

Millenium



MPS-425
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
Internet: www.thomann.de

28.09.2015, ID: 360238

Table of contents

1	General information.....	5
1.1	Further information.....	6
1.2	Notational conventions.....	7
1.3	Symbols and signal words.....	9
2	Safety instructions.....	11
3	Features.....	14
4	Installation.....	16
5	Connections and operating elements.....	19
6	Operating.....	27
6.1	Functions.....	27
6.2	Playing the drum kit.....	29
6.3	Metronome function.....	32
6.4	Drum kits.....	34
6.5	Playing, customising and accompanying Styles.....	39
6.6	Utility menu.....	41

6.7	Recording functions.....	46
7	Technical specifications.....	50
8	Plug and connection assignment.....	52
9	Cleaning.....	54
10	Protecting the environment.....	55
11	Appendix.....	56
11.1	Song list.....	56
11.2	Kit list.....	63
11.3	Drum Voice list.....	65
11.4	MIDI implementation.....	96
11.5	General MIDI Backing Instrument List.....	100
11.6	General MIDI Drum Kit List.....	108

1 General information

This manual contains important instructions for the safe operation of the unit. Read and follow the safety instructions and all other instructions. Keep the manual for future reference. Make sure that it is available to all those using the device. If you sell the unit please make sure that the buyer also receives this manual.

Our products are subject to a process of continuous development. Thus, they are subject to change.

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 8.*

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.



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

- 380 Voices
- 82 Styles
- 25 preprogrammed drum kits, 5 freely programmable user kits
- Metronome
- Reverb effect, 3-band EQ
- Backlit LCD
- Connectivity options:
 - USB
 - MIDI
 - additional Crash pad
 - AUDIO out
 - AUX in
 - Headphones
- 1 × stereo mesh head pad (Snare)
- 5 × mono pads (Bass drum, Toms, Hi-hat)
- 2 × cymbal pads with Choke function (Crash, Ride)

- Hi-hat controller and Bass drum pedal
- Convenient switching between left-handed and right-handed configuration

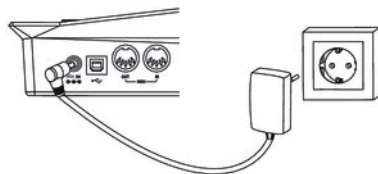
4 Installation

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 connecting cables are correctly connected between the pads and the drum module.

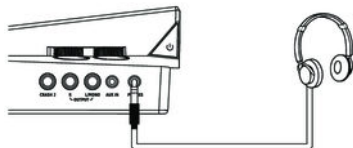
Connecting the power adapter

Connect the included power adapter to the 9V connector of the unit and then plug the power adapter into a wall outlet.



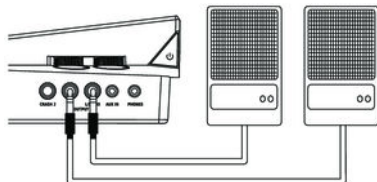
Connecting headphones

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



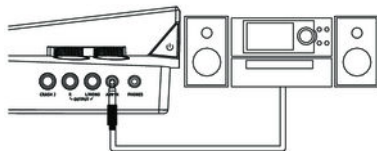
Connecting audio devices

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 output L / MONO socket of the module.



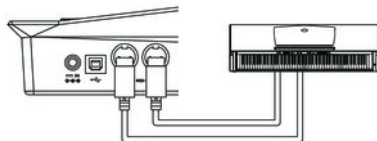
Connecting a CD or MP3 player

Connect your CD or MP3 player to the input socket AUX IN of the drum module.



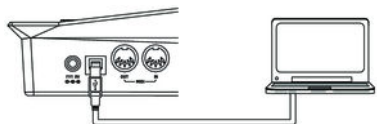
Connecting MIDI devices

Connect external MIDI devices to the MIDI IN / OUT sockets of the drum module.



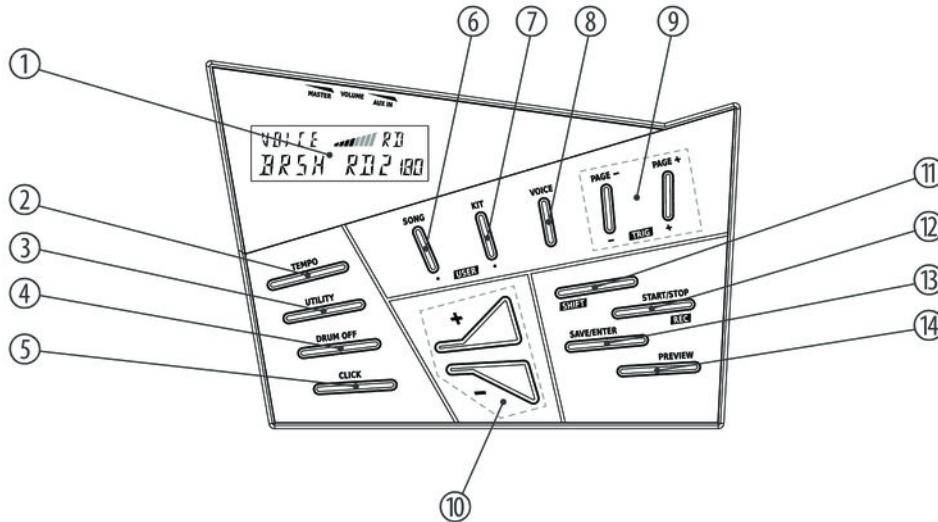
Connecting USB devices

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



5 Connections and operating elements

Front panel



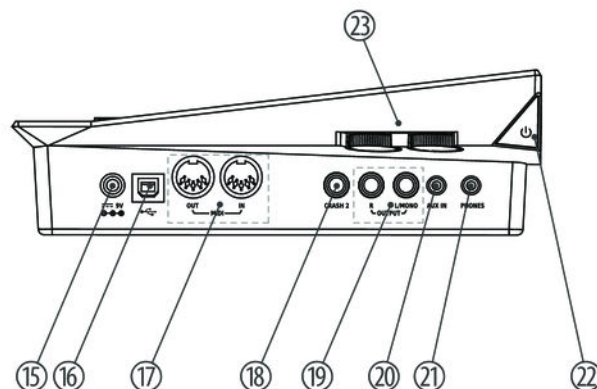
MPS-425

1	Display
2	<i>[TEMPO]</i> Button to adjust metronome and playback tempo.
3	<i>[UTILITY]</i> Button to open the Utility menu.
4	<i>[DRUM OFF]</i> Button to mute the drum part of the playing Style or kit.
5	<i>[CLICK]</i> Button to turn the metronome on and off.
6	<i>[SONG]</i> Button to open the <i>[SONG]</i> . Here you can select a Style from the device memory.

	<i>[SHIFT] + [SONG]</i> Key combination to open the <i>[USER SONG]</i> selection. Here you can select one of a maximum of five user recordings from the device memory.
7	<i>[KIT]</i> Button to open the <i>[KIT]</i> selection. Here you can select a drum kit (preset) from the device memory.
	<i>[SHIFT] + [KIT]</i> Key combination to open the <i>[USER KIT]</i> selection. Here you can select one of a maximum of five user presets from the device memory.
8	<i>[VOICE]</i> Button to open the <i>[VOICE]</i> selection.
9	<i>[PAGE + -]</i> Buttons to scroll forwards and backwards in the various menus.
	<i>[SHIFT] + [TRIG + -]</i> Key combination to open the <i>[PAD]</i> selection. Here you can select one of the connected trigger.

