Drums
Millenium

MPS-850

User Manual

E-Drum Module

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Millenium
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MENU
EXIT
SAVE
TEMPO
CLICK
ENTER
SONG
KIT

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*.

1.1 Further information

On our website (*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 6*.

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
DANGER!	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.
CAUTION!	This combination of symbol and signal word indicates a possible dangerous situation that can result in minor injury if it is not avoided.
NOTICE!	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

- 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

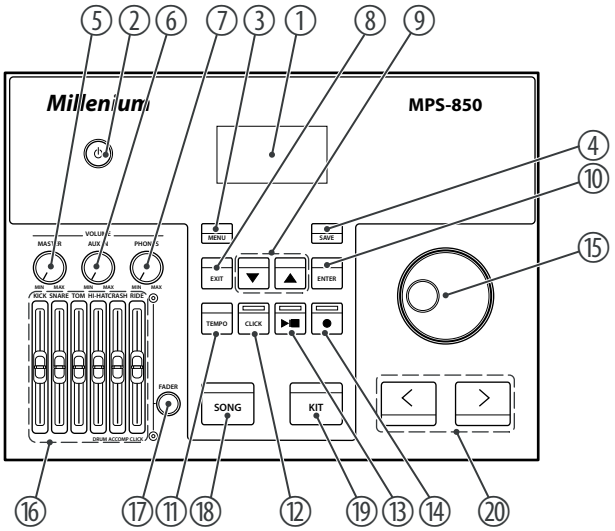
Connect external MIDI devices to the *[MIDI OUT]* or *[MIDI IN]* socket of the drum module.

Connecting USB devices

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

5 Connections and controls

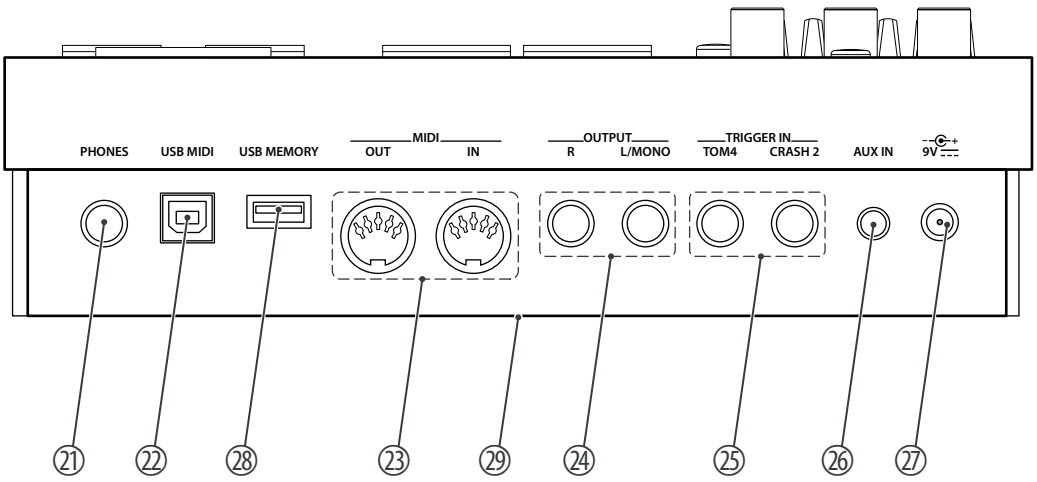
Front panel



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	*[ENTER]* Button to confirm a selection or setting
11	*[TEMPO]* Button to adjust metronome and playback tempo
12	*[CLICK]* 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	*[FADER]* Button for switching the fader assignment
18	*[SONG]* Button to open the *'SONG'* menu
19	*[KIT]* Button to open the *'KIT'* menu
20	*[<] / [>]* 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 [VOLUME – MASTER] 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 desired total volume for the Drum Set, turn the *[VOLUME – MASTER]* control.

