	Standard Tom 6	160	Jazz Tom 4
98	Electronic Snare Stick	129	Standard Tom 6 Rim	161	Jazz Tom 4 Rim
99	Old School Snare Stick	130	Brush Tom 1	162	Jazz Tom 5
100	House Snare Stick	131	Brush Tom 1 Rim	163	Jazz Tom 5 Rim
101	Lo-Fi Snare Stick	132	Brush Tom 2	164	Jazz Tom 6
102	Junkyard Snare Stick	133	Brush Tom 2 Rim	165	Jazz Tom 6 Rim
103	Noise Snare Stick	134	Brush Tom 3	166	Rock Tom 1
104	Techno Snare Stick	135	Brush Tom 3 Rim	167	Rock Tom 1 Rim
105	Brush Swirl	136	Brush Tom 4	168	Rock Tom 2
<b>Tom</b>		137	Brush Tom 4 Rim	169	Rock Tom 2 Rim
106	Acoustic Tom 1	138	Brush Tom 5	170	Rock Tom 3
107	Acoustic Tom 1 Rim	139	Brush Tom 5 Rim	171	Rock Tom 3 Rim
108	Acoustic Tom 2	140	Brush Tom 6	172	Rock Tom 4
109	Acoustic Tom 2 Rim	141	Brush Tom 6 Rim	173	Rock Tom 4 Rim
110	Acoustic Tom 3	142	Funk Tom 1	174	Rock Tom 5
111	Acoustic Tom 3 Rim	143	Funk Tom 1 Rim	175	Rock Tom 5 Rim
112	Acoustic Tom 4	144	Funk Tom 2	176	Rock Tom 6
113	Acoustic Tom 4 Rim	145	Funk Tom 2 Rim	177	Rock Tom 6 Rim

No.	Name	No.	Name	No.	Name
178	Fusion Tom 1	208	Electronic Tom 1	238	Lo-Fi Tom 6
179	Fusion Tom 2	209	Electronic Tom 2	239	Lo-Fi Tom 6 Rim
180	Fusion Tom 3	210	Electronic Tom 3	240	Junkyard Tom 1
181	Fusion Tom 4	211	Electronic Tom 4	241	Junkyard Tom 1 Rim
182	1970's Tom 1	212	Electronic Tom 5	242	Junkyard Tom 2
183	1970's Tom 2	213	Electronic Tom 6	243	Junkyard Tom 2 Rim
184	1970's Tom 3	214	Electronic Tom 7	244	Junkyard Tom 3
185	1970's Tom 4	215	Electronic Tom 8	245	Junkyard Tom 3 Rim
186	Vintage Tom 1	216	Power Tom 1	246	Junkyard Tom 4
187	Vintage Tom 2	217	Power Tom 2	247	Junkyard Tom 4 Rim
188	Vintage Tom 3	218	Power Tom 3	248	Junkyard Tom 5
189	Vintage Tom 4	219	Power Tom 4	249	Junkyard Tom 5 Rim
190	Vintage Tom 5	220	Power Tom 5	250	Junkyard Tom 6
191	Vintage Tom 6	221	Power Tom 6	251	Junkyard Tom 6 Rim
192	808 Tom 1	222	90's Power Tom 1	252	Noise Tom 1
193	808 Tom 2	223	90's Power Tom 2	253	Noise Tom 1 Rim
194	808 Tom 3	224	90's Power Tom 3	254	Noise Tom 2
195	808 Tom 4	225	90's Power Tom 4	255	Noise Tom 2 Rim
196	808 Tom 5	226	90's Power Tom 5	256	Noise Tom 3
197	808 Tom 6	227	90's Power Tom 6	257	Noise Tom 3 Rim
198	808 Tom Fx 1	228	Lo-Fi Tom 1	258	Noise Tom 4
199	808 Tom Fx 2	229	Lo-Fi Tom 1 Rim	259	Noise Tom 4 Rim
200	909 Tom 1	230	Lo-Fi Tom 2	260	Noise Tom 5
201	909 Tom 2	231	Lo-Fi Tom 2 Rim	261	Noise Tom 5 Rim
202	909 Tom 3	232	Lo-Fi Tom 3	262	Noise Tom 6
203	909 Tom 4	233	Lo-Fi Tom 3 Rim	263	Noise Tom 6 Rim
204	909 Tom 5	234	Lo-Fi Tom 4	264	Techno Tom 1
205	909 Tom 6	235	Lo-Fi Tom 4 Rim	265	Techno Tom 1 Rim
206	909 Tom 7	236	Lo-Fi Tom 5	266	Techno Tom 2
207	909 Tom 8	237	Lo-Fi Tom 5 Rim	267	Techno Tom 2 Rim



