

# Millenium

MPS-450  
e-drum module



Musikhaus Thomann  
Thomann GmbH  
Hans-Thomann-Straße 1  
96138 Burgebrach  
Germany  
Telephone: +49 (0) 9546 9223-0  
E-mail: [info@thomann.de](mailto:info@thomann.de)  
Internet: [www.thomann.de](http://www.thomann.de)

13.08.2020, ID: 461045 (V2)

## Table of contents

<b>1</b>	<b>General information</b> .....	<b>4</b>
1.1	Further information.....	4
1.2	Notational conventions.....	4
1.3	Symbols and signal words.....	5
<b>2</b>	<b>Safety instructions</b> .....	<b>6</b>
<b>3</b>	<b>Features</b> .....	<b>8</b>
<b>4</b>	<b>Installation</b> .....	<b>9</b>
<b>5</b>	<b>Connections and controls</b> .....	<b>10</b>
<b>6</b>	<b>Operating</b> .....	<b>14</b>
6.1	Functions.....	14
6.2	Selecting and adjusting drum kits.....	14
6.3	Playing the drum kit.....	15
6.4	Modifying drum kits.....	16
6.5	Playing, customising and accompanying songs.....	17
6.6	Metronome function.....	18
6.7	Recording functions.....	19
6.8	Coach mode.....	20
6.9	Double bass trigger.....	22
6.10	Tempo.....	23
6.11	Trigger settings.....	24
6.12	Utility menu.....	26
6.13	Status messages.....	26
<b>7</b>	<b>Technical specifications</b> .....	<b>27</b>
<b>8</b>	<b>Plug and connection assignment</b> .....	<b>28</b>
<b>9</b>	<b>Cleaning</b> .....	<b>29</b>
<b>10</b>	<b>Protecting the environment</b> .....	<b>30</b>
<b>11</b>	<b>Appendix</b> .....	<b>31</b>
11.1	Kit list.....	31
11.2	Voice list.....	32
11.3	Song list.....	37
11.4	MIDI implementation.....	38
11.5	General MIDI Backing Instrument List.....	39
11.6	General MIDI Drum Kit List.....	42

# 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:**

1. ➤ Switch on the device.
2. ➤ Press [Auto].  
⇒ Automatic operation is started.
3. ➤ 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.

Only operate the device within the ambient conditions specified in the chapter 'Technical specifications' of this user manual. Avoid heavy temperature fluctuations and do not switch the device on immediately after it was exposed to temperature fluctuations (for example after transport at low outside temperatures).

Dust and dirt inside can damage the unit. When operated in harmful ambient conditions (dust, smoke, nicotine, fog, etc.), the unit should be maintained by qualified service personnel at regular intervals to prevent overheating and other malfunction.



**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

- 408 voices
- 30 preprogrammed drum kits
- 10 user kits
- 80 preprogrammed songs
- 5 user songs
- Metronome
- Coach mode with various exercise types
- Connections for headphones, AUX, USB and MIDI
- including drum rack, bass drum pedal, power supply, cabling and sticks

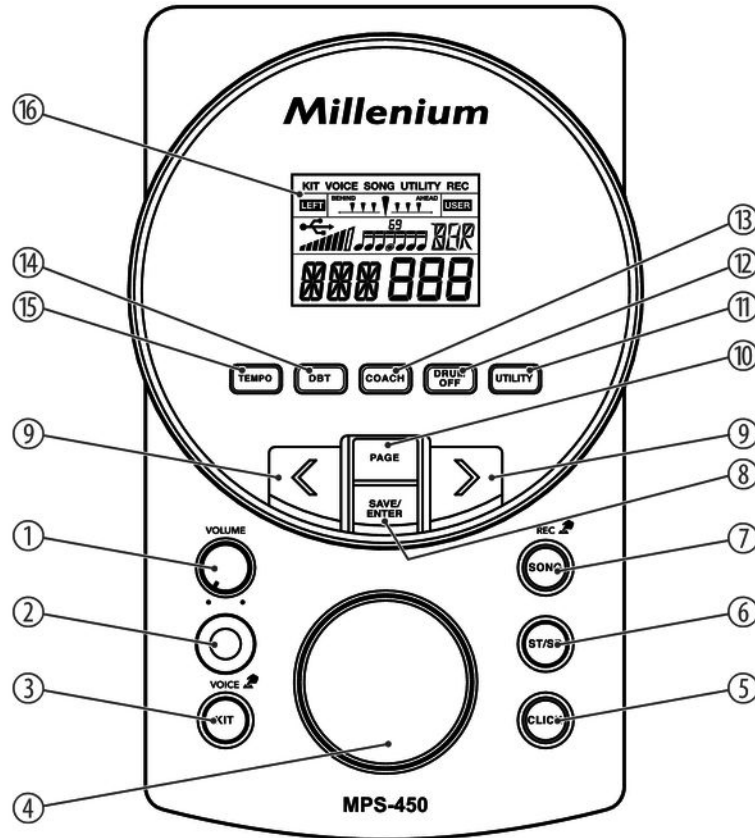


## 4 Installation

<b>Setup, connecting pads and pedals</b>	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.
<b>Connecting the power adapter</b>	Connect the included power adapter to the 9V input of the e-drum module. Then plug the mains plug into the socket.
<b>Connecting headphones</b>	Connect your stereo headphones to the <i>[PHONES]</i> output of the drum module.
<b>Connecting audio devices</b>	Connect the inputs of your amplifier or active monitors to the <i>[OUTPUT]</i> sockets of the drum module. If you use a mono amplifier, connect its input to the <i>[L/MONO]</i> output socket of the module.
<b>Connecting a CD or MP3 player</b>	Connect a CD or MP3 player to the input socket <i>[AUX IN] IN</i> of the drum module.
<b>Connecting MIDI devices</b>	Connect external MIDI devices to the <i>[MIDI OUT]</i> socket of the drum module.
<b>Connecting USB devices</b>	Connect external MIDI devices or your computer to the USB port of the drum module.
<b>Connecting additional pads</b>	Connect an additional crash or tom pad to the phone jacks <i>[Crash 2]</i> or <i>[Tom 4]</i> .