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 pre-programmed 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.	■ 1…60: Patterns ■ 61…70: Percussion Loops ■ 71…76: Hits ■ 77…100: Taps ■ 101…102: User songs
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

Fader label	Assignment 1	Assignment 2
[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

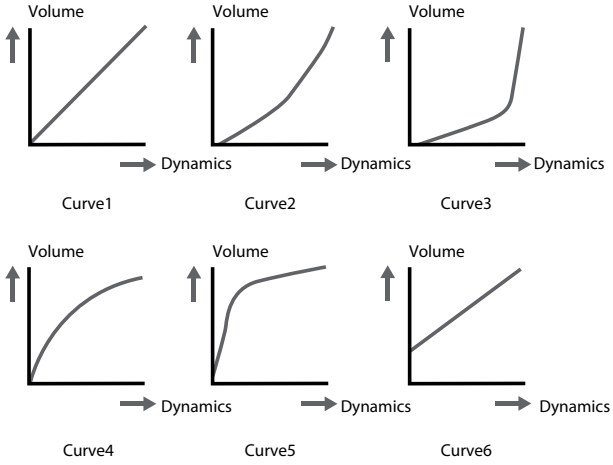
The touch responsiveness can be adjusted to your needs and preferences by the settings of this menu.

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 crosstalk 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

Parameter, display	Meaning	Value range
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: ■ *'30'* (automatic shutoff after 30 minutes) ■ *'60'* (automatic shutoff after 60 minutes) ■ *'OFF'* (automatic shutdown off).	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 64 GB max. 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	External power adapter, 100 - 240 V ~ 50/60 Hz	
Operating voltage	9 V ⎓ / 0.5 A, centre positive	
Dimensions (W × H × D)	249 mm × 186 mm × 76 mm	
Weight	0.93 kg	
Ambient conditions	Temperature range	0 °C…40 °C
	Relative humidity	20 %…80 % (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
Kick		32	14'' Funk Snare 1	65	909 Snare
1	22'' Acoustic Kick 1	33	14'' Funk Snare Rim 1	66	909 Snare Rim
2	22'' Acoustic Kick 2	34	14'' Funk Snare 2	67	Electronic Snare
3	24'' Standard Kick	35	14'' Funk Snare Rim 2	68	Power Snare
4	Brush Kick 1	36	Brush Snare 1	69	Dance Snare
5	Brush Kick 2	37	Brush Snare Rim 1	70	Dance Snare Rim
6	24'' Jazz Kick	38	Brush Snare 2	71	Old School Snare
7	22'' Rock Kick	39	Brush Snare Rim 2	72	Old School Snare Rim
8	Room Kick	40	14'' Jazz Snare	73	House Snare
9	Fusion Kick	41	14'' Jazz Snare Rim	74	House Snare Rim
10	1970's Kick	42	14'' Rock Snare	75	Lo-Fi Snare
11	Vintage Kick	43	14'' Rock Snare Rim	76	Lo-Fi Snare Rim
12	HipHop Kick	44	13'' Damped Snare 1	77	Junkyard Snare
13	Reggae Kick	45	13'' Damped Snare 2	78	Junkyard Snare Rim
14	Big Band Kick	46	13'' Damped Snare 3	79	Noise Snare
15	Old School Kick	47	Orchestra Snare	80	Noise Snare Rim
16	Lo-Fi Kick	48	Orchestra Snare Rim	81	Drum & Bass Snare
17	Junkyard Kick	49	Room Snare	82	Drum & Bass Snare Rim
18	Noise Kick	50	Room Snare Rim	83	Techno Snare
19	Drum & Bass Kick	51	Fusion Snare	84	Techno Snare Rim
20	808 Kick	52	Fusion Snare Rim	85	Magic Snare
21	909 Kick	53	Big Band Snare	86	Magic Snare Rim
22	Electronic Kick	54	Big Band Snare Rim	87	Acoustic Snare Stick
23	Power Kick	55	Vintage Snare	88	Standard Snare Stick 1
24	Dance Kick	56	Vintage Snare Rim	89	Brush Snare Stick
25	FX Mix Kick	57	Live Snare	90	Standard Snare Stick 2
26	Techno Kick	58	Live Snare Rim	91	Rock Snare Stick 1
27	Magic Kick	59	Reggae Snare	92	Rock Snare Stick 2
Snare		60	Reggae Snare Rim	93	Live Snare Stick
28	14'' Acoustic Snare	61	R&B Snare	94	Room Snare Stick
29	14'' Acoustic Snare Rim	62	R&B Snare Rim	95	Fusion Snare Stick
30	14'' Standard Snare	63	808 Snare	96	808 Snare Stick
31	14'' Standard Snare Rim	64	808 Snare Rim	97	909 Snare Stick