No.	Name	No.	Name	No.	Name
268	Techno Tom 3	297	20" Room Ride	326	Brush Crash 3
269	Techno Tom 3 Rim	298	20" Room Ride Edge	327	Brush Crash 4
270	Techno Tom 4	299	20" Room Ride Bell	328	Funk Crash 1
271	Techno Tom 4 Rim	300	HipHop Ride	329	Funk Crash 1 Edge
272	Techno Tom 5	301	20" Metal Ride	330	Funk Crash 2
273	Techno Tom 5 Rim	302	20" Metal Ride Edge	331	Funk Crash 2 Edge
274	Techno Tom 6	303	20" Metal Ride Bell	332	19" Jazz Crash 1
275	Techno Tom 6 Rim	304	House Ride	333	19" Jazz Crash 1 Edge
<b>Ride</b>		305	House Ride Edge	334	19" Jazz Crash 2
276	21" Acoustic Ride	306	House Ride Bell	335	19" Jazz Crash 2 Edge
277	21" Acoustic Ride Edge	307	Vintage Ride	336	Rock Crash 1
278	21" Acoustic Ride Bell	308	Junkyard Ride Edge	337	Rock Crash 1 Edge
279	22" Standard Ride	309	Vintage Ride Bell	338	Rock Crash 2
280	22" Standard Ride Edge	310	Lo-Fi Ride	339	Rock Crash 2 Edge
281	22" Standard Ride Bell	311	Lo-Fi Ride Edge	340	808Crash
282	Brush Ride 1	312	Lo-Fi Ride Bell	341	909Crash 1
283	Brush Ride 2	313	Techno Ride	342	909Crash 2
284	20" Funk Ride	314	Techno Ride Edge	343	Electronic Crash 1
285	20" Funk Ride Edge	315	Techno Ride Bell	344	Electronic Crash 2
286	20" Funk Ride Bell	<b>Crash</b>		345	Orchestra Crash 1
287	22" Jazz Ride	316	16" Acoustic Crash 1	346	Orchestra Crash 2
288	22" Jazz Ride Edge	317	16" Acoustic Crash 1 Edge	347	Orchestra Crash 3
289	22" Jazz Ride Bell	318	16" Acoustic Crash 2	348	Room Crash
290	20" Rock Ride	319	16" Acoustic Crash 2 Edge	349	Room Crash Edge
291	20" Rock Ride Edge	320	16" Standard Crash 1	350	1970's Crash 1
292	20" Rock Ride Bell	321	16" Standard Crash 1 Edge	351	1970's Crash 2
293	808 Ride	322	16" Standard Crash 2	352	Vintage Crash 1
294	Electronic Ride	323	16" Standard Crash 2 Edge	353	Vintage Crash 1 Edge
295	Electronic Ride Edge	324	Brush Crash 1	354	Vintage Crash 2
296	Electronic Ride Bell	325	Brush Crash 2	355	Vintage Crash 2 Edge