## 5 Connections and controls

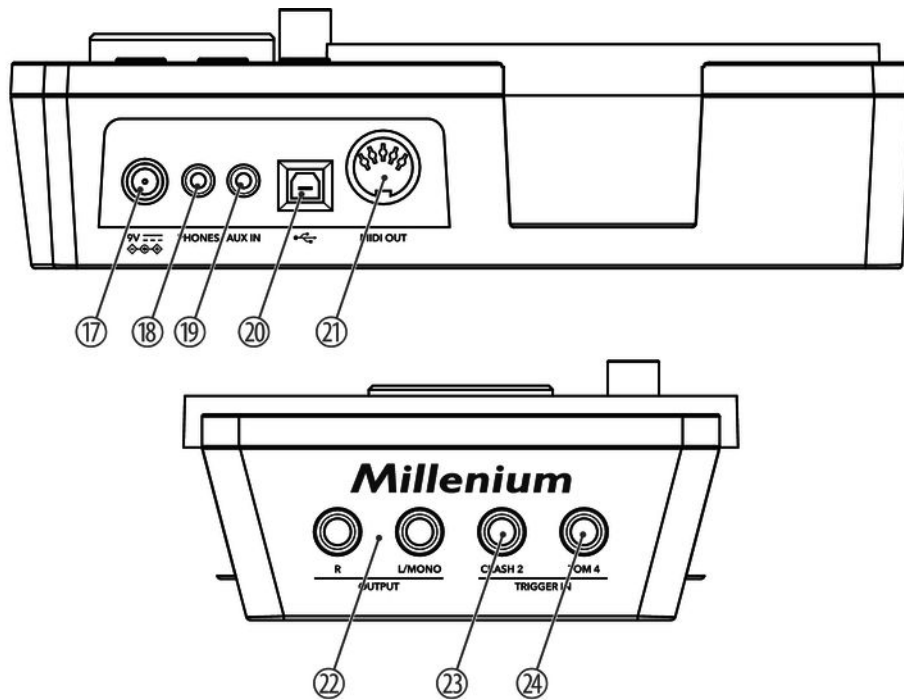
### Front panel



1	<i>[VOLUME]</i> Volume control for the headphone output of the device
2	<i>[POWER]</i> Main switch. Turns the device on and off.
3	<i>[KIT/VOICE]</i> Button to open the menus 'KIT' and 'VOICE' Short press: opens the 'KIT' menu. Press and hold: opens the 'VOICE' menu.
4	Jog wheel to select a drum kit and quickly set values
5	<i>[CLICK]</i> Turns the metronome on and off.
6	<i>[ST/SP]</i> Starts or stops song playback.

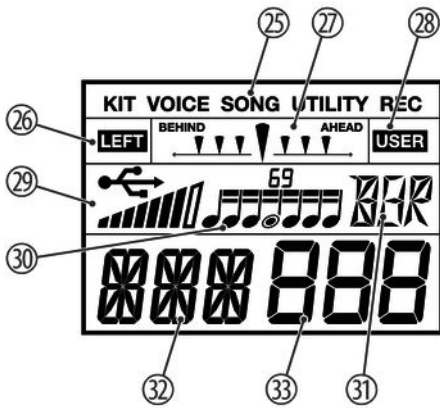
7	<i>[SONG/REC]</i> Button to open the 'SONG' menu and the recording mode Short press: opens the 'SONG' menu. Press and hold: starts the recording mode.
8	<i>[SAVE/ENTER]</i> Confirms or saves drum kit settings.
9	<i>[&lt;] / [&gt;]</i> Selects an option or sets a value.
10	<i>[PAGE]</i> Switches between the settings of various functions.
11	<i>[UTILITY]</i> Opens the 'UTILITY' menu for changing device settings.
12	<i>[DRUM OFF]</i> Mutes the drum track of a song.
13	<i>[COACH]</i> Opens the Coach mode with practice sets.
14	<i>[DBT]</i> Activates the Double bass trigger
15	<i>[TEMPO]</i> Adjusts the metronome and playback speed.
16	Display

## Rear panel



17	[9 V] Connection socket for the power adapter
18	[PHONES] Connection socket for headphones
19	[AUX IN] Input for external audio devices like MP3 or CD players
20	[USB MIDI] Connection socket for an external MIDI device with USB port
21	[MIDI OUT] Connection socket for an external MIDI device
22	[OUTPUT R   L / MONO] Output for external audio devices
23	[TRIGGER IN – CRASH2] Connection socket for Crash 2
24	[TRIGGER IN – TOM 4] Connection socket for Tom 4

Display



25	Displays the current mode, eg. 'KIT', 'VOICE', 'SONG', 'UTILITY' etc.
26, 28	Displays the current mode of a sublevel.
27	Coach mode: Displays the deviation from the beat.
29	Displays the connected external device and the current touch velocity.
30	Coach mode: Displays the rhythm mode.
31	Displays the name of the selected pad.
32	Displays the currently selected parameter, eg. volume, trigger curve, etc.
33	Displays the value associated with the selected parameter, or the number of the song, voice, or drum kit.

## 6 Operating

### 6.1 Functions

#### Turning on / off



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

Switch the drum module on or off with the main switch [POWER]. The current device settings are retained when switching off.

#### Adjusting the volume

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

#### Reset to factory defaults

To reset the entire drum module to factory settings, turn it off first. Then hold down [←] and [→] simultaneously and additionally press [POWER] until the display shows 'FAC SET...'.  
'FAC SET...'

#### Automatic shutoff



*When the device is not used it automatically shuts off after 30 minutes.*

To disable the automatic shutdown, use the Utility menu ( ↩ Chapter 6.12 'Utility menu' on page 26).

### 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 pre-programmed drum kits you can also create, customise and save 10 user drum kits.

#### Selecting a drum kit

To select a certain drum kit, proceed as follows:

1. ➤ Press [KIT/VOICE].  
⇒ The current kit name and kit number are displayed.
2. ➤ Use the arrow buttons ([←] / [→]) or the jog wheel to select the desired kit.  
The setting is automatically stored.