10	<i>[+ -]</i> Keys to increase or decrease the currently displayed value.
11	<i>[SHIFT]</i> Shift key to activate the secondary function of a button.
12	<i>[START STOP]</i> Button to start and stop song playback.
	<i>[SHIFT] + [REC]</i> Key combination to activate the recording function.
13	<i>[SAVE ENTER]</i> Button to store settings.
14	<i>[PREVIEW]</i> Button to play a pad Voice.

Rear panel

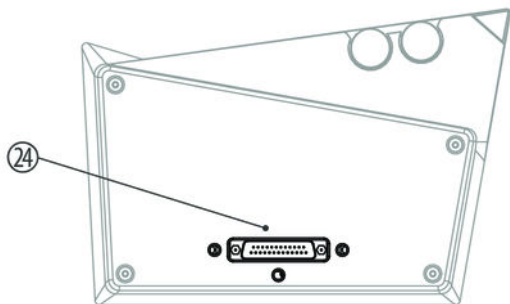


MPS-425

15	Connection socket for the power adapter.
16	Connection socket for USB cable.
17	<i>[MIDI OUT IN]</i> Connection sockets for an external MIDI device.
18	<i>[CRASH 2]</i> Connection socket for an additional Crash pad.
19	<i>[OUTPUT R L / MONO]</i> Output for external audio devices.
20	<i>[AUX IN]</i> Input for external audio devices like MP3 or CD players.
21	<i>[PHONES]</i> Connection socket for headphones.

22	Main switch. Turns the device on and off.
23	<i>[MASTER] [AUX IN]</i> Rotary control to adjust the volume of the drum module and the AUX input.

Bottom



22

Multiple socket for connecting the pads.

6 Operating

6.1 Functions

Switching on



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

Turn the drum module on using the main switch [POWER] at the bottom of the unit.



Automatic shutoff

- *When the device is not used it automatically shuts off by default after 30 minutes.*
- *You can adjust or deactivate the automatic shutoff in the [UTILITY] menu.*

Reset to factory defaults

- 1.** ➤ Simultaneously keep the buttons **[–]** and **[+]** pressed.
- 2.** ➤ Press **[POWER]**.
 - ⇒ The display shows **'FACRESET'** until the reset is finished.

Adjusting the volume

To adjust the volume strike a pad while turning the volume control **[VOLUME]** slowly clockwise.

Selecting a drum kit

A drum kit is a compilation in which a certain sound and several sound parameters are assigned to each trigger. Selecting different drum kits lets you customise the sound of your e-drum sets in seconds to the desired music genre. Besides the 25 preinstalled drum kits and nine GM drum kits you can also create and store five user drum kits (see [🔗 Chapter 11.2 'Kit list' on page 63](#) and [🔗 Chapter 11.6 'General MIDI Drum Kit List' on page 108](#)).

- 1.** ➤ Press **[KIT]**.
 - ⇒ The display shows the current kit name and number.
- 2.** ➤ Use the buttons **[–]** and **[+]** to select the desired kit.

Selecting Voices.

You can change the Voices assigned to the pads to your liking.

1. ➤ Press *[VOICE]* on the drum module.
⇒ The 'VOICE' menu is being opened.
2. ➤ Hit the pad whose voice you want to change or press *[SHIFT] + [PAGE+] / [PAGE-]*.
⇒ The name of the current pad is displayed.
3. ➤ Hit the respective pad and use the buttons *[-]* and *[+]* to select the desired Voice (see  *Chapter 11.3 'Drum Voice list' on page 65*).

6.2 Playing the drum kit

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.

■ Pad

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.

■ Cymbal

With cymbals we distinguish between Cymbal Bowshot and Choke Play.

- Cymbal Bowshot

Play the bell area of the cymbal.

- Choke Play

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.

6.3 Metronome function

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

Settings

➡ Via the buttons *[PAGE +]* and *[PAGE -]* you get to the next or previous parameter (see following table).

⇒ The parameter setting can be changed with the buttons *[+]* and *[-]*.

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

Parameter, display	Description	Value range
NAME	Name and number of the corresponding Click voice	1 ... 6
VOLUME	Click volume	0 ... 16
TEMPO	Beats per minute	30 ... 280
TIME SIGNATURE	Emphasis on beats	0 ... 9/2, 0 ... 9/4, 0 ... 9/8, 0 ... 9/16
INTERVAL	Beats per measure	1/2, 3/8, 1/4, 1/8, 1/12, 1/16

6.4 Drum kits

A drum kit is a compilation in which a certain sound (Voice) and several sound parameters are assigned to each trigger. Selecting different drum kits lets you customise the sound of your drum kit in seconds to the desired music genre. Besides the 25 preprogrammed drum kits (↪ *Chapter 11.2 'Kit list' on page 63*) you can also create, customise and save five user drum kits.

Selecting a drum kit

➡ Press *[KIT]*.

⇒ The display shows the number and name of the currently selected drum kit.

Customising a drum kit

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

—▶ Select the desired drum kit with the buttons *[PAGE +]* or *[PAGE -]*. The selected drum kit is immediately active.

⇒ The parameter setting can be changed with the buttons *[+]* and *[-]*.

Parameter, display	Description	Value range
KIT NAME	Drum kit selection	Preset 1 ... 25 User: 5
VOLUME	Volume of the pads of the drum kit	0 ... 16
EQ HIGH	Boost / cut of the high EQ frequencies	-12 ... 12
EQ MID	Boost / cut of the mid EQ frequencies	-12 ... 12
EQ LOW	Boost / cut of the low EQ frequencies	-12 ... 12

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 *[VOICE]*.
⇒ The display shows the 'VOICE' menu.
2. ➤ Press *[TRIG +]* or *[TRIG -]* or play on the pad whose parameters you want to change.
3. ➤ Use the buttons *[PAGE +]* or *[PAGE -]* to select the parameter you want to change.
⇒ The parameter setting can be changed with the buttons *[+]* and *[-]*.

Parameter, display	Description	Value range	Trigger
VOICE NAME	Voice assigned to the trigger	1 ... 380	KI (KICK)
VOLUME	Volume	0... ...16	SN (Snare)
PAN	Trigger position within the stereo signal (panorama right / left)	-8... ...8	SNR (Snare rim) T1 (Tom 1)

Parameter, display	Description	Value range	Trigger
PITCH	Pitch	-8 ... 8	T2 (Tom 2)
REVERB	Reverb	0... ..16	T3 (Tom 3)
DECAY	Decay	-5... ..0	HH (Hi-hat) C1 (Crash 1) RD (Ride) C2 (Crash 2) PS (Hi-hat Splash)
NOTE	MIDI note assigned to the trigger	0... ..127	
PAD SONG	Pattern, Style	0 ... 82, Off	



*Besides playing the pads, you can also press [PREVIEW] to select the various Voices.
The volume depends on how hard you press the button.*

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/ENTER]*.
⇒ 'SV' and the number and name of the first user kit appear on the display.
- 2.** ➤ Use the buttons *[+]* or *[-]* to select the user kit you want to assign the settings of the preset kit to.
- 3.** ➤ Confirm the change with *[SAVE/ENTER]*.
⇒ The display briefly shows 'SAVE OK!'. Then the original kit is displayed with the new name and the new memory location. 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 Styles

Style selection

Your digital drum set features a total of 82 preprogrammed Styles. Style '001' is displayed by default when the drum module is turned on.