No.	Name	No.	Name	No.	Name
356	Lo-Fi Crash 1	385	14" Rock Hi-hat Pedal 1	414	Synthesis Percussion 2
357	Lo-Fi Crash 1 Edge	386	14" Rock Hi-hat Splash 1	415	High Q 1
358	Lo-Fi Crash 2	387	14" Jazz Hi-hat	416	High Q 2
359	Lo-Fi Crash 2 Edge	388	14" Jazz Hi-hat Edge	417	Low Q 1
360	Techno Crash 1	389	14" Jazz Hi-hat Pedal	418	Low Q 2
361	Techno Crash 1 Edge	390	14" Jazz Hi-hat Splash	419	Mute Hi Conga 1
362	Techno Crash 2	391	14" Rock Hi-hat 2	420	Mute Hi Conga 2
363	Techno Crash 2 Edge	392	14" Rock Hi-hat Edge 2	421	Open Hi Conga 1
364	Latin Crash 1	393	14" Rock Hi-hat Pedal 2	422	Open Hi Conga 2
365	Latin Crash 1 Edge	394	14" Rock Hi-hat Splash 2	423	Low Conga
366	Latin Crash 2	395	808 Hi-hat	424	High Bongo
367	Latin Crash 2 Edge	396	808 Hi-hat Pedal	425	Low Bongo
368	China 1	397	808 Hi-hat Splash	426	High Timbale 1
369	China 1 Edge	398	909 Hi-hat	427	High Timbale 2
370	Splash	399	909 Hi-hat Pedal	428	High Timbale 2 Rim
371	Splash Edge	400	909 Hi-hat Splash	429	High Timbale 3
<b>HI-HAT</b>		401	Dance Hi-hat	430	High Timbale 3 Rim
372	14" Acoustic Hi-hat	402	Dance Hi-hat Pedal	431	Low Timbale 1
373	14" Acoustic Hi-hat Edge	403	Dance Hi-hat Splash	432	Low Timbale 2
374	14" Acoustic Hi-hat Pedal	404	Lo-Fi Hi-hat	433	Low Timbale 2 Rim
375	14" Acoustic Hi-hat Splash	405	Lo-Fi Hi-hat Edge	434	Low Timbale 3
376	14" Standard Hi-hat	406	Lo-Fi Hi-hat Pedal	435	Low Timbale 4
377	14" Standard Hi-hat Edge	407	Lo-Fi Hi-hat Splash	436	High Agogo
378	14" Standard Hi-hat Pedal	<b>Percussion</b>		437	Low Agogo
379	14" Standard Hi-hat Splash	408	Maracas	438	Claves
380	Brush Hi-hat	409	Metronome Bell	439	Jingle Bell
381	Brush Hi-hat Pedal	410	Vibra-slap 1	440	Cowbell
382	Brush Hi-hat Splash	411	Vibra-slap 2	441	Bell Tree 1
383	14" Rock Hi-hat 1	412	Vibra-slap 3	442	Bell Tree 2
384	14" Rock Hi-hat Edge 1	413	Synthesis Percussion 1	443	Tambourine

No.	Name	No.	Name	No.	Name
444	Cabasa	474	African 11	504	Marimba Bb5
445	Long Guiro	475	African 12	505	Marimba B5
446	Short Guiro	476	African 13	506	Marimba C6
447	Indian 1	477	African 14	507	Orchestra Timpani C2
448	Indian 2	478	African 15	508	Orchestra Timpani Db2
449	Indian 3	479	African 16	509	Orchestra Timpani D2
450	Indian 4	480	Marimba C3	510	Orchestra Timpani Eb2
451	Indian 5	481	Marimba A3	511	Orchestra Timpani E2
452	Indian 6	482	Marimba C4	512	Orchestra Timpani F2
453	Indian 7	483	Marimba Db4	513	Orchestra Timpani Gb2
454	Indian 8	484	Marimba D4	514	Orchestra Timpani G2
455	Indian 9	485	Marimba Eb4	515	Orchestra Timpani Ab2
456	Indian 10	486	Marimba E4	516	Orchestra Timpani A2
457	Indian 11	487	Marimba F4	517	Orchestra Timpani Bb2
458	Indian 12	488	Marimba Gb4	518	Orchestra Timpani B2
459	Indian 13	489	Marimba G4	519	Orchestra Timpani C3
460	Indian 14	490	Marimba Ab4	520	Orchestra Timpani Db3
461	Indian 15	491	Marimba A4	521	Orchestra Timpani D3
462	Indian 16	492	Marimba Bb4	522	Orchestra Timpani Eb3
463	Indian 17	493	Marimba B4	523	Orchestra Timpani E3
464	African 1	494	Marimba C5	524	Orchestra Timpani F3
465	African 2	495	Marimba Db5	525	Orchestra Timpani Gb3
466	African 3	496	Marimba D5	526	Orchestra Timpani G3
467	African 4	497	Marimba Eb5	527	Orchestra Timpani Ab3
468	African 5	498	Marimba E5	528	Orchestra Timpani A3
469	African 6	499	Marimba F5	529	Orchestra Timpani Bb3
470	African 7	500	Marimba Gb5	530	Orchestra Timpani B3
471	African 8	501	Marimba G5	531	Orchestra Timpani C4
472	African 9	502	Marimba Ab5		
473	African 10	503	Marimba A5		