## Selecting Voices

1. ➤ Hold down *[KIT/VOICE]* for about 2 seconds.
  - ⇒ The current Voice name and Voice number are displayed.
2. ➤ Strike the pad whose Voice you want to change.
  - ⇒ The name of the current pad is displayed.
3. ➤ 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.
- 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

### Customising a drum kit

Drum kits 1 ... 30 are preset. You can change the preset kits and save them as User kits 31 ... 40.

1. ➤ Press **[KIT/VOICE]**.  
⇒ The Kit menu is displayed.
2. ➤ Press **[PAGE]** repeatedly until the desired sub menu 'KIT NAME' or 'VOLUME' is displayed.
3. ➤ Use the arrow buttons (**[<]** / **[>]**) or the jog wheel to change the parameter value.

Parameter	Display	Meaning	Value range
KIT NAME	NUM XXX	Drum kit selection	Preset: 1 ... 30 User: 31 ... 40
VOLUME	VOL XXX	Volume of the pads of the drum kit	0 ... 127



**Volume**

*Changing the volume of a particular drum kit affects all pads.*



## 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. ➤ Hold down *[KIT/VOICE]* for about 2 seconds.
  - ⇒ The current Voice name and Voice number are displayed.
2. ➤ Strike the pad whose Voice you want to change.
  - ⇒ The name of the current pad is displayed.
3. ➤ Press *[PAGE]* repeatedly until the desired sub menu 'VOICE NAME' or 'VOLUME' is displayed.
4. ➤ Use the arrow buttons (*[<]* / *[>]*) or the jog wheel to change the parameter value.

Parameter	Display	Meaning	Value range
TRIGGER	KIK, Sn, SnR, T1, T2, T3, T4, HH, C1, C2, Rd, Pd, PS	Trigger	KICK, SNARE, Snare Rim, Tom 1, Tom 2, Tom 3, Tom 4, Hi-hat, Crash 1, Crash 2, Ride, Hi-hat Pedal, Hi-hat Splash
VOICE NAME	NUM XXX	Voice assigned to the trigger	1 ... 408
VOLUME	VOL XXX	Volume	0...127

## Saving 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. ➤ To save changes in the Drum Kit or Voice menu, press *[SAVE/ENTER]*.
2. ➤ Use the arrow buttons (*[<]* / *[>]*) or the jog wheel to select a user kit in which you want to save the changed settings (display shows 31 ... 40).
  - ⇒ The User kit number flashes.
3. ➤ Press *[SAVE/ENTER]*.
  - ⇒ The display shows 'OK'. The changes are saved.

## 6.5 Playing, customising and accompanying songs

### Selecting a song

Your digital drum module provides 80 preprogrammed 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. ➤ Press *[PAGE]* repeatedly until the desired sub menu 'SONG SELECT', 'ACC VOLUME' or 'DRUM VOLUME' is displayed.
3. ➤ Use the arrow buttons (*[<]* / *[>]*) or the jog wheel to change the parameter value.
4. ➤ Press *[START/STOP]* to play and stop the songs.

Parameter	Display	Meaning	Value range
SONG SELECT	NUM XXX	Number of the song.	1 ... 85
ACC VOLUME	ACC XXX	Accompaniment volume	0 ... 8
DRUM VOLUME	DRM XXX	Drum kit volume	0 ... 8

## Muting the drum track

You can mute the drum track of the preprogrammed songs.

1. ➤ Press *[DRUM OFF]* to mute the drum track.  
⇒ The indicator LED of the button lights.
2. ➤ Press *[DRUM OFF]* again to unmute the drum track.

## 6.6 Metronome function

Press *[CLICK]* to turn the Metronome on and off again. While the Metronome is on, the indicator LED of the button is flashing.

## Settings




1. ➤ Press *[PAGE]* repeatedly until the desired sub menu 'TIME SIGNATURE', 'INTERVAL', 'VOLUME' or 'NAME' is displayed.
2. ➤ Use the arrow buttons (*[<]* / *[>]*) or the jog wheel to change the parameter value.

Parameter	Display	Meaning	Value range
TIME SIGNATURE	SIG XXX	Emphasis on beats	0 ... 9/2, 0 ... 9/4, 0 ... 9/8, 0 ... 9/16
INTERVAL	INT XXX	Beats per measure	1/2, 3/8, 1/4, 1/8, 1/12, 1/16
VOLUME	VOL XXX	Click volume	0 ... 5
NAME	NUM XXX	Name and number of the corresponding Click voice	1 ... 6




## 6.7 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 5 user songs as a MIDI file directly in the drum module.

### Recording preparation

1.  Hold down [SONG/REC] for about 2 seconds.
  - ⇒ The indicator LED of the button flashes.
2.  Use the arrow buttons ([<] / [>]) or the jog wheel to select the user song (display shows '81' ... '85') in which the recording is to be stored.
3.  Press [ST/SP].
  - ⇒ The display shows 'RDY'. The device is now record-enabled.

### Starting and stopping recording

1.  When the device is record-enabled (the display shows 'RDY'), press [ST/SP] or hit a pad.
  - ⇒ The recording starts after 4 beats. The display shows 'ING'.
2.  To stop recording, press [ST/SP].
  - ⇒ The indicator LED of the button goes out.
3.  Press [ST/SP] to play the recorded song.



*When the recording capacity is exhausted, the display shows 'REC FUL'. The recording then stops automatically.*

## 6.8 Coach mode

### Starting Coach mode

Coach mode is a practice set. It consists of three different exercise types and a switchable display that monitors whether you keep the beat.

1. ➤ Press [COACH] to start Coach mode.
2. ➤ Press [PAGE] repeatedly until the desired sub menu 'Quiet Count', 'Change Up', 'Beat Check' or 'Measure Hint' is displayed.
3. ➤ Press [SAVE/ENTER] to start the exercise type.
4. ➤ Press [PAGE] to set additional parameters in the submenus.
5. ➤ Press [TEMPO] to change the pace of the exercise at any time.
6. ➤ Press [COACH] to exit Coach mode.