No.	Name
98	Electronic Snare Stick
99	Old School Snare Stick
100	House Snare Stick
101	Lo-Fi Snare Stick
102	Junkyard Snare Stick
103	Noise Snare Stick
104	Techno Snare Stick
105	Brush Swirl
Tom	
106	Acoustic Tom 1
107	Acoustic Tom 1 Rim
108	Acoustic Tom 2
109	Acoustic Tom 2 Rim
110	Acoustic Tom 3
111	Acoustic Tom 3 Rim
112	Acoustic Tom 4
113	Acoustic Tom 4 Rim
114	Acoustic Tom 5
115	Acoustic Tom 5 Rim
116	Acoustic Tom 6
117	Acoustic Tom 6 Rim
118	Standard Tom 1
119	Standard Tom 1 Rim
120	Standard Tom 2
121	Standard Tom 2 Rim
122	Standard Tom 3
123	Standard Tom 3 Rim
124	Standard Tom 4
125	Standard Tom 4 Rim
126	Standard Tom 5
127	Standard Tom 5 Rim
128	Standard Tom 6
129	Standard Tom 6 Rim
130	Brush Tom 1
131	Brush Tom 1 Rim
132	Brush Tom 2
133	Brush Tom 2 Rim
134	Brush Tom 3
135	Brush Tom 3 Rim
136	Brush Tom 4
137	Brush Tom 4 Rim
138	Brush Tom 5
139	Brush Tom 5 Rim
140	Brush Tom 6
141	Brush Tom 6 Rim
142	Funk Tom 1
143	Funk Tom 1 Rim
144	Funk Tom 2
145	Funk Tom 2 Rim
146	Funk Tom 3
147	Funk Tom 3 Rim
148	Funk Tom 4
149	Funk Tom 4 R
150	Funk Tom 5
151	Funk Tom 5 Rim
152	Funk Tom 6
153	Funk Tom 6 Rim
154	Jazz Tom 1
155	Jazz Tom 1 Rim
156	Jazz Tom 2
157	Jazz Tom 2 Rim
158	Jazz Tom 3
159	Jazz Tom 3 Rim
160	Jazz Tom 4
161	Jazz Tom 4 Rim
162	Jazz Tom 5
163	Jazz Tom 5 Rim
164	Jazz Tom 6
165	Jazz Tom 6 Rim
166	Rock Tom 1
167	Rock Tom 1 Rim
168	Rock Tom 2
169	Rock Tom 2 Rim
170	Rock Tom 3
171	Rock Tom 3 Rim
172	Rock Tom 4
173	Rock Tom 4 Rim
174	Rock Tom 5
175	Rock Tom 5 Rim
176	Rock Tom 6
177	Rock Tom 6 Rim
178	Fusion Tom 1
179	Fusion Tom 2
180	Fusion Tom 3
181	Fusion Tom 4
182	1970's Tom 1
183	1970's Tom 2
184	1970's Tom 3
185	1970's Tom 4
186	Vintage Tom 1
187	Vintage Tom 2
188	Vintage Tom 3
189	Vintage Tom 4
190	Vintage Tom 5
191	Vintage Tom 6
192	808 Tom 1
193	808 Tom 2
194	808 Tom 3
195	808 Tom 4
196	808 Tom 5
197	808 Tom 6
198	808 Tom Fx 1
199	808 Tom Fx 2
200	909 Tom 1
201	909 Tom 2
202	909 Tom 3
203	909 Tom 4
204	909 Tom 5