No.	Name	No.	Name
<b>FX</b>		<b>HI-HAT Combination</b>	
532	FX 1	551	Acoustic
533	FX 2	552	Funk Band
534	FX 3	553	Standard
535	FX 4	554	Jazz
536	FX 5	555	Jazz Brush
537	FX 6	556	Rock
538	FX 7	557	808
539	FX 8	558	909
540	FX 9	559	Dance
541	FX 10	560	Marimba
542	FX 11	561	Indian
543	FX 12	562	African
544	FX 13	563	Lo-Fi
545	FX 14		
546	FX 15		
547	FX 16		
548	FX 17		
549	FX 18		
550	Mute		

## 11.2 Kit list

No.	Name	No.	Name
1	Standard 1	16	Percussion 1
2	Acoustic 1	17	Metal
3	Funk Band	18	90's Power
4	Jazz Brush	19	Indian
5	Dance	20	African
6	Rock	21	Reggae
7	Jazz	22	Fusion
8	808	23	Pop

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<b>No.</b>	<b>Name</b>	<b>No.</b>	<b>Name</b>
9	909	24	Orchestra
10	Funk	25	Lo-Fi
11	FX Mix	26	HipHop
12	Power	27	R&B
13	Latin	28	House
14	Room	29	Teckno
15	Marimba	30	Vintage

## 11.3 Song list

No.	Name	Display	No.	Name	Display	No.	Name	Display
<b>Pattern LOOP</b>			23	Reggae 1	Reggae1	46	80's Metal	80'sMetl
1	Blues Funk	BluesFk	24	60's Pop	60'sPop	47	Drum N'Bass	D'N'B
2	Fusion	Fusion	25	Retro Funk	RetroFk	48	6/8 Soul	6/8Soul
3	Cool Jazz	CoolJazz	26	Trance	Trance	49	Latin Swing	LtnSwing
4	Ballad	Ballad	27	Heavy Rock	HavyRock	50	Funk	Funk
5	Samba 1	Samba1	28	Swing	Swing	51	Break Beat	BrkBeat
6	Retro Hip-Hop	ReHipHop	29	Punk	Punk	52	Latin Jazz	LtnJazz
7	Nu Jazz Funk	NuJazzFk	30	8Beat 1	8Beat1	53	TripHop	TripHop
8	Soul	Soul	31	Disco House	DisHouse	54	Brit Pop	Britpop
9	R&B	R&B	32	3/4 Folk	3/4Folk	55	Neo-Thrash	Neo-Thra
10	Big Band 1	BigBand1	33	Samba 2	Samba2	56	BigBand 2	BigBand2
11	Ska	Ska	34	Latin Rock	LatinRk	57	Mambo	Mambo
12	Classic Rock	ClassRk	35	Reggae 2	Reggae2	58	Shuffle	Shuffle
13	Hardcore Hip-Hop	HaHipHop	36	Dance	Dance	59	Gtr Bossa	GtrBossa
14	Retro Dance Pop	DancePop	37	Country Pop	CtryPop	60	Latin Dance	LtnDance
15	Nu-Metal	Nu-Metal	38	Country	Country	<b>PERC LOOP</b>		
16	Salsa	Salsa	39	Rock Ballad	RkBallad	61	Indonesia	Indonesi
17	Eu Hip-Hop	EuHipHop	40	DancePop	DancePop	62	Latin	Latin
18	Bossa Nova	Bossa	41	Bebop	Bebop	63	Bossa	Bossa
19	Fusion 2	Fusion2	42	Rock N'Roll	R'N'R	64	Samba	Samba
20	8Beat Pop	8BeatPop	43	Band Jazz	BandJazz	65	3/4 Pop	3/4Pop
21	Jazzy Funk	JazzyFk	44	Blues	Blues	66	Pop	Pop
22	Swing Big Band	SwBiBand	45	3/4 Jazz	3/4Jazz	67	Jazz	Jazz