Exercise type	Display	Description
Quiet Count	QUT CNT	This exercise develops the sense for pace. There are 3 different silent modes and 5 selectable rhythm modes.
Change Up	CHG UP	This exercise trains the timing accuracy. There are 3 different types of rhythm, the change occurs every two bars.
Beat Check	BEA CHE	This exercise trains the precision. There are 13 selectable rhythm types.
Measure Hint	MEA	Displays the deviation from the beat.

### Coach mode QUIET COUNT

The exercise type 'Quiet Count' develops the sense for pace.

1. ➤ Press [COACH] to start Coach mode.
2. ➤ Press [PAGE] repeatedly until the desired sub menu 'Quiet Count' is displayed.
3. ➤ Press [SAVE/ENTER] to start the exercise type.
4. ➤ Press [PAGE] to toggle between the parameters [QUT] and [CNT].
5. ➤ Use the arrow buttons ([<] / [>]) or the jog wheel to change the parameter value.
6. ➤ Press [ST/SP] to start the exercise. The exercise start after one bar.
7. ➤ Press [ST/SP] again to stop the exercise.

Parameter	Display	Description	Value range
QUT	QUT XXX	Use the arrow buttons ([<] / [>]) or the jog wheel to select a suitable silent mode.	1 ... 5
CNT	CNT XXX	Use the arrow buttons ([<] / [>]) or the jog wheel to select a suitable counting mode.  1-1: 1 bar counted, 1 bar silent 2-2: 2 bars counted, 2 bars silent 1-3: 1 bar counted, 3 bars silent	1-1, 2-2, 1-3

### Coach mode CHANGE UP

The exercise type 'Change Up' trains the timing accuracy. A rhythm change will occur every two bars. Starting from semitones, the note values gradually become shorter and then return to semitones. A flashing note symbol on the display indicates the upcoming rhythm change.

1. ➤ Press [COACH] to start Coach mode.
2. ➤ Press [PAGE] repeatedly until the desired sub menu 'Change Up' is displayed.
3. ➤ Press [SAVE/ENTER] to start the exercise type.
4. ➤ Use the arrow buttons ([<] / [>]) or the jog wheel to select the desired rhythm type.
5. ➤ Press [PAGE] and use the arrow buttons ([<] / [>]) or the jog wheel to toggle the display of the practice success ('ON') or ('OFF'). The default setting for showing the practice success is 'OFF'.
6. ➤ Press [ST/SP] to start the exercise. The exercise start after one bar. An automatic rhythm change will occur every two bars.
7. ➤ If the practice success display is on, the exercise stops automatically after a few passes and your score is displayed.
8. ➤ Press [ST/SP] to stop the exercise.

Parameter	Display	Description	Value range
CHG	CHG XXX	Use the arrow buttons ([<] / [>]) or the jog wheel to select an appropriate rhythm type.	1 ... 3
SCO	SCO XXX	ON: Practise success (score) is displayed.  OFF: Practise success (score) is not displayed.	ON, OFF

## Coach mode BEAT CHECK

The exercise type 'Beat Check' trains precision with metronome assistance. If the display of the practice success is activated, the score will be displayed at the end of the exercise.

1. ➤ Press [COACH] to start Coach mode.
2. ➤ Press [PAGE] repeatedly until the desired sub menu 'Beat Check' is displayed.
3. ➤ Press [SAVE/ENTER] to start the exercise type.
4. ➤ Use the arrow buttons ([<] / [>]) or the jog wheel to select one of 13 rhythm types.
5. ➤ Press [PAGE] and use the arrow buttons ([<] / [>]) or the jog wheel to toggle the display of the practice success ('ON') or ('OFF'). The default setting for showing the practice success is 'OFF'.
6. ➤ Press [ST/SP] to start the exercise. The exercise start after one bar.
7. ➤ If the practice success display is on, the exercise stops automatically after a few passes and your score is displayed.
8. ➤ Press [ST/SP] to stop the exercise.

Parameter	Display	Description	Value range
BEA	BEA XXX	Use the arrow buttons ([<] / [>]) or the jog wheel to select an appropriate rhythm type.	1 ... 13
SCO	SCO XXX	ON: Practise success (score) is displayed. OFF: Practise success (score) is not displayed.	ON, OFF

## 6.9 Double bass trigger

With the Double Bass Trigger (DBT) even beginners can master the double bass technique. With DBT assistance, one pedal stroke of the bass drum produces two or three continuous kick sounds.

### Settings

1. ➤ Press [DBT] to activate the Double Bass Trigger.  
⇒ The indicator LED of the button lights. The display shows 'DBT 1-x'.
2. ➤ Use the arrow buttons ([<] / [>]) or the jog wheel to change the trigger time for the second trigger. The selected setting is retained after switching off.
3. ➤ Press [DBT] again to deactivate the Double Bass Trigger.

Parameter	Display	Description	Value range
DBT	DBT XXX	Use the arrow buttons ([<] / [>]) or the jog wheel to select a suitable trigger type. 1: Original stroke, triggered once 2: Original stroke/ 2, triggered once 3: Original stroke/ 3, triggered twice 4: Original stroke/ 4, triggered three times	1-1, 1-2, 1-3, 1-4

## 6.10 Tempo

With [TEMPO] you can adjust the speed of the metronome or the accompanying music.

1. ▶ Press [TEMPO].
2. ▶ Use the arrow buttons ([<] / [>]) or the jog wheel to set the desired pace.

Parameter	Display	Description	Value range
TEMPO	TMP XXX	Sets the speed of metronome and accompanying music.	30 ... 280

## 6.11 Trigger settings

### Adjusting trigger settings

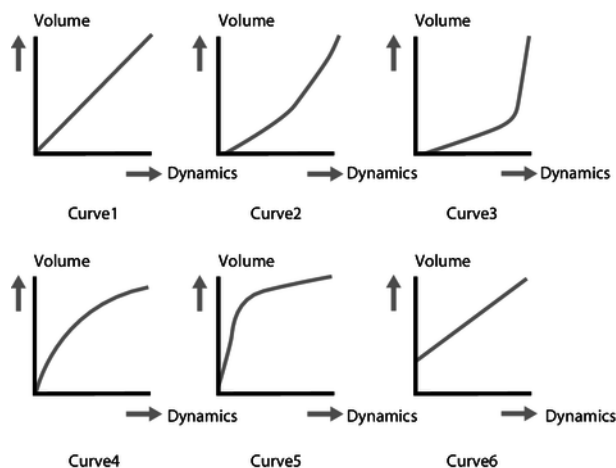
The touch responsiveness can be adjusted to your needs and preferences by the settings of this menu.