1. ➤ Press *[SONG]*.
 - ⇒ The name and number of the current Style appear in the display.
2. ➤ Use the buttons *[PAGE-]* and *[+]* to select the desired Style (see  *further information on page 56*).
 - ⇒ The parameter setting can be changed with the buttons *[+]* and *[-]*.

3. ➤ Press *[START / STOP]* to play or stop Patterns and Styles.

Parameter, display	Description	Value range
SONG NAME	Pattern, Style	1... ..82
ACCOMPANIMENT VOLUME	Preset Style volume.	0... ..16
DRUM VOLUME	Drum kit volume	0... ..16

Muting drum sound

The drum track can be muted at any time during Style playback.

1. ➤ Press *[DRUM OFF]* to mute the drum sound of the Style.
 ⇨ The indicator LED lights as long as the part is muted.
2. ➤ Press the button *[DRUM OFF]* to unmute the drum sound of the style again.

6.6 Utility menu

Press *[UTILITY]* to open the menu. With *[PAGE-/+]* you can jump between the various parameters:

Sensitivity

The touch sensitivity regulates the volume behaviour of a pad regardless of the actual strike intensity. The higher the value, the higher the volume when playing, and vice versa.

Value range: 1 ... 16.

Rim Sens

This parameter controls the touch sensitivity of the rim trigger (snare and toms).

Value range: 1 ... 16.

Threshold

The threshold value determines from what intensity a trigger produces a sound. The higher the value, the less sensitive the trigger responses to vibrations of other pads.

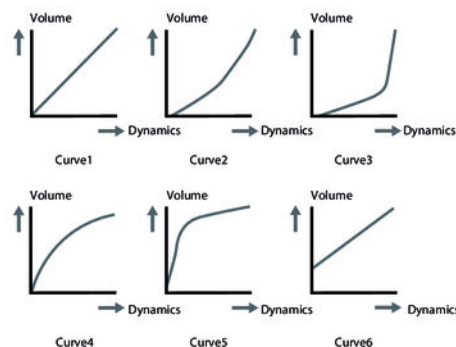
Value range: 1 ... 16.

X talk

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.

Value range: 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.

Value range: Curve 1 ... Curve 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.

Value range: 1 ... 16.

HH close

This parameter regulates the touch sensitivity of the Hi-hat controller. The higher the value, the less sensitive the trigger responses.

Value range: 0 ... 2

Splash

This parameter regulates the touch sensitivity of the Splash trigger. The higher the value, the less sensitive the trigger responses.

Value range: 1 ... 5

L-R exch

Selecting 'L' or 'R' (default setting) allows to switch from left-handed to right-handed configuration of the entire set without having to change the wiring.

Value range: L ... R

- Local** This parameter defines the signal processing in the module: ON: Drum module and MIDI sound are present at the output. OFF: Drum module is muted, only MIDI sound.
Value range: ON ... OFF
- GM mode** This parameter 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*].
Value range: ON ... OFF
- Auto Power** This parameter defines the behaviour of the automatic shutoff: Select one of the following options:
- '30' (automatic shutoff after 30 minutes)
 - '60' (automatic shutoff after 60 minutes)
 - 'OFF' (no automatic shutoff).

6.7 Recording functions

Quick record

With this function you can record your own drum track without presettings.

- 1.** ➤ Simultaneously press the buttons *[REC]* and *[SHIFT] + [START / STOP]*.
 - ⇒ The Click is automatically turned on, the indicator LEDs of the buttons *[CLICK]*, *[REC]* and *[START / STOP]* are flashing. The recording will automatically start with your playing or if you press the *[START / STOP]* button. During recording, the indicator LEDs of the buttons *[REC]* and *[PLAY / STOP]* light up.
- 2.** ➤ To exit and save the recording, press the *[START / STOP]*.
 - ⇒ The first unused user Style appears on the display.
- 3.** ➤ Use the buttons *[+]* or *[-]* to select another user Style (for example, to overwrite an existing one).

Recording via preset Styles

All preset Styles can be used as a basis for recording your own tracks.

1. ➤ Use the buttons *[PAGE +]* or *[PAGE -]* to select the list of preset Styles for which you want to record your own drum track.
2. ➤ Use the buttons *[+]* or *[-]* to select the desired preset Style.

Recording settings

1. ➤ Simultaneously press *[REC]* and *[SHIFT] + [START / STOP]* to enable the Recording mode.
 - ⇒ 'RECORD' appears on the display. The indicator LEDs of the buttons *[CLICK]* and *[REC]* are flashing.
2. ➤ Via the buttons *[PAGE -/+]* you get to the next or previous parameter (see following table).
 - ⇒ The parameter setting can be changed with the buttons *[+]* and *[-]*.
3. ➤ After setting all parameters, you can start recording instantly. To do so, press the button *[START / STOP]*.

4.  Store the recording as a new user Style.

Parameter, display	Description	Value range
U-SONG	User Style A '' before the name means that there are no recordings for the style.	001 ... 005
SONG	Preset Style	1 ... 82
KIT	Drum kit	1 ... 30
TEMPO	Tempo	30 ... 280
TIME SIGNATURE	Time signature	1 ... 9/2, 1 ... 9/4, 1 ... 9/8, 1 ... 9/16
INTERVAL	Beats per measure	1/2, 3/8, 1/4, 1/8, 1/12, 1/16
DRUM OFF	The drum part can be muted. Parts 1 ... 5 are always being overwritten.	ON/OFF
PRECOUNT	Precount function	ON/OFF

Starting and stopping recording

- 1.** ➤ Simultaneously press *[REC]* and *[SHIFT] + [START / STOP]*.
 - ⇒ The Click is automatically turned on, the indicator LEDs of the buttons *[CLICK]*, *[REC]* and *[PLAY / STOP]* are flashing. The device is now in recording mode.
- 2.** ➤ Start recording with *[START / STOP]*.
 - ⇒ The indicator LEDs of the buttons *[REC]* and *[PLAY / STOP]* are flashing during recording and 'RECORDING' appears on the display.
- 3.** ➤ Stop recording with *[START / STOP]*.
 - ⇒ The indicator LEDs of the buttons *[REC]* and *[START / STOP]* turn off. The recording is saved under the previously entered name as a new user Style in the device and will appear on the display. To play your new Style simply press the button *[START / STOP]*.



If the memory is full the display shows 'REC FULL' and the recording stops.