No.	Name	Display	No.	Name	Display	No.	Name	Display
68	Reggae 1	Reggae1	<b>TAP</b>					
69	Reggae 2	Reggae2	77	Bass Tap 1	BassT1	89	Brightness Tap 1	BrightT1
70	Latin Rock	LtnRock	78	Synth Bass Tap 2	SynBasT2	90	Rain Tap 2	RainT2
<b>HIT</b>			79	Bass Tap 3	BassT3	91	Lead Tap 3	LeadT3
71	New Age Tap 1	NewAgeT1	80	Bass Tap 4	BassT4	92	Sci-fi Tap 4	Sci-fiT4
72	New Age Tap 2	NewAgeT2	81	Bass Tap 5	BassT5	93	Soundtrack Tap 5	SndtrkT5
73	Atmosphere Tap 3	AtmospT3	82	Swing Bass Tap 6	SwgBasT6	94	Funk Gtnote Tap 6	FunkGtT6
74	Atmosphere Of Celiet Tap 4	AtmCelT4	83	Crystal Tap 1	CrystlT1	95	Pad Tap 1	PadT1
75	Polysynth Tap 5	PolysT5	84	Brightness Tap 2	BrightT2	96	Sci-fi Tap 2	Sci-fiT2
76	Brass Tap 6	BrassT6	85	Vibraphone Tap 3	VibraT3	97	Square Tap 3	SqureT3
			86	Brightness Tap 4	BrightT4	98	FX8 Tap 4	FX8T4
			87	Sawtooth Tap 5	SawT5	99	Rain Tap 5	RainT5
			88	Funk Gtslide Tap 6	FunkGtT6	100	Funk Gtcut Tap 6	FunkGtT6

## 11.4 MIDI implementation

Function		Transmitted	Recognized	Remarks
Basic channel	Default	Ch 10	1-16	
	Changed	No	No	
Mode	Default	No	No	
	Messages	No	No	
	Altered	*****	*****	
Note number		0...127	0...127	
	True voice	*****	0...127	
Velocity	Note ON	Yes (99H, V=1...127)	0...127	

Function		Transmitted	Recognized	Remarks
	Note OFF	Yes (99H, V=0)	0...127	
Aftertouch	Keys	No	No	
	Channels	No	No	
Pitch bender		No	Yes	
Control change	0	No	Yes	Bank select
	1	No	Yes	Modulation
	5	No	Yes	Portamento time
	6	No	Yes	Data entry
	7	No	Yes	Volume
	10	No	Yes	Pan
	11	No	Yes	Expression
	64	No	Yes	Sustain pedal
	65	No	Yes	Portamento ON/OFF
	66	No	Yes	Sostenuto pedal
	67	No	Yes	Soft pedal
	80	No	Yes	Reverb program
	81	No	Yes	Chorus program
	91	No	Yes	Reverb level
	93	No	Yes	Chorus level
	120	No	Yes	All Sound Off
121	No	Yes	Reset All Controllers	
123	No	Yes	All Notes Off	
Program change		Yes	Yes	
System exclusive		No	Yes	
System common	Song Position	No	No	
	Song Select	No	No	
	Tune	No	No	
System real time	Clock	Yes	No	START and STOP only
	Command	Yes	No	
Aux messages	Local ON/OFF	No	No	
	All Notes OFF	No	No	



Function		Transmitted	Recognized	Remarks
	Active Sense	Yes	No	
	System reset	No	No	

## 11.5 General MIDI Backing Instrument List

No.	Name	No.	Name
<b>Piano</b>		<b>Guitar</b>	
1	Acoustic Grand Piano	25	Nylon Guitar
2	Bright Acoustic Piano	26	Steel Guitar
3	Electric Grand Piano	27	Jazz Guitar
4	Honky-Tonk Piano	28	Clean Guitar
5	Electric Piano 1	29	Muted Guitar
6	Electric Piano 2	30	Overdriven Guitar
7	Harpsichord	31	Distortion Guitar
8	Clavi	32	Guitar Harmonics
<b>Mallet</b>		<b>Bass</b>	
9	Celesta	33	Acoustic Bass
10	Glockenspiel	34	Finger Bass
11	Music Box	35	Pick Bass
12	Vibraphone	36	Fretless Bass
13	Marimba	37	Slap Bass 1
14	Xylophone	38	Slap Bass 2
15	Tubular Bells	39	Synth Bass 1
16	Dulcimer	40	Synth Bass 2
<b>Organ</b>		<b>Strings</b>	
17	Drawbar Organ	41	Violin
18	Percussive Organ	42	Viola
19	Rock Organ	43	Cello
20	Church Organ	44	Contrabass
21	Reed Organ	45	Tremolo Strings
22	Accordion	46	Pizzicato Strings