No.	Name
205	909 Tom 6
206	909 Tom 7
207	909 Tom 8
208	Electronic Tom 1
209	Electronic Tom 2
210	Electronic Tom 3
211	Electronic Tom 4
212	Electronic Tom 5
213	Electronic Tom 6
214	Electronic Tom 7
215	Electronic Tom 8
216	Power Tom 1
217	Power Tom 2
218	Power Tom 3
219	Power Tom 4
220	Power Tom 5
221	Power Tom 6
222	90's Power Tom 1
223	90's Power Tom 2
224	90's Power Tom 3
225	90's Power Tom 4
226	90's Power Tom 5
227	90's Power Tom 6
228	Lo-Fi Tom 1
229	Lo-Fi Tom 1 Rim
230	Lo-Fi Tom 2
231	Lo-Fi Tom 2 Rim
232	Lo-Fi Tom 3
233	Lo-Fi Tom 3 Rim
234	Lo-Fi Tom 4
235	Lo-Fi Tom 4 Rim
236	Lo-Fi Tom 5
237	Lo-Fi Tom 5 Rim
238	Lo-Fi Tom 6
239	Lo-Fi Tom 6 Rim
240	Junkyard Tom 1

No.	Name
238	Lo-Fi Tom 6
239	Lo-Fi Tom 6 Rim
240	Junkyard Tom 1
241	Junkyard Tom 1 Rim
242	Junkyard Tom 2
243	Junkyard Tom 2 Rim
244	Junkyard Tom 3
245	Junkyard Tom 3 Rim
246	Junkyard Tom 4
247	Junkyard Tom 4 Rim
248	Junkyard Tom 5
249	Junkyard Tom 5 Rim
250	Junkyard Tom 6
251	Junkyard Tom 6 Rim
252	Noise Tom 1
253	Noise Tom 1 Rim
254	Noise Tom 2
255	Noise Tom 2 Rim
256	Noise Tom 3
257	Noise Tom 3 Rim
258	Noise Tom 4
259	Noise Tom 4 Rim
260	Noise Tom 5
261	Noise Tom 5 Rim
262	Noise Tom 6
263	Noise Tom 6 Rim
264	Techno Tom 1
265	Techno Tom 1 Rim
266	Techkno Tom 2
267	Techno Tom 2 Rim
268	Techno Tom 3
269	Techno Tom 3 Rim
270	Techno Tom 4
271	Techno Tom 4 Rim
272	Techno Tom 5
273	Techno Tom 5 Rim

No.	Name
274	Techno Tom 6
275	Techno Tom 6 Rim
Ride	
276	21" Acoustic Ride
277	21" Acoustic Ride Edge
278	21" Acoustic Ride Bell
279	22" Standard Ride
280	22" Standard Ride Edge
281	22" Standard Ride Bell
282	Brush Ride 1
283	Brush Ride 2
284	20" Funk Ride
285	20" Funk Ride Edge
286	20" Funk Ride Bell
287	22" Jazz Ride
288	22" Jazz Ride Edge
289	22" Jazz Ride Bell
290	20" Rock Ride
291	20" Rock Ride Edge
292	20" Rock Ride Bell
293	808 Ride
294	Electronic Ride
295	Electronic Ride Edge
296	Electronic Ride Bell
297	20" Room Ride
298	20" Room Ride Edge
299	20" Room Ride Bell
300	HipHop Ride
301	20" Metal Ride
302	20" Metal Ride Edge
303	20" Metal Ride Bell
304	House Ride
305	House Ride Edge
306	House Ride Bell
307	Vintage Ride
308	Vintage Ride Edge