7 Technical specifications

Voices	380
Drum kits	25 preset kits 5 user kits
Styles	82
Connections	Headphones (1/4" phone socket) AUX in (1/4" phone socket) Audio output mono / stereo (1/4" phone socket) MIDI in, MIDI out USB out

	Multiple socket for 1 × Kick pad (mono), 1 × Snare pad (stereo), 3 × Tom pads (mono), 1 × Crash pad (mono), 1 × Ride pad (mono), 1 × Hi-hat pad (mono), 1 × Hi-hat controller
Operating supply voltage	9V power adapter 

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

1/4" TRS phone plug (mono, balanced)



1	Signal (in phase, +)
2	Signal (out of phase, -)
3	Ground

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). 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 Song list

No.	Name	Display
PATTERN LOOP		
001	Blues Funk	BLUESFK
002	Fusion 1	FUSION 1
003	Cool Jazz	COOLJAZZ
004	Ballad	BALLAD
005	Samba1	SAMBA 1
006	Vintage Hip-Hop	VTHIPHOP
007	Nu Jazz Funk	NUJAZZFK
008	Soul	SOUL

No.	Name	Display
009	R&B	RNB
010	Big Band 1	BIGBAND1
011	Ska	SKA
012	Classic Rock	CLASSRK
013	Hardcore Hip-Hop	HCHIPHOP
014	Vintage Dance Pop	VTGDANCE
015	Nu-Metal	NU-METAL
016	Salsa	SALSA
017	Euro Hip-Hop	EUHIPHOP
018	Bossa Nova	BOSSA
019	Fusion 2	FUSION2
020	8Beat Pop 1	8BEATP1
021	Jazzy Funk	JAZZYFK

No.	Name	Display
022	Swing Big Band	SWBGBAND
023	Reggae 1	REGGAE 1
024	60's Pop	60'S POP
025	Vintage Funk	VTGFUNK
026	Trance	TRANCE
027	Heavy Rock	HEAVYRK
028	Swing	SWING
029	Punk	PUNK
030	8BeatPop 2	8BEATP2
031	Disco House	DISCOHOU
032	3/4 Folk	3/4 FOLK
033	Samba 2	SAMBA 2
034	Latin Rock	LATINRK

No.	Name	Display
035	Reggae 2	REGGAE 2
036	Dance	DANCE
037	Country Pop	CTRYPOP
038	Country	COUNTRY
039	Rock Ballad	RKBALLAD
040	DancePop	DANCEPOP
041	Bebop	BEBOP
042	Rock N'Roll	R'N'R
043	Band Jazz	BANDJAZZ
044	Blues	BLUES
045	3/4 Jazz	3/4 JAZZ
046	80's Metal	80SMETAL
047	6/8 Soul	6/8SOUL

No.	Name	Display
048	Latin Jazz	LATINJAZ
049	TripHop	TRIPHOP
050	Brit Pop	BRITPOP
PERCUSSION LOOP		
051	Indonesia	INA
052	Latin	LATIN
053	Bossa	BOSSA
054	Samba	SAMBA
055	3-4 Pop	3/4 POP
056	Pop	POP
057	Jazz	JAZZ
058	Reggae 1	REGGAE 1
059	Reggae 2	REGGAE 2

No.	Name	Display
060	Latin Rock	LTNROCK
HIT		
061	New Age Tap 1	NEWAGET1
062	Atmosphere Tap 3	ATMOSPT3
063	Polysynth Tap 5	POLYST5
064	Brass Tap 6	BRASST6
065	Fx Tap 8	FXT8
TAP		
066	Bass Tap 1	BASST1
067	Bass Tap 3	BASST3
068	Bass Tap 5	BASST5
069	Swing Bass Tap 6	SWBASST6
070	Bass Tap 8	BASST8

No.	Name	Display
071	Crystal Tap 1	CRYSTLT1
072	Vibraphone Tap 3	VIBRAT3
073	Sawtooth Tap 5	SAWT5
074	Funk Gtslide Tap 6	FKGTRST6
075	Chorused Piano Tap 8	CHRPNOT8
076	Brightness Tap 1	BRIGHTT1
077	Lead Tap 3	LEADT3
078	Soundtrack Tap 5	SNDTRKT5
079	Funk Gtnote Tap 6	FKGTRNT6
080	Pad Tap 1	PADT1
081	Square Tap 3	SQURET3
082	Rain Tap 5	RAINT5

11.2 Kit list

No.	Name	No.	Name
001	KITACOUSTIC	011	FX MIX
002	FUNK	012	POWER
003	STANDARD	013	LATIN
004	BRUSH	014	MARIMBA
005	DANCE	015	PERCUSS
006	ROCK	016	METAL
007	JAZZ	017	INDIAN
008	808	018	AFRICAN
009	909	019	ELECTRIC
010	FUNKBAND	020	REGGAE

No.	Name	No.	Name
021	ORCHESTR	026	LIVE
022	SONGO	027	HOUSE
023	HIPHOP	028	JAZLATIN
024	BIG BAND	029	TECHNO
025	MAGIC	030	VINTAGE

11.3 Drum Voice list

Nr.	Name	Display
KICK		
001	22"Acoustic Kick 1	22AC K1
002	22"Acoustic Kick 2	22AC K2
003	24"Standard Kick	24STD K
004	Brush Kick 1	BRUSH K1
005	Jazz Kick	JAZZ K
006	22"Rock Kick	22ROCK K
007	Room Kick	ROOM K
008	Vintage Kick	VTG K
009	HipHop Kick	HIPHOP K
010	Reggae Kick	REGGAE K

Nr.	Name	Display
011	808 Kick	808 K
012	909 Kick	909 K
013	Electronic Kick	ELEC K
014	Power Kick	POWER K
015	Dance Kick	DANCE K
016	FX Mix Kick	FX MIX K
017	Techno Kick	TECHNO K
018	Magic Kick	MAGIC K
SNARE		
019	14"Acoustic Snare	14AC S1
020	14"Acoustic Snare Rim	14AC SR1
021	14"Standard Snare	14STD S1
022	14"Standard Snare Rim	14ST SR1

Nr.	Name	Display
023	14"Funk Snare 1	14FK S1
024	14"Funk Snare Rim 1	14FK SR1
025	14"Funk Snare 2	14FK S2
026	14"Funk Snare Rim 2	14FK SR2
027	Brush Snare 1	BRUSH S1
028	Brush Snare Rim 1	BRSR SR1
029	Brush Snare 2	BRUSH S2
030	Brush Snare Rim 2	BRSR SR2
031	14"Jazz Snare	14JAZZ S
032	14"Jazz Snare Rim	14JZ SR
033	14"Rock Snare	14ROCK S
034	14"Rock Snare Rim	14RK SR
035	13"Damped Snare	13DP S1

Nr.	Name	Display
036	Orchestra Snare	ORCH S
037	Orchestra Snare Rim	ORCH SR
038	Fusion Snare	FUSION S
039	Fusion Snare Rim	FUS SR
040	Big Band Snare	BB S
041	Big Band Snare Rim	BB SR
042	Vintage Snare	VTG S
043	Vintage Snare Rim	VTG SR
044	Live Snare	LIVE S
045	Live Snare Rim	LIVE SR
046	Reggae Snare	REGGAE S
047	Reggae Snare Rim	RG SR
048	808 Snare	808 S

Nr.	Name	Display
049	808 Snare Rim	808 SR
050	909 Snare	909 S
051	909 Snare Rim	909 SR
052	Electronic Snare	ELEC S
053	Power Snare	POWER S
054	Dance Snare	DANCE S
055	Dance Snare Rim	DANCE SR
056	House Snare	HOUSE S
057	House Snare Rim	HOUSE SR
058	Techno Snare	TECHNO S
059	Techno Snare Rim	TEK SR
060	Magic Snare	MAGIC S
061	Magic Snare Rim	MAGIC SR