1. ➤ Press [UTILITY].  
⇒ The display shows the Utility menu.
2. ➤ Press [PAGE] repeatedly until the desired sub menu is displayed.
3. ➤ Strike the pad whose parameter you want to modify.
4. ➤ Use the arrow buttons ([<] / [>]) or the jog wheel to change the parameter value. Please note the information in the table below.

Parameter	Display	Meaning	Value range
SENSITIVITY	SEN XXX	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
XTALK	XTK XXX	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 crosstalk can be avoided by the appropriate setting. The value should be set as low as possible.	1...8
CURVE	CUR XXX	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



Parameter	Display	Meaning	Value range
RETRIG CANCEL	RTG XXX	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	MID XXX	Assigned MIDI note	0...127



## 6.12 Utility menu

### Adjusting device settings

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

1. ➤ Press [UTILITY].  
⇒ The display shows the Utility menu.
2. ➤ Press [PAGE] repeatedly until the desired sub menu is displayed.
3. ➤ Use the arrow buttons ([<] / [>]) or the jog wheel to change the parameter value.

Parameter	Display	Meaning	Value range
GM MODE	GM XXX	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
AUTO POWER	POW XXX	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

## 6.13 Status messages

Status message	Meaning
REC FUL	The storage capacity for the recording is exhausted.
FAC SET	The factory reset is complete.
EMP	The user song list is empty.
OK	The device settings and drum kit settings have been saved.
WAT	Data is loaded from the flash ROM, please wait.

## 7 Technical specifications

Input connections	Voltage supply	Connector socket for plug-in power supply
	USB port	USB MIDI
	Trigger	2 × 1/4" stereo socket
	AUX in	1 × 3.5 mm stereo phone socket
Output connections	Line out (R/L mono)	2 × 1/4" phone socket
	Headphones	1 × 3.5 mm stereo phone socket
	MIDI	MIDI socket
Tonal colours	408	
Drum kits	30 preset kits, 10 user kits	
Demo and practice songs	80 preprogrammed songs, 5 user songs	
Voltage supply	Plug-in power supply (9 V $\overline{\text{---}}$ / 500 mA , centre positive)	
Dimensions (W × H × D)	125 mm × 95 mm × 187,5 mm	
Weight	0.5 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
Stereo pads	Yes

## 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

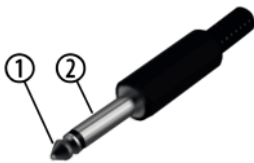
Unbalanced transmission is mainly used in semi-professional environment and in hifi use. Instrument cables with two conductors (one core plus shielding) are typical representatives of the unbalanced transmission. One conductor is ground and shielding while the signal is transmitted through the core.

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°.

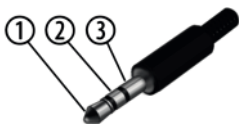
Since the interference affects both cores equally, by subtracting the phase-shifted signals, the interfering signal is completely neutralized. The result is a pure signal without any noise interference.

### 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 components

Clean the externally accessible device parts regularly. The frequency of cleaning depends on the operating environment: wet, smoky or particularly dirty surroundings can cause more accumulation of dirt on the device parts.

- Clean with a soft dry cloth.
- Stubborn dirt can be removed with a slightly dampened cloth.
- Never use cleaners containing alcohol or thinner.
- Do not place vinyl objects on the device, as vinyl may stick to the surface or cause it to discolour.

## 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 Kit list

Nr.	Name	Nr.	Name
1	Acoustic 1	16	Percussion 1
2	Funk Band	17	90's Power
3	Standard 1	18	Indian
4	Jazz Brush	19	African
5	Dance	20	Electronic
6	Rock	21	Reggae
7	Jazz	22	Fusion
8	808	23	Brush
9	909	24	Orchestra
10	Funk	25	HipHop
11	FX Mix	26	Big Band
12	Power	27	Live
13	Latin	28	House
14	Room	29	Techno
15	Marimba	30	Vintage

## 11.2 Voice list

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



No.	Name	No.	Name	No.	Name
83	Lo-Fi Snare Stick	114	Funk Tom 3	146	909 Tom 1
84	Techno Snare Stick	115	Funk Tom 3 Rim	147	909 Tom 2
85	Brush Swirl	116	Funk Tom 4	148	909 Tom 3
<b>Tom</b>		117	Funk Tom 4 R	149	909 Tom 4
86	Acoustic Tom 1	118	Funk Tom 5	150	909 Tom 5
87	Acoustic Tom 1 Rim	119	Funk Tom 5 Rim	151	909 Tom 6
88	Acoustic Tom 2	120	Funk Tom 6	152	909 Tom 7
89	Acoustic Tom 2 Rim	121	Funk Tom 6 Rim	153	909 Tom 8
90	Acoustic Tom 3	122	Jazz Tom 1	154	Electronic Tom 1
91	Acoustic Tom 3 Rim	123	Jazz Tom 1 Rim	155	Electronic Tom 2
92	Acoustic Tom 4	124	Jazz Tom 2	156	Electronic Tom 3
93	Acoustic Tom 4 Rim	125	Jazz Tom 2 Rim	157	Electronic Tom 4
94	Acoustic Tom 5	126	Jazz Tom 3	158	Electronic Tom 5
95	Acoustic Tom 5 Rim	127	Jazz Tom 3 Rim	159	Electronic Tom 6
96	Acoustic Tom 6	128	Jazz Tom 4	160	Electronic Tom 7
97	Acoustic Tom 6 Rim	129	Jazz Tom 4 Rim	161	Electronic Tom 8
98	Brush Tom 1	130	Jazz Tom 5	162	Power Tom 1
99	Brush Tom 1 Rim	131	Jazz Tom 5 Rim	163	Power Tom 2
100	Brush Tom 2	132	Jazz Tom 6	164	Power Tom 3
101	Brush Tom 2 Rim	133	Jazz Tom 6 Rim	165	Power Tom 4
102	Brush Tom 3	134	Fusion Tom 1	166	Power Tom 5
103	Brush Tom 3 Rim	135	Fusion Tom 2	167	Power Tom 6
104	Brush Tom 4	136	Fusion Tom 3	168	90's Power Tom 1
105	Brush Tom 4 Rim	137	Fusion Tom 4	169	90's Power Tom 2
106	Brush Tom 5	138	808 Tom 1	170	90's Power Tom 3
107	Brush Tom 5 Rim	139	808 Tom 2	171	90's Power Tom 4
108	Brush Tom 6	140	808 Tom 3	172	90's Power Tom 5
109	Brush Tom 6 Rim	141	808 Tom 4	173	90's Power Tom 6
110	Funk Tom 1	142	808 Tom 5	174	Techno Tom 1
111	Funk Tom 1 Rim	143	808 Tom 6	175	Techno Tom 1 Rim
112	Funk Tom 2	144	808 Tom Fx 1	176	Techno Tom 2
113	Funk Tom 2 Rim	145	808 Tom Fx 2	177	Techno Tom 2 Rim