No.	Name
309	Vintage Ride Bell
310	Lo-Fi Ride
311	Lo-Fi Ride Edge
312	Lo-Fi Ride Bell
313	Techno Ride
314	Techno Ride Edge
315	Techno Ride Bell
Crash	
316	16'' Acoustic Crash 1
317	16'' Acoustic Crash 1 Edge
318	16'' Acoustic Crash 2
319	16'' Acoustic Crash 2 Edge
320	16'' Standard Crash 1
321	16'' Standard Crash 1 Edge
322	16'' Standard Crash 2
323	16'' Standard Crash 2 Edge
324	Brush Crash 1
325	Brush Crash 2
326	Brush Crash 3
327	Brush Crash 4
328	Funk Crash 1
329	Funk Crash 1 Edge
330	Funk Crash 2
331	Funk Crash 2 Edge
332	19'' Jazz Crash 1
333	19'' Jazz Crash 1 Edge
334	19'' Jazz Crash 2
335	19'' Jazz Crash 2 Edge
336	Rock Crash 1
337	Rock Crash 1 Edge
338	Rock Crash 2
339	Rock Crash 2 Edge
340	808Crash
341	909Crash 1
342	909Crash 2
343	Electronic Crash 1
344	Electronic Crash 2
345	Orchestra Crash 1
346	Orchestra Crash 2
347	Orchestra Crash 3
348	Room Crash
349	Room Crash Edge
350	1970's Crash 1
351	1970's Crash 2
352	Vintage Crash 1
353	Vintage Crash 1 Edge
354	Vintage Crash 2
355	Vintage Crash 2 Edge
356	Lo-Fi Crash 1
357	Lo-Fi Crash 1 Edge
358	Lo-Fi Crash 2
359	Lo-Fi Crash 2 Edge
360	Techno Crash 1
361	Techno Crash 1 Edge
362	Techno Crash 2
363	Techno Crash 2 Edge
364	Latin Crash 1
365	Latin Crash 1 Edge
366	Latin Crash 2
367	Latin Crash 2 Edge
368	China 1
369	China 1 Edge
370	Splash
371	Splash Edge
HI-HAT	
372	14'' Acoustic Hi-hat
373	14'' Acoustic Hi-hat Edge
374	14'' Acoustic Hi-hat Pedal
375	14'' Acoustic Hi-hat Splash
376	14'' Standard Hi-hat
377	14'' Standard Hi-hat Edge
378	14'' Standard Hi-hat Pedal
379	14'' Standard Hi-hat Splash
380	Brush Hi-hat
381	Brush Hi-hat Pedal
382	Brush Hi-hat Splash
383	14'' Rock Hi-hat 1
384	14'' Rock Hi-hat Edge 1
385	14'' Rock Hi-hat Pedal 1
386	14'' Rock Hi-hat Splash 1
387	14'' Jazz Hi-hat
388	14'' Jazz Hi-hat Edge
389	14'' Jazz Hi-hat Pedal
390	14'' Jazz Hi-hat Splash
391	14'' Rock Hi-hat 2
392	14'' Rock Hi-hat Edge 2
393	14'' Rock Hi-hat Pedal 2
394	14'' Rock Hi-hat Splash 2
395	808 Hi-hat
396	808 Hi-hat Pedal
397	808 Hi-hat Splash
398	909 Hi-hat
399	909 Hi-hat Pedal
400	909 Hi-hat Splash
401	Dance Hi-hat
402	Dance Hi-hat Pedal
403	Dance Hi-hat Splash
404	Lo-Fi Hi-hat
405	Lo-Fi Hi-hat Edge
406	Lo-Fi Hi-hat Pedal
407	Lo-Fi Hi-hat Splash
Percussion	
408	Maracas
409	Metronome Bell
410	Vibra-slap 1
411	Vibra-slap 2
412	Vibra-slap 3
413	Synthesis Percussion 1