Nr.	Name	Display
062	Acoustic Snare Stick	AC SX1
063	Standard Snare Stick 1	STD SX1
064	Brush Snare Stick	BRUSH SX
065	Standard Snare Stick 2	STD SX2
066	Rock Snare Stick 1	ROCK SX1
067	Rock Snare Stick 2	ROCK SX2
068	Live Snare Stick	LIVE SX
069	Fusion Snare Stick	FUS SX
070	808 Snare Stick	808 SX
071	909 Snare Stick	909 SX
072	Electronic Snare Stick	ELEC SX
073	House Snare Stick	HOUSE SX
074	Techno Snare Stick	TEK SX

Nr.	Name	Display
075	Brush Swirl	BRUSH SW
TOM		
076	Acoustic Tom 1	AC T1
077	Acoustic Tom 1 Rim	AC T1R
078	Acoustic Tom 2	AC T2
079	Acoustic Tom 2 Rim	AC T2R
080	Acoustic Tom 3	AC T3
081	Acoustic Tom 3 Rim	AC T3R
082	Acoustic Tom 4	AC T4
083	Acoustic Tom 4 Rim	AC T4R
084	Acoustic Tom 5	AC T5
085	Acoustic Tom 5 Rim	AC T5R
086	Acoustic Tom 6	AC T6

Nr.	Name	Display
087	Acoustic Tom 6 Rim	AC T6R
088	Brush Tom 1	BRUSH T1
089	Brush Tom 1 Rim	BRSH T1R
090	Brush Tom 2	BRUSH T2
091	Brush Tom 2 Rim	BRSH T2R
092	Brush Tom 3	BRUSH T3
093	Brush Tom 3 Rim	BRSH T3R
094	Brush Tom 4	BRUSH T4
095	Brush Tom 4 Rim	BRSH T4R
096	Brush Tom 5	BRUSH T5
097	Brush Tom 5 Rim	BRSH T5R
098	Brush Tom 6	BRUSH T6
099	Brush Tom 6 Rim	BRSH T6R

Nr.	Name	Display
100	Funk Tom 1	FUNK T1
101	Funk Tom 1 Rim	FUNK T1R
102	Funk Tom 2	FUNK T2
103	Funk Tom 2 Rim	FUNK T2R
104	Funk Tom 3	FUNK T3
105	Funk Tom 3 Rim	FUNK T3R
106	Funk Tom 4	FUNK T4
107	Funk Tom 4 R	FUNK T4R
108	Funk Tom 5	FUNK T5
109	Funk Tom 5 Rim	FUNK T5R
110	Funk Tom 6	FUNK T6
111	Funk Tom 6 Rim	FUNK T6R
112	Jazz Tom 1	JAZZ T1

Nr.	Name	Display
113	Jazz Tom 1 Rim	JAZZ T1R
114	Jazz Tom 2	JAZZ T2
115	Jazz Tom 2 Rim	JAZZ T2R
116	Jazz Tom 3	JAZZ T3
117	Jazz Tom 3 Rim	JAZZ T3R
118	Jazz Tom 4	JAZZ T4
119	Jazz Tom 4 Rim	JAZZ T4R
120	Jazz Tom 5	JAZZ T5
121	Jazz Tom 5 Rim	JAZZ T5R
122	Jazz Tom 6	JAZZ T6
123	Jazz Tom 6 Rim	JAZZ T6R
124	Fusion Tom 1	FUS T1
125	Fusion Tom 2	FUS T2

Nr.	Name	Display
126	Fusion Tom 3	FUS T3
127	Fusion Tom 4	FUS T4
128	1970's Tom 1	70S T1
129	1970's Tom 2	70S T2
130	1970's Tom 3	70S T3
131	1970's Tom 4	70S T4
132	808 Tom 1	808 T1
133	808 Tom 2	808 T2
134	808 Tom 3	808 T3
135	808 Tom 4	808 T4
136	808 Tom 5	808 T5
137	808 Tom 6	808 T6
138	909 Tom 1	909 T1

Nr.	Name	Display
139	909 Tom 2	909 T2
140	909 Tom 3	909 T3
141	909 Tom 4	909 T4
142	909 Tom 5	909 T5
143	909 Tom 6	909 T6
144	Electronic Tom 1	ELEC T1
145	Electronic Tom 2	ELEC T2
146	Electronic Tom 3	ELEC T3
147	Electronic Tom 4	ELEC T4
148	Electronic Tom 5	ELEC T5
149	Electronic Tom 6	ELEC T6
150	Power Tom 1	POWER T1
151	Power Tom 2	POWER T2

Nr.	Name	Display
152	Power Tom 3	POWER T3
153	Power Tom 4	POWER T4
154	Power Tom 5	POWER T5
155	Power Tom 6	POWER T6
156	Teckno Tom 1	TEK T1
157	Techno Tom 1 Rim	TEK T1R
158	Techno Tom 2	TEK T2
159	Techno Tom 2 Rim	TEK T2R
160	Techno Tom 3	TEK T3
161	Techno Tom 3 Rim	TEK T3R
162	Techno Tom 4	TEK T4
163	Techno Tom 4 Rim	TEK T4R
164	Techno Tom 5	TEK T5

Nr.	Name	Display
165	Techno Tom 5 Rim	TEK T5R
166	Techno Tom 6	TEK 6
167	Techno Tom 6 Rim	TEK T6R
168	Magic Tom 1	MAGIC T1
169	Magic Tom 1 Rim	MAGC T1R
170	Magic Tom 2	MAGIC T2
171	Magic Tom 2 Rim	MAGC T2R
172	Magic Tom 3	MAGIC T3
173	Magic Tom 3 Rim	MAGC T3R
174	Magic Tom 4	MAGIC T4
175	Magic Tom 4 Rim	MAGC T4R
RIDE		
176	21" Acoustic Ride	21AC RD

Nr.	Name	Display
177	21" Acoustic Ride Edge	21AC RDE
178	21" Acoustic Ride Bell	21AC RDB
179	Brush Ride 1	BRSH RD1
180	Brush Ride 2	BRSH RD2
181	20" Funk Ride	20FK RD
182	20" Funk Ride Edge	20FK RDE
183	20" Funk Ride Bell	20FK RDB
184	20" Rock Ride	20RK RD
185	20" Rock Ride Edge	20RK RDE
186	20" Rock Ride Bell	20RK RDB
187	808 Ride	808 RD
188	20" Room Ride	20RM RD
189	20" Room Ride Edge	20RM RDE

Nr.	Name	Display
190	20" Room Ride Bell	20RM RDB
191	20" Metal Ride	20MT RD
192	20" Metal Ride Edge	20MT RDE
193	20" Metal Ride Bell	20MT RDB
194	House Ride	HOUSE RD
195	House Ride Edge	HOUS RDE
196	House Ride Bell	HOUS RDB
197	Lo-Fi Ride	LOFI RD
198	Lo-Fi Ride Edge	LOFI RDE
199	Lo-Fi Ride Bell	LOFI RDB
200	Junkyard Ride	JKYD RD
201	Junkyard Ride Edge	JKYD RDE
202	Junkyard Ride Bell	JKYD RDB