No.	Name	No.	Name	No.	Name
178	Techno Tom 3	207	Junkyard Ride	236	909Crash 2
179	Techno Tom 3 Rim	208	Junkyard Ride Edge	237	Electronic Crash 1
180	Techno Tom 4	209	Junkyard Ride Bell	238	Electronic Crash 2
181	Techno Tom 4 Rim	<b>Crash</b>		239	Orchestra Crash 1
182	Techno Tom 5	210	16" Acoustic Crash 1	240	Orchestra Crash 2
183	Techno Tom 5 Rim	211	16" Acoustic Crash 1 Edge	241	Orchestra Crash 3
184	Techno Tom 6	212	16" Acoustic Crash 2	242	Room Crash
185	Techno Tom 6 Rim	213	16" Acoustic Crash 2 Edge	243	Room Crash Edge
<b>Ride</b>		214	16" Standard Crash 1	244	1970's Crash 1
186	21" Acoustic Ride	215	16" Standard Crash 1 Edge	245	1970's Crash 2
187	21" Acoustic Ride Edge	216	16" Standard Crash 2	246	Vintage Crash 1
188	21" Acoustic Ride Bell	217	16" Standard Crash 2 Edge	247	Vintage Crash 1 Edge
189	Brush Ride 1	218	Brush Crash 1	248	Vintage Crash 2
190	Brush Ride 2	219	Brush Crash 2	249	Vintage Crash 2 Edge
191	20" Funk Ride	220	Brush Crash 3	250	Big Band Crash 1
192	20" Funk Ride Edge	221	Brush Crash 4	251	Big Band 1 Crash Edge
193	20" Funk Ride Bell	222	Funk Crash 1	252	Big Band Crash 2
194	20" Rock Ride	223	Funk Crash 1 Edge	253	Big Band Crash 2 Edge
195	20" Rock Ride Edge	224	Funk Crash 2	254	Techno Crash 1
196	20" Rock Ride Bell	225	Funk Crash 2 Edge	255	Techno Crash 1 Edge
197	808 Ride	226	19" Jazz Crash 1	256	Techno Crash 2
198	20" Room Ride	227	19" Jazz Crash 1 Edge	257	Techno Crash 2 Edge
199	20" Room Ride Edge	228	19" Jazz Crash 2	258	Latin Crash 1
200	20" Room Ride Bell	229	19" Jazz Crash 2 Edge	259	Latin Crash 1 Edge
201	House Ride	230	Rock Crash 1	260	Latin Crash 2
202	House Ride Edge	231	Rock Crash 1 Edge	261	Latin Crash 2 Edge
203	House Ride Bell	232	Rock Crash 2	262	China 1
204	Lo-Fi Ride	233	Rock Crash 2 Edge	263	China 1 Edge
205	Lo-Fi Ride Edge	234	808Crash	264	Splash
206	Lo-Fi Ride Bell	235	909Crash 1	265	Splash Edge

Nr.	Name	Nr.	Name	Nr.	Name
<b>Hi-hat</b>		294	Vibra-slap 3	324	Tambourine
266	14" Acoustic Hi-hat	295	Synthesis Percussion 1	325	Cabasa
267	14" Acoustic Hi-hat Edge	296	Synthesis Percussion 2	326	Long Guiro
268	14" Acoustic Hi-hat Pedal	297	High Q 1	327	Short Guiro
269	14" Acoustic Hi-hat Splash	298	High Q 2	328	Indian 1
270	14" Standard Hi-hat	299	Low Q 1	329	Indian 2
271	14" Standard Hi-hat Edge	300	Low Q 2	330	Indian 3
272	14" Standard Hi-hat Pedal	301	Mute Hi Conga 1	331	Indian 4
273	14" Standard Hi-hat Splash	302	Mute Hi Conga 2	332	Indian 5
274	Brush Hi-hat	303	Open Hi Conga 1	333	Indian 6
275	Brush Hi-hat Pedal	304	Open Hi Conga 2	334	Indian 7
276	Brush Hi-hat Splash	305	Low Conga	335	Indian 8
277	14" Rock Hi-hat	306	High Bongo	336	Indian 9
278	14" Rock Hi-hat Edge	307	Low Bongo	337	Indian 10
279	14" Rock Hi-hat Pedal	308	High Timbale 1	338	Indian 11
280	14" Rock Hi-hat Splash	309	High Timbale 1 Rim	339	Indian 12
281	808 Hi-hat	310	High Timbale 2	340	Indian 13
282	808 Hi-hat Pedal	311	High Timbale 2 Rim	341	Indian 14
283	808 Hi-hat Splash	312	Low Timbale 1	342	Indian 15
284	909 Hi-hat	313	Low Timbale 2	343	Indian 16
285	909 Hi-hat Pedal	314	Low Timbale 2 Rim	344	Indian 17
286	909 Hi-hat Splash	315	Low Timbale 3	345	African 1
287	Dance Hi-hat	316	Low Timbale 4	346	African 2
288	Dance Hi-hat Pedal	317	High Agogo	347	African 3
289	Dance Hi-hat Splash	318	Low Agogo	348	African 4
<b>Percussion</b>		319	Claves	349	African 5
290	Maracas	320	Jingle Bell	350	African 6
291	Metronome Bell	321	Cowbell	351	African 7
292	Vibra-slap 1	322	Bell Tree 1	352	African 8
293	Vibra-slap 2	323	Bell Tree 2	353	African 9