No.	Name	No.	Name
23	Harmonica	47	Orchestral Harp
24	Tango Accordion	48	Timpani

No.	Name	No.	Name
<b>Strings Ensemble</b>		<b>Pipe</b>	
49	String Ensembles 1	73	Piccolo
50	String Ensembles 2	74	Flute
51	Synth Strings 1	75	Recorder
52	Synth Strings 2	76	Pan Flute
53	Choir Aahs	77	Blown Bottle
54	Voice Oohs	78	Shakuhachi
55	Synth Voice	79	Whistle
56	Orchestra Hit	80	Ocarina
<b>Brass</b>		<b>Synth Lead</b>	
57	Trumpet	81	Lead 1 (square)
58	Trombone	82	Lead 2 (sawtooth)
59	Tuba	83	Lead 3 (calliope)
60	Muted Trumpet	84	Lead 4 (chiff)
61	French Horn	85	Lead 5 (charang)
62	Brass Section	86	Lead 6 (voice)
63	Synth Brass 1	87	Lead 7 (fifths)
64	Synth Brass 2	88	Lead 8 (bass + lead)
<b>Reed</b>		<b>Pad</b>	
65	Soprano Sax	89	Pad 1 (new age)
66	Alto Sax	90	Pad 2 (warm)
67	Tenor Sax	91	Pad 3 (polysynth)
68	Baritone Sax	92	Pad 4 (choir)
69	Oboe	93	Pad 5 (bowed)
70	English Horn	94	Pad 6 (metallic)
71	Bassoon	95	Pad 7 (halo)
72	Clarinet	96	Pad 8 (sweep)

No.	Name	No.	Name
<b>Effects</b>		<b>Ethnic</b>	
97	FX 1 (rain)	105	Sitar
98	FX 2 (soundtrack)	106	Banjo
99	FX 3 (crystal)	107	Shamisen
100	FX 4 (atmosphere)	108	Koto
101	FX 5 (brightness)	109	Kalimba
102	FX 6 (goblins)	110	Bagpipe
103	FX 7 (echoes)	111	Fiddle
104	FX 8 (sci-fi)	112	Shanai
<b>Percussive</b>		<b>Sound Effects</b>	
113	Tinkle Bell	121	Guitar Fret Noise
114	Agogo	122	Breath Noise
115	Steel Drums	123	Seashore
116	Wood Block	124	Bird Tweet
117	Taiko Drum	125	Telephone Ring
118	Melodic Tom	126	Helicopter
119	Synth Drum	127	Applause
120	Reverse Cymbal	128	Gunshot

## 11.6 General MIDI Drum Kit List

Note	Standard 1 (bank 0)	Standard 2 (bank 4)	Room (bank 8)	Rock (bank 16)	Funk (bank 17)
27 – D#1	High Q	<-	<-	<-	<-
28 – E1	Slap	<-	<-	<-	<-
29 – F1	Scratch Push	<-	<-	<-	<-
30 – F#1	Scratch Pull	<-	<-	<-	<-
31 – G1	Sticks	<-	<-	<-	<-
32 – G#1	Square Click	<-	<-	<-	<-
33 – A1	Metronome Click	<-	<-	<-	<-
34 – A#1	Metronome Bell	<-	<-	<-	<-
35 – B1	Acoustic Bass Drum	<-	Room Bass Drum 1	Rock Bass Drum 1	Funk Bass Drum 1
36 – C2	Standard 1 Bass Drum	Standard 2 Bass Drum	Room Bass Drum 2	Rock Bass Drum 2	Funk Bass Drum 2