Nr.	Name	Display
CRASH		
203	16" Acoustic Crash 1	AC C1
204	16" Acoustic Crash 1 Edge	AC C1E
205	16" Acoustic Crash 2	AC C2
206	16" Acoustic Crash 2 Edge	AC C2E
207	16" Standard Crash 1	STD C1
208	16" Standard Crash 1 Edge	STD C1E
209	16" Standard Crash 2	STD C2
210	16" Standard Crash 2 Edge	STD C2E
211	Brush Crash 1	BRUSH C1
212	Brush Crash 2	BRUSH C2
213	Funk Crash 1	FUNK C1
214	Funk Crash 1 Edge	FUNK C1E

Nr.	Name	Display
215	Funk Crash 2	FUNK C2
216	Funk Crash 2 Edge	FUNK C2E
217	19" Jazz Crash 1	JAZZ C1
218	19" Jazz Crash 1 Edge	JAZZ C1E
219	19" Jazz Crash 2	JAZZ C2
220	19" Jazz Crash 2 Edge	JAZZ C2E
221	Rock Crash 1	ROCK C1
222	Rock Crash 1 Edge	ROCK C1E
223	Rock Crash 2	ROCK C2
224	Rock Crash 2 Edge	ROCK C2E
225	808Crash	808 C
226	909Crash 1	909 C1
227	909Crash 2	909 C2

Nr.	Name	Display
228	Electronic Crash 1	ELEC C1
229	Electronic Crash 2	ELEC C2
230	Orchestra Crash	ORCH C
231	Room Crash	ROOM C
232	Room Crash Edge	ROOM CE
233	Vintage Crash 1	VTG C1
234	Vintage Crash 1 Edge	VTG C1E
235	Vintage Crash 2	VTG C2
236	Vintage Crash 2 Edge	VTG C2E
237	Big Band Crash 1	BB C1
238	Big Band Crash 1 Edge	BB C1E
239	Big Band Crash 2	BB C2
240	Big Band Crash 2 Edge	BB C2E

Nr.	Name	Display
241	Techno Crash 1	TEK C1
242	Techno Crash 1 Edge	TEK C1E
243	Techno Crash 2	TEK C2
244	Techno Crash 2 Edge	TEK C2E
245	Latin Crash 1	LATIN C1
246	Latin Crash 1 Edge	LATN C1E
247	Latin Crash 2	LATIN C2
248	Latin Crash 2 Edge	LATN C2E
249	China 1	CHINA1
250	China 1 Edge	CHINA1 E
251	Splash	SPLASH
252	Splash Edge	SPLASH E
HIHAT		

Nr.	Name	Display
253	14" Acoustic Hi-hat	14AC HH
254	14" Acoustic Hi-hat Edge	14AC HHE
255	14" Acoustic Hi-hat Pedal	14AC HHP
256	14" Acoustic Hi-hat Splash	14AC HHS
257	14" Standard Hi-hat	14STD HH
258	14" Standard Hi-hat Edge	14ST HHE
259	14" Standard Hi-hat Pedal	14ST HHP
260	14" Standard Hi-hat Splash	14ST HHS
261	Brush Hi-hat	BRUSH HH
262	Brush Hi-hat Pedal	BRSH HHP
263	Brush Hi-hat Splash	BRSH HHS
264	14" Rock Hi-hat	14RK HH
265	14" Rock Hi-hat Edge	14RK HHE

Nr.	Name	Display
266	14" Rock Hi-hat Pedal	14RK HHP
267	14" Rock Hi-hat Splash	14RK HHS
268	808 Hi-hat	808 HH
269	808 Hi-hat Pedal	808 HHP
270	808 Hi-hat Splash	808 HHS
271	909 Hi-hat	909 HH
272	909 Hi-hat Pedal	909 HHP
273	909 Hi-hat Splash	909 HHS
274	Dance Hi-hat	DANCE HH
275	Dance Hi-hat Pedal	DANC HHP
276	Dance Hi-hat Splash	DANC HHS
PERCUSSION		
277	Maracas	MARACAS

Nr.	Name	Display
278	Metronome Bell	METRO BL
279	Mute Hi Conga 1	M CONGA1
280	Open Hi Conga 1	O CONGA1
281	Low Conga	LO CONGA
282	High Bongo	HI CONGA
283	Low Bongo	LO BONGO
284	High Timbale 1	HI TIMB1
285	High Timbale 1 Rim	HI TIM1R
286	High Timbale 2	HI TIMB2
287	High Timbale 2 Rim	HI TIM2R
288	Low Timbale 1	LO TIMB1
289	Low Timbale 2	LO TIMB2
290	Low Timbale 3	LO TIMB3

Nr.	Name	Display
291	High Agogo	HI AGOGO
292	Low Agogo	LO AGOGO
293	Claves	CLAVES
294	Jingle Bell	JINGL BL
295	Cowbell	COWBELL
296	Bell Tree 1	BL TREE1
297	Bell Tree 2	BL TREE2
298	Tambourine	TAMBORIN
299	Cabasa	CABASA
300	Long Guiro	L GUIRO
301	Short Guiro	S GUIRO
302	Indian 1	INDIAN1
303	Indian 2	INDIAN2

Nr.	Name	Display
304	Indian 3	INDIAN3
305	Indian 4	INDIAN4
306	Indian 5	INDIAN5
307	Indian 6	INDIAN6
308	Indian 7	INDIAN7
309	Indian 8	INDIAN8
310	Indian 9	INDIAN9
311	Indian 10	INDIAN10
312	Indian 11	INDIAN11
313	Indian 12	INDIAN12
314	Indian 13	INDIAN13
315	Indian 14	INDIAN14
316	Indian 15	INDIAN15

Nr.	Name	Display
317	Indian 16	INDIAN16
318	Indian 17	INDIAN17
319	African 1	AFRICA1
320	African 2	AFRICA2
321	African 3	AFRICA3
322	African 4	AFRICA4
323	African 5	AFRICA5
324	African 6	AFRICA6
325	African 7	AFRICA7
326	African 8	AFRICA8
327	African 9	AFRICA9
328	African 10	AFRICA10
329	African 11	AFRICA11

Nr.	Name	Display
330	African 12	AFRICA12
331	African 13	AFRICA13
332	African 14	AFRICA14
333	African 15	AFRICA15
334	African 16	AFRICA16
335	African 17	AFRICA17
336	Marimba C3	MARMB C3
337	Marimba A3	MARMB A3
338	Marimba C4	MARMB C4
339	Marimba Db4	MARB Db4
340	Marimba D4	MARMB D4
341	Marimba Eb4	MARB Eb4
342	Marimba E4	MARMB E4

Nr.	Name	Display
343	Marimba F4	MARMB F4
344	Marimba Gb4	MARB Gb4
345	Marimba G4	MARMB G4
346	Marimba Ab4	MARB Ab4
347	Marimba A4	MARMB A4
348	Marimba Bb4	MARB Bb4
349	Marimba B5	MARMB B5
350	Marimba C5	MARMB C5
351	Orchestra Timp C2	ORCHT C2
352	Orchestra Timp D2	ORCHT D2
353	Orchestra Timp E2	ORCHT E2
354	Orchestra Timp F2	ORCHT F2
355	Orchestra Timp G2	ORCHT G2