No.	Name	No.	Name	No.	Name
414	Synthesis Percussion 2	450	Indian 4	486	Marimba E4
415	High Q 1	451	Indian 5	487	Marimba F4
416	High Q 2	452	Indian 6	488	Marimba Gb4
417	Low Q 1	453	Indian 7	489	Marimba G4
418	Low Q 2	454	Indian 8	490	Marimba Ab4
419	Mute Hi Conga 1	455	Indian 9	491	Marimba A4
420	Mute Hi Conga 2	456	Indian 10	492	Marimba Bb4
421	Open Hi Conga 1	457	Indian 11	493	Marimba B4
422	Open Hi Conga 2	458	Indian 12	494	Marimba C5
423	Low Conga	459	Indian 13	495	Marimba Db5
424	High Bongo	460	Indian 14	496	Marimba D5
425	Low Bongo	461	Indian 15	497	Marimba Eb5
426	High Timbale 1	462	Indian 16	498	Marimba E5
427	High Timbale 2	463	Indian 17	499	Marimba F5
428	High Timbale 2 Rim	464	African 1	500	Marimba Gb5
429	High Timbale 3	465	African 2	501	Marimba G5
430	High Timbale 3 Rim	466	African 3	502	Marimba Ab5
431	Low Timbale 1	467	African 4	503	Marimba A5
432	Low Timbale 2	468	African 5	504	Marimba Bb5
433	Low Timbale 2 Rim	469	African 6	505	Marimba B5
434	Low Timbale 3	470	African 7	506	Marimba C6
435	Low Timbale 4	471	African 8	507	Orchestra Timpani C2
436	High Agogo	472	African 9	508	Orchestra Timpani Db2
437	Low Agogo	473	African 10	509	Orchestra Timpani D2
438	Claves	474	African 11	510	Orchestra Timpani Eb2
439	Jingle Bell	475	African 12	511	Orchestra Timpani E2
440	Cowbell	476	African 13	512	Orchestra Timpani F2
441	Bell Tree 1	477	African 14	513	Orchestra Timpani Gb2
442	Bell Tree 2	478	African 15	514	Orchestra Timpani G2
443	Tambourine	479	African 16	515	Orchestra Timpani Ab2
444	Cabasa	480	Marimba C3	516	Orchestra Timpani A2
445	Long Guiro	481	Marimba A3	517	Orchestra Timpani Bb2
446	Short Guiro	482	Marimba C4	518	Orchestra Timpani B2
447	Indian 1	483	Marimba Db4	519	Orchestra Timpani C3
448	Indian 2	484	Marimba D4	520	Orchestra Timpani Db3
449	Indian 3	485	Marimba Eb4	521	Orchestra Timpani D3