Note	Standard 1 (bank 0)	Standard 2 (bank 4)	Room (bank 8)	Rock (bank 16)	Funk (bank 17)
37 – C#2	Side Stick	<-	<-	<-	<-
38 – D2	Standard 1 Snare	Standard 2 Snare	Room Snare	Rock Snare	Funk Snare
39 – D#2	Hand Clap	<-	<-	<-	<-
40 – E2	Standard 1 Snare Rim	Standard 2 Snare Rim	Room Snare Rim	Rock Snare Rim	Funk Snare Rim
41 – F2	Standard 1 Tom 6	Standard 2 Tom 6	Room Tom 6	Rock Tom 6	Funk Tom 6
42 – F#2	Standard 1 Hi-hat Close	Standard 2 Hi-hat Close	Room Hi-hat Close	Rock Hi-hat Close	Funk Hi-hat Close
43 – G2	Standard 1 Tom 5	Standard 2 Tom 5	Room Tom 5	Rock Tom 5	Funk Tom 5
44 – G#2	Standard 1 Hi-hat Pedal	Standard 2 Hi-hat Pedal	Room Hi-hat Pedal	Rock Hi-hat Pedal	Funk Hi-hat Pedal
45 – A2	Standard 1 Tom 4	Standard 2 Tom 4	Room Tom 4	Rock Tom 4	Funk Tom 4
46 – A#2	Standard 1 Hi-hat Open	Standard 2 Hi-hat Open	Room Hi-hat Open	Rock Hi-hat Open	Funk Hi-hat Open
47 – B2	Standard 1 Tom 3	Standard 2 Tom 3	Room Tom 3	Rock Tom 3	Funk Tom 3
48 – C3	Standard 1 Tom 2	Standard 2 Tom 2	Room Tom 2	Rock Tom 2	Funk Tom 2
49 – C#3	Standard 1 Crash 1	Standard 2 Crash 1	Room Crash 1	Rock Crash 1	Funk Crash 1
50 – D3	Standard 1 Tom 1	Standard 2 Tom 1	Room Tom 1	Rock Tom 1	Funk Tom 1
51 – D#3	Standard 1 Ride	Standard 2 Ride	Room Ride	Rock Ride	Funk Ride
52 – E3	Chinese Cymbal 1	<-	<-	<-	<-
53 – F3	Ride Bell	<-	Room Ride Bell	Rock Ride Bell	<-
54 – F#3	Tambourine	<-	<-	<-	<-
55 – G3	Splash Cymbal	<-	Room Splash Cymbal	Rock Splash Cymbal	<-
56 – G#3	Standard 1 Cowbell	Standard 2 Cowbell	Room Cowbell	Rock Cowbell	<-
57 – A3	Standard 1 Crash 2	Standard 2 Crash 2	Room Crash 2	Rock Crash 2	Funk Crash 2
58 – A#3	Vibra-slap	<-	<-	<-	<-
59 – B3	Ride Cymbal	<-	<-	<-	<-
60 – C4	Hi Bongo	<-	<-	<-	<-
61 – C#4	Low Bongo	<-	<-	<-	<-
62 – D4	Mute Hi Conga	<-	<-	<-	<-
63 – D#4	Open Hi Conga	<-	<-	<-	<-
64 – E4	Low Conga	<-	<-	<-	<-
65 – F4	High Timbale	<-	<-	<-	<-
66 – F#4	Low Timbale	<-	<-	<-	<-

Note	Standard 1 (bank 0)	Standard 2 (bank 4)	Room (bank 8)	Rock (bank 16)	Funk (bank 17)
67 – G4	High Agogo	<-	<-	<-	<-
68 – G#4	Low Agogo	<-	<-	<-	<-
69 – A4	Cabasa	<-	<-	<-	<-
70 – A#4	Maracas	<-	<-	<-	<-
71 – B4	Short Whistle	<-	<-	<-	<-
72 – C5	Long Whistle	<-	<-	<-	<-
73 – C#5	Short Guiro	<-	<-	<-	<-
74 – D5	Long Guiro	<-	<-	<-	<-
75 – D#5	Claves	<-	<-	<-	<-
76 – E5	Hi Wood Block	<-	<-	<-	<-
77 – F5	Low Wood Block	<-	<-	<-	<-
78 – F#5	Mute Cuica	<-	<-	<-	<-
79 – G5	Open Cuica	<-	<-	<-	<-
80 – G#5	Mute Triangle	<-	<-	<-	<-
81 – A5	Open Triangle	<-	<-	<-	<-
82 – A#5	Shaker	<-	<-	<-	<-
83 – B5	Jingle Bell	<-	<-	<-	<-
84 – C6	Bell Tree	<-	<-	<-	<-
85 – C#6	Castanets	<-	<-	<-	<-
86 – D6	Mute Surdo	<-	<-	<-	<-
87 – D#6	Open Surdo	<-	<-	<-	<-

Note	Electronic (bank 24)	808 (bank 25)	House (bank 28)	Jazz (bank 32)	Brush (bank 40)
27 – D#1	<-	<-	<-	<-	<-
28 – E1	<-	<-	<-	<-	<-
29 – F1	<-	<-	<-	<-	<-
30 – F#1	<-	<-	<-	<-	<-
31 – G1	<-	<-	<-	<-	<-
32 – G#1	<-	<-	<-	<-	<-
33 – A1	<-	<-	<-	<-	<-
34 – A#1	<-	<-	<-	<-	<-