Nr.	Name	Display
356	Orchestra Timp A2	ORCHT A2
357	Orchestra Timp B2	ORCHT B2
358	Orchestra Timp C3	ORCHT C3
FX		
359	FX 1	FX1
360	FX 2	FX2
361	FX 3	FX3
362	FX 4	FX4
363	FX 5	FX5
364	FX 6	FX6
365	FX 7	FX7
366	FX 8	FX8
367	FX 9	FX9

Nr.	Name	Display
368	FX 10	FX10
369	FX 11	Fx11
370	FX 12	Fx12
371	FX 13	FX13
372	FX 14	FX14
373	FX 15	FX15
374	FX 16	FX16
375	FX 17	FX17
376	FX 18	FX18
377	FX 19	FX19
378	FX 20	FX20
379	FX 21	FX21
380	MUTE	MUTE

Nr.	Name	Display
HIHAT COMBINATION		
381	Acoustic	ACOUSTIC
382	Standard	STANDARD
383	JazBrush	BRUSH
384	Rock	ROCK
385	808	808
386	909	909
387	Dance	DANCE
388	Marimba	MARIMBA
389	Indian	INDIAN
390	African	AFRICAN

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	

Function		Transmitted	Recognized	Remarks
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

Function		Transmitted	Recognized	Remarks
	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	

Function		Transmitted	Recognized	Remarks
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
Piano		Mallet	
1	Acoustic Grand Piano	9	Celesta
2	Bright Acoustic Piano	10	Glockenspiel
3	Electric Grand Piano	11	Music Box
4	Honky-Tonk Piano	12	Vibraphone
5	Electric Piano 1	13	Marimba
6	Electric Piano 2	14	Xylophone
7	Harpsichord	15	Tubular Bells
8	Clavi	16	Dulcimer

No.	Name	No.	Name
Organ		Guitar	
17	Drawbar Organ	25	Nylon Guitar
18	Percussive Organ	26	Steel Guitar
19	Rock Organ	27	Jazz Guitar
20	Church Organ	28	Clean Guitar
21	Reed Organ	29	Muted Guitar
22	Accordion	30	Overdriven Guitar
23	Harmonica	31	Distortion Guitar
24	Tango Accordion	32	Guitar Harmonics

No.	Name	No.	Name
Bass		Strings	
33	Acoustic Bass	41	Violin
34	Finger Bass	42	Viola
35	Pick Bass	43	Cello
36	Fretless Bass	44	Contrabass
37	Slap Bass 1	45	Tremolo Strings
38	Slap Bass 2	46	Pizzicato Strings
39	Synth Bass 1	47	Orchestral Harp
40	Synth Bass 2	48	Timpani

No.	Name	No.	Name
Strings Ensemble		Brass	
49	String Ensembles 1	57	Trumpet
50	String Ensembles 2	58	Trombone
51	Synth Strings 1	59	Tuba
52	Synth Strings 2	60	Muted Trumpet
53	Choir Aahs	61	French Horn
54	Voice Oohs	62	Brass Section
55	Synth Voice	63	Synth Brass 1
56	Orchestra Hit	64	Synth Brass 2

No.	Name	No.	Name
Reed		Pipe	
65	Soprano Sax	73	Piccolo
66	Alto Sax	74	Flute
67	Tenor Sax	75	Recorder
68	Baritone Sax	76	Pan Flute
69	Oboe	77	Blown Bottle
70	English Horn	78	Shakuhachi
71	Bassoon	79	Whistle
72	Clarinet	80	Ocarina

No.	Name	No.	Name
Synth Lead		Pad	
81	Lead 1 (square)	89	Pad 1 (new age)
82	Lead 2 (sawtooth)	90	Pad 2 (warm)
83	Lead 3 (calliope)	91	Pad 3 (polysynth)
84	Lead 4 (chiff)	92	Pad 4 (choir)
85	Lead 5 (charang)	93	Pad 5 (bowed)
86	Lead 6 (voice)	94	Pad 6 (metallic)
87	Lead 7 (fifths)	95	Pad 7 (halo)
88	Lead 8 (bass + lead)	96	Pad 8 (sweep)

No.	Name	No.	Name
Effects		Ethnic	
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

No.	Name	No.	Name
Percussive		Sound Effects	
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 Set (bank 0)	Funk Set (bank 8)	Rock Set (bank 16)	Electric Set (bank 24)	Analog Set (bank 25)
Eb1[27]	High Q	<-	<-	<-	<-
E 1[28]	Slap	<-	<-	<-	<-
F 1[29]	Scratch Push	<-	<-	<-	<-
F#1[30]	Scratch Pull	<-	<-	<-	<-
G1[31]	Sticks	<-	<-	<-	<-
G#1[32]	Square Click	<-	<-	<-	<-
A 1[33]	Metronome Click	<-	<-	<-	<-
Bb1[34]	Metronome Bell	<-	<-	<-	<-
B 1[35]	Acoustic Bass Drum	<-	<-	<-	<-
C 2[36]	Bass Drum 1	Funk Kick	Rock Kick Drum	Electric Bass Drum	Analog Bass Drum

Note	Standard Set (bank 0)	Funk Set (bank 8)	Rock Set (bank 16)	Electric Set (bank 24)	Analog Set (bank 25)
C#2[37]	Side Stick	<-	<-	<-	Analog Rim Shot
D 2[38]	Acoustic Snare	Funk Snare 1	Rock Snare Drum1	Electric Snare 1	Analog Snare 1
Eb2[39]	Hand Clap	<-	<-	<-	Analog Clap
E 2[40]	Electric Snare	Funk Snare 2	Rock Snare Drum2	Electric Snare 2	Analog Snare 2
F 2[41]	Low Floor Tom	Funk LowTom2	Rock LowTom2	Electric Low Tom 2	Analog Low Tom2
F#2[42]	Closed Hi-hat	<-	<-	<-	Analog Closed Hi-hat
G2[43]	High Floor Tom	Funk LowTom1	Rock LowTom1	Electric Low Tom 1	Analog Low Tom1
G#2[44]	Pedal Hi-hat	<-	<-	<-	Analog Pedal Hi-hat
A 2[45]	Low Tom	Funk MidTom2	Rock MidTom2	Electric Mid Tom 2	Analog Mid Tom2
Bb2[46]	Open Hi-hat	<-	<-	<-	Analog Open Hi-hat
B 2[47]	Low-Mid Tom	Funk MidTom1	Rock MidTom1	Electric Mid Tom 1	Analog Mid Tom1
C 3[48]	High Mid Tom	Funk Hi Tom2	Rock HiTom2	Electric Hi Tom 2	Analog Hi Tom2

Note	Standard Set (bank 0)	Funk Set (bank 8)	Rock Set (bank 16)	Electric Set (bank 24)	Analog Set (bank 25)
C#3[49]	Crash Cymbal 1	<-	<-	<-	Analog Cymbal
D 3[50]	High Tom 1	Funk Hi Tom1	Rock HiTom1	<-	Analog Hi Tom1
Eb3[51]	Ride Cymbal 1	<-	<-	<-	<-
E 3[52]	China Cymbal	<-	<-	<-	<-
F 3[53]	Ride Bell	<-	<-	<-	<-
F#3[54]	Tambourine	<-	<-	<-	<-
G3[55]	Splash Cymbal	<-	<-	<-	<-
G#3[56]	Cowbell	<-	<-	<-	<-
A 3[57]	Crash Cymbal 2	<-	<-	<-	<-
Bb3[58]	Vibra-slap	<-	<-	<-	<-
B 3[59]	Ride Cymbal 2	<-	<-	<-	<-
C 4[60]	High Bongo	<-	<-	<-	<-