Nr.	Name	Nr.	Name	Nr.	Name
354	African 10	384	Orchestra Timpani Bb2	412	Rock
355	African 11	385	Orchestra Timpani B2	413	808
356	African 12	386	Orchestra Timpani C3	414	909
357	African 13	<b>FX</b>		415	Dance
358	African 14	387	FX 1	416	Marimba
359	African 15	388	FX 2	417	Indian
360	African 16	389	FX 3	418	African
361	African 17	390	FX 4		
362	Marimba C3	391	FX 5		
363	Marimba C4	392	FX 6		
364	Marimba D4	393	FX 7		
365	Marimba E4	394	FX 8		
366	Marimba F4	395	FX 9		
367	Marimba G4	396	FX 10		
368	Marimba A4	397	FX 11		
369	Marimba B4	398	FX 12		
370	Marimba C5	399	FX 13		
371	Marimba D5	400	FX 14		
372	Marimba E5	401	FX 15		
373	Marimba F5	402	FX 16		
374	Marimba G5	403	FX 17		
375	Marimba A5	404	FX 18		
376	Marimba B5	405	FX 19		
377	Marimba C6	406	FX 20		
378	Orchestra Timpani E2	407	FX 21		
379	Orchestra Timpani F2	408	Mute		
380	Orchestra Timpani Gb2	<b>Hi-hat Combination</b>			
381	Orchestra Timpani G2	409	Acoustic		
382	Orchestra Timpani Ab2	410	Standard		
383	Orchestra Timpani A2	411	Jazz Brush		

### 11.3 Song list

No.	Name	No.	Name	No.	Name
1	Funk 1	31	Dance 2	61	Jazzy Funk
2	Rock'n'Roll 1	32	DJ House	62	Swing Big Band
3	Dance 1	33	Ele Pop 3	63	Reggae 1
4	Pop 1	34	Hip Hop	64	60's Pop
5	Fusion 1	35	Pop 3	65	Vintage Funk
6	R&B 1	36	Pop 4	66	Trance
7	BritPop	37	R&B 3	67	Heavy Rock
8	R&B 2	38	Reggae 1	68	Swing
9	GtrBossa	39	Rock 2	69	Punk
10	Rock Ballad	40	Rock 3	70	8Beat
11	Folk	41	Blues Funk	71	Disco House
12	Funk Shuffle	42	Fusion 3	72	3/4 Folk
13	Ele Pop 1	43	Cool Jazz	73	Samba 3
14	Pop 2	44	Ballad	74	Latin Rock
15	Bossa Nova 1	45	Samba 2	75	Reggae 2
16	Samba 1	46	Vintage Hip-Hop	76	Dance 3
17	Fusion 2	47	Nu Jazz FUnk	77	Country Pop
18	Ele Pop 2	48	Soul	78	Country
19	Pop Shuffle	49	R&B 4	79	Pop Rock
20	Rock 1	50	Big Band 1	80	Dance Pop
21	Latin 1	51	Ska		
22	Latin 2	52	Classic Rock		
23	Salsa 1	53	Hardcore Hip-Hop		
24	Smooove	54	Vintage Dance Pop		
25	Steve Vai Funk	55	Nu-Metal		
26	70's Funk	56	Salsa 2		
27	Jazz 1	57	Eu Hip-Hop		
28	6/8 Soul 1	58	Bossa Nova 2		
29	Fusion 2	59	Fusion 4		
30	Dance Funk	60	8Beat Pop		

## 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)	Yes	
	Note OFF	Yes (99H, V=0)	Yes	
Aftertouch	Keys	No	Yes	
	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		No	Yes	

Function		Transmitted	Recognized	Remarks
	True Number	No	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	
	Active Sense	No	No	
	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	Harpichord	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

No.	Name	No.	Name
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
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>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)



No.	Name	No.	Name
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 (bank 00)	Funk (bank 08)	Rock (bank 16 )	Electric (bank 24 )	Analog (bank 25 )
27 – Eb1	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 – Bb1	Metronome Bell	<-	<-	<-	<-
35 – B1	Acoustic Bass Drum	<-	<-	<-	<-
36 – C2	Bass Drum 1	Funk Kick	Rock Kick Drum	Electric Bass Drum	Analog Bass Drum
37 – C#2	Side Stick	<-	<-	<-	Analog Rim Shot
38 – D2	Acoustic Snare	Funk Snare 1	Rock Snare Drum 1	Electric Snare 1	Analog Snare 1
39 – Eb2	Hand Clap	<-	<-	<-	Analog Clap
40 – E2	Electric Snare	Funk Snare 2	Rock Snare Drum 2	Electric Snare 2	Analog Snare 2
41 – F2	Low Floor Tom	Funk Low Tom 2	Rock Low Tom 2	Electric Low Tom 2	Analog Low Tom 2
42 – F#2	Closed Hi-hat	<-	<-	<-	Analog Closed Hi-hat
43 – G2	High Floor Tom	Funk Low Tom 1	Rock Low Tom 1	Electric Low Tom 1	Analog Low Tom 1
44 – G#2	Pedal Hi-hat	<-	<-	<-	Analog Pedal Hi-hat
45 – A2	Low Tom	Funk Mid Tom 2	Rock Mid Tom 2	Electric Mid Tom 2	Analog Mid Tom 2
46 – Bb2	Open Hi-hat	<-	<-	<-	Analog Open Hi-hat
47 – B2	Low Mid Tom	Funk Mid Tom 1	Rock Mid Tom 1	Electric Mid Tom 1	Analog Mid Tom 1
48 – C3	High Mid Tom	Funk Hi Tom 2	Rock Hi Tom 2	Electric Hi Tom 2	Analog Hi Tom 2
49 – C#3	Crash Cymbal 1	<-	<-	<-	Analog Cymbal
50 – D3	High Tom 1	Funk Hi Tom 1	Rock Hi Tom 1	<-	Analog Hi Tom 1
51 – Eb3	Ride Cymbal 1	<-	<-	<-	<-
52 – E3	China Cymbal	<-	<-	<-	<-
53 – F3	Ride Bell	<-	<-	<-	<-
54 – F#3	Tambourine	<-	<-	<-	<-
55 – G3	Splash Cymbal	<-	<-	<-	<-
56 – G#3	Cowbell	<-	<-	<-	<-
57 – A3	Crash Cymbal 2	<-	<-	<-	<-