Note	Electronic (bank 24 )	808 (bank 25 )	House (bank 28 )	Jazz (bank 32 )	Brush (bank 40 )
35 – B1	Electronic Bass Drum 1	808 Bass Drum 1	House Bass Drum 1	Jazz Bass Drum 1	Brush Bass Drum 1
36 – C2	Electronic Bass Drum 2	808 Bass Drum 2	House Bass Drum 2	Jazz Bass Drum 2	Brush Bass Drum 2
37 – C#2	<-	<-	<-	<-	<-
38 – D2	Electronic Snare	808 Snare	House Snare	Jazz Snare	Brush Snare
39 – D#2	<-	<-	House Hand Clap	<-	<-
40 – E2	Electronic Snare Rim	808 Snare Rim	House Snare Rim	Jazz Snare Rim	Brush Snare Rim
41 – F2	Electronic Tom 6	808 Tom 6	House Tom 6	Jazz Tom 6	Brush Tom 6
42 – F#2	Electronic Hi-hat Close	808 Hi-hat Close	House Hi-hat Close	Jazz Hi-hat Close	<-
43 – G2	Electronic Tom 5	808 Tom 5	House Tom 5	Jazz Tom 5	Brush Tom 5
44 – G#2	Electronic Hi-hat Pedal	808 Hi-hat Pedal	House Hi-hat Pedal	Jazz Hi-hat Pedal	<-
45 – A2	Electronic Tom 4	808 Tom 4	House Tom 4	Jazz Tom 4	Brush Tom 4
46 – A#2	Electronic Hi-hat Open	808 Hi-hat Open	House Hi-hat Open	Jazz Hi-hat Open	<-
47 – B2	Electronic Tom 3	808 Tom 3	House Tom 3	Jazz Tom 3	Brush Tom 3
48 – C3	Electronic Tom 2	808 Tom 2	House Tom 2	Jazz Tom 2	Brush Tom 2
49 – C#3	<-	808 Crash 1	<-	<-	Brush Crash 1
50 – D3	Electronic Tom 1	808 Tom 1	House Tom 1	Jazz Tom 1	Brush Tom 1
51 – D#3	<-	<-	<-	Jazz Ride	Brush Ride
52 – E3	<-	<-	<-	<-	<-
53 – F3	<-	<-	<-	<-	<-
54 – F#3	<-	<-	<-	<-	<-
55 – G3	<-	<-	<-	<-	<-
56 – G#3	<-	<-	<-	<-	<-
57 – A3	<-	808 Crash 2	<-	ChineseCymbal 2	Brush Crash 2
58 – A#3	<-	<-	<-	<-	<-
59 – B3	<-	<-	<-	<-	<-
60 – C4	<-	<-	<-	<-	<-
61 – C#4	<-	<-	<-	<-	<-
62 – D4	<-	808 Mute Hi Conga	<-	<-	<-
63 – D#4	<-	808 Open Hi Conga	<-	<-	<-

Note	Electronic (bank 24 )	808 (bank 25 )	House (bank 28 )	Jazz (bank 32 )	Brush (bank 40 )
64 – E4	<-	808 Low Conga	<-	<-	<-
65 – F4	<-	<-	<-	<-	<-
66 – F#4	<-	<-	<-	<-	<-
67 – G4	<-	<-	<-	<-	<-
68 – G#4	<-	<-	<-	<-	<-
69 – A4	<-	<-	<-	<-	<-
70 – A#4	<-	808 Maracas	<-	<-	<-
71 – B4	<-	<-	<-	<-	<-
72 – C5	<-	<-	<-	<-	<-
73 – C#5	<-	<-	<-	<-	<-
74 – D5	<-	<-	<-	<-	<-
75 – D#5	<-	808 Claves	<-	<-	<-
76 – E5	<-	<-	<-	<-	<-
77 – F5	<-	<-	<-	<-	<-
78 – F#5	<-	<-	<-	<-	<-
79 – G5	<-	<-	<-	<-	<-
80 – G#5	<-	<-	<-	<-	<-
81 – A5	<-	<-	<-	<-	<-
82 – A#5	<-	<-	<-	<-	<-
83 – B5	<-	<-	<-	<-	<-
84 – C6	<-	<-	<-	<-	<-
85 – C#6	<-	<-	<-	<-	<-
86 – D6	<-	<-	<-	<-	<-
87 – D#6	<-	<-	<-	<-	<-