No.	Name	No.	Name	No.	Name
522	Orchestra Timpani Eb3	536	FX 5	**HI-HAT Combination**	
523	Orchestra Timpani E3	537	FX 6	551	Acoustic
524	Orchestra Timpani F3	538	FX 7	552	Funk Band
525	Orchestra Timpani Gb3	539	FX 8	553	Standard
526	Orchestra Timpani G3	540	FX 9	554	Jazz
527	Orchestra Timpani Ab3	541	FX 10	555	Jazz Brush
528	Orchestra Timpani A3	542	FX 11	556	Rock
529	Orchestra Timpani Bb3	543	FX 12	557	808
530	Orchestra Timpani B3	544	FX 13	558	909
531	Orchestra Timpani C4	545	FX 14	559	Dance
FX		546	FX 15	560	Marimba
532	FX 1	547	FX 16	561	Indian
533	FX 2	548	FX 17	562	African
534	FX 3	549	FX 18	563	Lo-Fi
535	FX 4	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
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
Pattern LOOP			29	Punk	Punk	58	Shuffle	Shuffle
1	Blues Funk	BluesFk	30	8Beat 1	8Beat1	59	Gtr Bossa	GtrBossa
2	Fusion	Fusion	31	Disco House	DisHouse	60	Latin Dance	LtnDance
3	Cool Jazz	CoolJazz	32	3/4 Folk	3/4Folk	**PERC LOOP**		
4	Ballad	Ballad	33	Samba 2	Samba2	61	Indonesia	Indonesi
5	Samba1	Samba1	34	Latin Rock	LatinRk	62	Latin	Latin
6	Retro Hip-Hop	ReHipHop	35	Reggae 2	Reggae2	63	Bossa	Bossa
7	Nu Jazz Funk	NuJazzFk	36	Dance	Dance	64	Samba	Samba
8	Soul	Soul	37	Country Pop	CtryPop	65	3/4 Pop	3/4Pop
9	R&B	R&B	38	Country	Country	66	Pop	Pop
10	Big Band 1	BigBand1	39	Rock Ballad	RkBallad	67	Jazz	Jazz
11	Ska	Ska	40	DancePop	DancePop	68	Reggae 1	Reggae1
12	Classic Rock	ClassRk	41	Bebop	Bebop	69	Reggae 2	Reggae2
13	Hardcore Hip-Hop	HaHipHop	42	Rock N'Roll	R'N'R	70	Latin Rock	LtnRock
14	Retro Dance Pop	DancePop	43	Band Jazz	BandJazz	**HIT**		
15	Nu-Metal	Nu-Metal	44	Blues	Blues	71	New Age Tap 1	NewAgeT1
16	Salsa	Salsa	45	3/4 Jazz	3/4Jazz	72	New Age Tap 2	NewAgeT2
17	Eu Hip-Hop	EuHipHop	46	80's Metal	80'sMetl	73	Atmosphere Tap 3	AtmospT3
18	Bossa Nova	Bossa	47	Drum N'Bass	D'N'B	74	Atmosphere Of Celiet Tap 4	AtmCelT4
19	Fusion 2	Fusion2	48	6/8 Soul	6/8Soul	75	Polysynth Tap 5	PolysT5
20	8Beat Pop	8BeatPop	49	Latin Swing	LtnSwing	76	Brass Tap 6	BrassT6
21	Jazzy Funk	JazzyFk	50	Funk	Funk	**TAP**		
22	Swing Big Band	SwBiBand	51	Break Beat	BrkBeat	77	Bass Tap 1	BassT1
23	Reggae 1	Reggae1	52	Latin Jazz	LtnJazz	78	Synth Bass Tap 2	SynBasT2
24	60's Pop	60'sPop	53	TripHop	TripHop	79	Bass Tap 3	BassT3
25	Retro Funk	RetroFk	54	Brit Pop	Britpop	80	Bass Tap 4	BassT4
26	Trance	Trance	55	Neo-Thrash	Neo-Thra	81	Bass Tap 5	BassT5
27	Heavy Rock	HavyRock	56	BigBand 2	BigBand2	82	Swing Bass Tap 6	SwgBasT6
28	Swing	Swing	57	Mambo	Mambo	83	Crystal Tap 1	CrystlT1

No.	Name	Display	No.	Name	Display	No.	Name	Display
84	Brightness Tap 2	BrightT2	90	Rain Tap 2	RainT2	96	Sci-fi Tap 2	Sci-fiT2
85	Vibraphone Tap 3	VibraT3	91	Lead Tap 3	LeadT3	97	Square Tap 3	SqureT3
86	Brightness Tap 4	BrightT4	92	Sci-fi Tap 4	Sci-fiT4	98	FX8 Tap 4	FX8T4
87	Sawtooth Tap 5	SawT5	93	Soundtrack Tap 5	SndtrkT5	99	Rain Tap 5	RainT5
88	Funk Gtslide Tap 6	FunkGtT6	94	Funk Gtnote Tap 6	FunkGtT6	100	Funk Gtcut Tap 6	FunkGtT6
89	Brightness Tap 1	BrightT1	95	Pad Tap 1	PadT1			