Note	Standard Set (bank 0)	Funk Set (bank 8)	Rock Set (bank 16)	Electric Set (bank 24)	Analog Set (bank 25)
C#4[61]	Low Bongo	<-	<-	<-	<-
D 4[62]	Mute Hi Conga	<-	<-	<-	<-
Eb4[63]	Open Hi Conga	<-	<-	<-	<-
E 4[64]	Low Conga	<-	<-	<-	<-
F 4[65]	High Timbale	<-	<-	<-	<-
F#4[66]	Low Timbale	<-	<-	<-	<-
G4[67]	High Agogo	<-	<-	<-	<-
G#4[68]	Low Agogo	<-	<-	<-	<-
A 4[69]	Cabasa	<-	<-	<-	<-
Bb4[70]	Maracas	<-	<-	<-	<-
B 4[71]	Short Whistle	<-	<-	<-	<-
C 5[72]	Long Whistle	<-	<-	<-	<-

Note	Standard Set (bank 0)	Funk Set (bank 8)	Rock Set (bank 16)	Electric Set (bank 24)	Analog Set (bank 25)
C#5[73]	Short Guiro	<-	<-	<-	<-
D 5[74]	Long Guiro	<-	<-	<-	<-
Eb5[75]	Claves	<-	<-	<-	<-
E 5[76]	Hi Wood Block	<-	<-	<-	<-
F 5[77]	LowWood Block	<-	<-	<-	<-
F#5[78]	Mute Cuica	<-	<-	<-	<-
G5[79]	Open Cuica	<-	<-	<-	<-
G#5[80]	Mute Triangle	<-	<-	<-	<-
A 5[81]	Open Triangle	<-	<-	<-	<-
Bb5[82]	Shaker	<-	<-	<-	<-
B 5[83]	Jingle Bell	<-	<-	<-	<-
C 6[84]	Bell Tree	<-	<-	<-	<-

Note	Standard Set (bank 0)	Funk Set (bank 8)	Rock Set (bank 16)	Electric Set (bank 24)	Analog Set (bank 25)
C#6[85]	Castanets	<-	<-	<-	<-
D 6[86]	Mute Surdo	<-	<-	<-	<-
Eb6[87]	Open Surdo	<-	<-	<-	<-

Note	Jazz Set (bank 32)	Brush Set (bank 40)	Orchestra Set (bank 48)	Dance Set (bank 56)
Eb1[27]	<-	<-	Closed Hi-hat 2	<-
E 1[28]	<-	<-	Pedal Hi-hat	<-
F 1[29]	<-	<-	Open Hi-hat 2	<-
F#1[30]	<-	<-	Ride Cymbal 1	<-
G1[31]	<-	<-	<-	<-
G#1[32]	<-	<-	<-	<-
A 1[33]	<-	<-	<-	<-

Note	Jazz Set (bank 32)	Brush Set (bank 40)	Orchestra Set (bank 48)	Dance Set (bank 56)
Bb1[34]	<-	<-	<-	<-
B 1[35]	<-	<-	Concert BD 2	<-
C 2[36]	Jazz Kick 1	Brush Kick 1	Concert BD 1	Dance Bass Drum
C#2[37]	<-	<-	<-	<-
D 2[38]	Jazz Snare 1	Brush Tap	Concert SD	Dance Snare 1
Eb2[39]	<-	<-	Castanets	<-
E 2[40]	Jazz Snare 2	Brush Slap	Concert SD	Dance Snare 2
F 2[41]	<-	Brush Low Tom2	TM_OrchTimp_C2.a2i	Dance Low Tom2
F#2[42]	<-	<-	TM_OrchTimp_Db2.a2i	Dance Closed Hi-hat
G2[43]	<-	Brush Low Tom1	TM_OrchTimp_D2.a2i	Dance Low Tom1
G#2[44]	<-	<-	TM_OrchTimp_Eb2.a2i	Dance Pedal Hi-hat
A 2[45]	<-	Brush Mid Tom2	TM_OrchTimp_E2.a2i	Dance Mid Tom2
Bb2[46]	<-	<-	TM_OrchTimp_F2.a2i	Dance Open Hi-hat

Note	Jazz Set (bank 32)	Brush Set (bank 40)	Orchestra Set (bank 48)	Dance Set (bank 56)
B 2[47]	<-	Brush Mid Tom1	TM_OrchTimp_Gb2.a2i	Dance Mid Tom1
C 3[48]	<-	Brush Hi Tom2	TM_OrchTimp_G2.a2i	Dance Hi Tom2
C#3[49]	<-	<-	TM_OrchTimp_Ab2.a2i	Dance Cymbal
D 3[50]	<-	Brush Hi Tom1	TM_OrchTimp_A2.a2i	Dance Hi Tom1
Eb3[51]	<-	<-	TM_OrchTimp_Bb2.a2i	
E 3[52]	<-	<-	TM_OrchTimp_B2.a2i	
F 3[53]	<-	<-	TM_OrchTimp_C3.a2i	
F#3[54]	<-	<-	<-	<-
G3[55]	<-	<-	<-	<-
G#3[56]	<-	<-	<-	<-
A 3[57]	<-	<-	<-	<-
Bb3[58]	<-	<-	<-	<-
B 3[59]	<-	<-	<-	<-

Note	Jazz Set (bank 32)	Brush Set (bank 40)	Orchestra Set (bank 48)	Dance Set (bank 56)
C 4[60]	<-	<-	<-	<-
C#4[61]	<-	<-	<-	<-
D 4[62]	<-	<-	<-	<-
Eb4[63]	<-	<-	<-	<-
E 4[64]	<-	<-	<-	<-
F 4[65]	<-	<-	<-	<-
F#4[66]	<-	<-	<-	<-
G4[67]	<-	<-	<-	<-
G#4[68]	<-	<-	<-	<-
A 4[69]	<-	<-	<-	<-
Bb4[70]	<-	<-	<-	<-
B 4[71]	<-	<-	<-	<-
C 5[72]	<-	<-	<-	<-

Note	Jazz Set (bank 32)	Brush Set (bank 40)	Orchestra Set (bank 48)	Dance Set (bank 56)
C#5[73]	<-	<-	<-	<-
D 5[74]	<-	<-	<-	<-
Eb5[75]	<-	<-	<-	<-
E 5[76]	<-	<-	<-	<-
F 5[77]	<-	<-	<-	<-
F#5[78]	<-	<-	<-	<-
G5[79]	<-	<-	<-	<-
G#5[80]	<-	<-	<-	<-
A 5[81]	<-	<-	<-	<-
Bb5[82]	<-	<-	<-	<-
B 5[83]	<-	<-	<-	<-
C 6[84]	<-	<-	<-	<-
C#6[85]	<-	<-	<-	<-

Note	Jazz Set (bank 32)	Brush Set (bank 40)	Orchestra Set (bank 48)	Dance Set (bank 56)
D 6[86]	<-	<-	<-	<-
Eb6[87]	<-	<-	<-	<-