Note	Standard (bank 00)	Funk (bank 08)	Rock (bank 16 )	Electric (bank 24 )	Analog (bank 25 )
58 – Bb3	Vibra-slap	<-	<-	<-	<-
59 – B3	Ride Cymbal 2	<-	<-	<-	<-
60 – C4	Hi Bongo	<-	<-	<-	<-
61 – C#4	Low Bongo	<-	<-	<-	<-
62 – D4	Mute Hi Conga	<-	<-	<-	<-
63 – Eb4	Open Hi Conga	<-	<-	<-	<-
64 – E4	Low Conga	<-	<-	<-	<-
65 – F4	High Timbale	<-	<-	<-	<-
66 – F#4	Low Timbale	<-	<-	<-	<-
67 – G4	High Agogo	<-	<-	<-	<-
68 – G#4	Low Agogo	<-	<-	<-	<-
69 – A4	Cabasa	<-	<-	<-	<-
70 – Bb4	Maracas	<-	<-	<-	<-
71 – B4	Short Whistle	<-	<-	<-	<-
72 – C5	Long Whistle	<-	<-	<-	<-
73 – C#5	Short Guiro	<-	<-	<-	<-
74 – D5	Long Guiro	<-	<-	<-	<-
75 – Eb5	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 – Bb5	Shaker	<-	<-	<-	<-
83 – B5	Jingle Bell	<-	<-	<-	<-
84 – C6	Bell Tree	<-	<-	<-	<-
85 – C#6	Castanets	<-	<-	<-	<-
86 – D6	Mute Surdo	<-	<-	<-	<-
87 – Eb6	Open Surdo	<-	<-	<-	<-

Note	Jazz (bank 32 )	Brush (bank 40 )	Orchestra (bank 48 )	Dance (bank 56 )
27 – Eb1	<-	<-	Closed Hi-hat 2	<-
28 – E1	<-	<-	Pedal Hi-hat	<-
29 – F1	<-	<-	Open Hi-hat 2	<-
30 – F#1	<-	<-	Ride Cymbal 1	<-
31 – G1	<-	<-	<-	<-
32 – G#1	<-	<-	<-	<-
33 – A1	<-	<-	<-	<-
34 – Bb1	<-	<-	<-	<-
35 – B1	<-	<-	Concert BD 2	<-
36 – C2	Jazz Kick 1	Brush Kick 1	Concert BD 1	Dance Bass Drum
37 – C#2	<-	<-	<-	<-
38 – D2	Jazz Snare 1	Brush Tap	Concert SD	Dance Snare 1
39 – Eb2	<-	<-	Castanets	<-
40 – E2	Jazz Snare 2	Brush Slap	Concert SD	Dance Snare 2
41 – F2	<-	Brush Low Tom 2	Timpani F	Dance Low Tom 2
42 – F#2	<-	<-	Timpani F#	Dance Closed
43 – G2	<-	Brush Low Tom 1	Timpani G	Hi-hat
44 – G#2	<-	<-	Timpani G#	Dance Low Tom 1
45 – A2	<-	Brush Mid Tom 2	Timpani A	Dance Pedal Hi-hat
46 – Bb2	<-	<-	Timpani A#	Dance Mid Tom 2
47 – B2	<-	Brush Mid Tom 1	Timpani B	Dance Open Hi-hat
48 – C3	<-	Brush Hi Tom 2	Timpani c	Dance Mid Tom 1
49 – C#3	<-	<-	Timpani c#	Dance Hi Tom 2
50 – D3	<-	Brush Hi Tom 1	Timpani d	Dance Cymbal
51 – Eb3	<-	<-	Timpani d#	Dance Hi Tom 1
52 – E3	<-	<-	Timpani e	<-
53 – F3	<-	<-	Timpani f	<-
54 – F#3	<-	<-	<-	<-
55 – G3	<-	<-	<-	<-
56 – G#3	<-	<-	<-	<-
57 – A3	<-	<-	<-	<-
58 – Bb3	<-	<-	<-	<-

Note	Jazz (bank 32 )	Brush (bank 40 )	Orchestra (bank 48 )	Dance (bank 56 )
59 – B3	<-	<-	<-	<-
60 – C4	<-	<-	<-	<-
61 – C#4	<-	<-	<-	<-
62 – D4	<-	<-	<-	<-
63 – Eb4	<-	<-	<-	<-
64 – E4	<-	<-	<-	<-
65 – F4	<-	<-	<-	<-
66 – F#4	<-	<-	<-	<-
67 – G4	<-	<-	<-	<-
68 – G#4	<-	<-	<-	<-
69 – A4	<-	<-	<-	<-
70 – Bb4	<-	<-	<-	<-
71 – B4	<-	<-	<-	<-
72 – C5	<-	<-	<-	<-
73 – C#5	<-	<-	<-	<-
74 – D5	<-	<-	<-	<-
75 – Eb5	<-	<-	<-	<-
76 – E5	<-	<-	<-	<-
77 – F5	<-	<-	<-	<-
78 – F#5	<-	<-	<-	<-
79 – G5	<-	<-	<-	<-
80 – G#5	<-	<-	<-	<-
81 – A5	<-	<-	<-	<-
82 – Bb5	<-	<-	<-	<-
83 – B5	<-	<-	<-	<-
84 – C6	<-	<-	<-	<-
85 – C#6	<-	<-	<-	<-
86 – D6	<-	<-	<-	<-
87 – Eb6	<-	<-	<-	<-