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	
	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

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

11.5 General MIDI Backing Instrument List

No.	Name	No.	Name	No.	Name
Piano		31	Distortion Guitar	61	French Horn
1	Acoustic Grand Piano	32	Guitar Harmonics	62	Brass Section
2	Bright Acoustic Piano	**Bass**		63	Synth Brass 1
3	Electric Grand Piano	33	Acoustic Bass	64	Synth Brass 2
4	Honky-Tonk Piano	34	Finger Bass	**Reed**	
5	Electric Piano 1	35	Pick Bass	65	Soprano Sax
6	Electric Piano 2	36	Fretless Bass	66	Alto Sax
7	Harpsichord	37	Slap Bass 1	67	Tenor Sax
8	Clavi	38	Slap Bass 2	68	Baritone Sax
Mallet		39	Synth Bass 1	69	Oboe
9	Celesta	40	Synth Bass 2	70	English Horn
10	Glockenspiel	**Strings**		71	Bassoon
11	Music Box	41	Violin	72	Clarinet
12	Vibraphone	42	Viola	**Pipe**	
13	Marimba	43	Cello	73	Piccolo
14	Xylophone	44	Contrabass	74	Flute
15	Tubular Bells	45	Tremolo Strings	75	Recorder
16	Dulcimer	46	Pizzicato Strings	76	Pan Flute
Organ		47	Orchestral Harp	77	Blown Bottle
17	Drawbar Organ	48	Timpani	78	Shakuhachi
18	Percussive Organ	**Strings Ensemble**		79	Whistle
19	Rock Organ	49	String Ensembles 1	80	Ocarina
20	Church Organ	50	String Ensembles 2	**Synth Lead**	
21	Reed Organ	51	Synth Strings 1	81	Lead 1 (square)
22	Accordion	52	Synth Strings 2	82	Lead 2 (sawtooth)
23	Harmonica	53	Choir Aahs	83	Lead 3 (calliope)
24	Tango Accordion	54	Voice Oohs	84	Lead 4 (chiff)
Guitar		55	Synth Voice	85	Lead 5 (charang)
25	Nylon Guitar	56	Orchestra Hit	86	Lead 6 (voice)
26	Steel Guitar	**Brass**		87	Lead 7 (fifths)
27	Jazz Guitar	57	Trumpet	88	Lead 8 (bass + lead)
28	Clean Guitar	58	Trombone	**Pad**	
29	Muted Guitar	59	Tuba	89	Pad 1 (new age)
30	Overdriven Guitar	60	Muted Trumpet	90	Pad 2 (warm)

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

Note	Standard 1 (bank 0)	Standard 2 (bank 4)	Room (bank 8)	Rock (bank 16)	Funk (bank 17)
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	<-	<-	<-	<-
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	<-	<-	<-	<-

Note	Standard 1 (bank 0)	Standard 2 (bank 4)	Room (bank 8)	Rock (bank 16)	Funk (bank 17)
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	<-	<-	<-	<-	<-
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

Note	Electronic (bank 24)	808 (bank 25)	House (bank 28)	Jazz (bank 32)	Brush (bank 40)
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	<-	<-	<-
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	<-	<-	<-	<-	<-

Note	Electronic (bank 24)	808 (bank 25)	House (bank 28)	Jazz (bank 32)	Brush (bank 40)
84 – C6	<-	<-	<-	<-	<-
85 – C#6	<-	<-	<-	<-	<-
86 – D6	<-	<-	<-	<-	<-
87 – D#6	<-	<-	<-	<-	<-