

HITMAN

HD-30 Marauder e-drum set



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1 General information

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

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

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 5.

1.3 Symbols and signal words

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

Signal word	Meaning
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

Bestimmungsgemäßer Gebrauch

E-drum sets consist of a drum module and drum pads. The drum module converts the digital trigger signals from the drum pads into various drum 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.



NOTICE!

Possible staining

The plasticiser contained in the rubber feet of this product may possibly react with the coating of your parquet, linoleum, laminate or PVC floor and after some time cause permanent dark stains.

In case of doubt, do not put the rubber feet directly on the floor, but use felt-pad floor protectors or a carpet.

3 Features

Special features of the device:

- 1022 sounds, 128 user sounds
- 50 preprogrammed drum kits, 25 user kits
- 2 preprogrammed demo songs
- 1 × 10" Snare mesh head pad, 3 × 8" Tom mesh head pad, 2 × 10" Crash cymbal pad with choke function, 1 × 12" triple zone Ride cymbal pad, 1 × 10" Hihat cymbal pad, 1 × 8" Bass drum mesh head pad
- Bass drum pedal built-in beater
- Hi-hat pedal
- Metronome
- 10 reverb effects
- Record and playback function
- Connections for headphones, AUX, MIDI and USB
- Connection for additional Tom pad

4 Scope of delivery

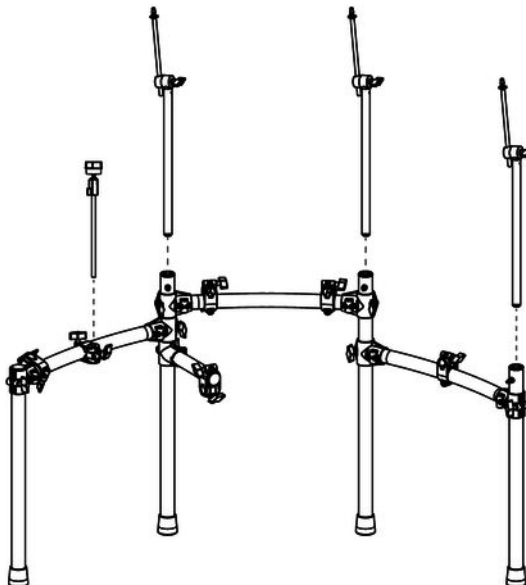


Before you assemble your drum set, make sure the contents of package is complete according to the following list.

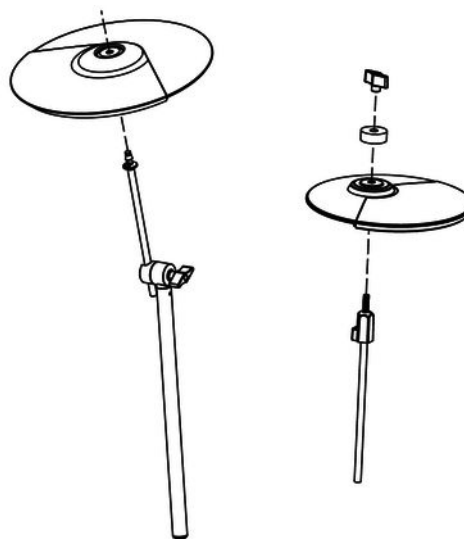
- Frame with 4 × stand tube and 4 × cross strut
- 4 × cymbal holder
- 3 × Tom pad
- 4 × cymbal pad (Ride, Crash and HiHat)
- Snare pad
- Drum module
- Hi-hat controller pedal
- 1 × set of drumsticks
- Labelled wiring harness
- Velcro fastener

5 Assembly

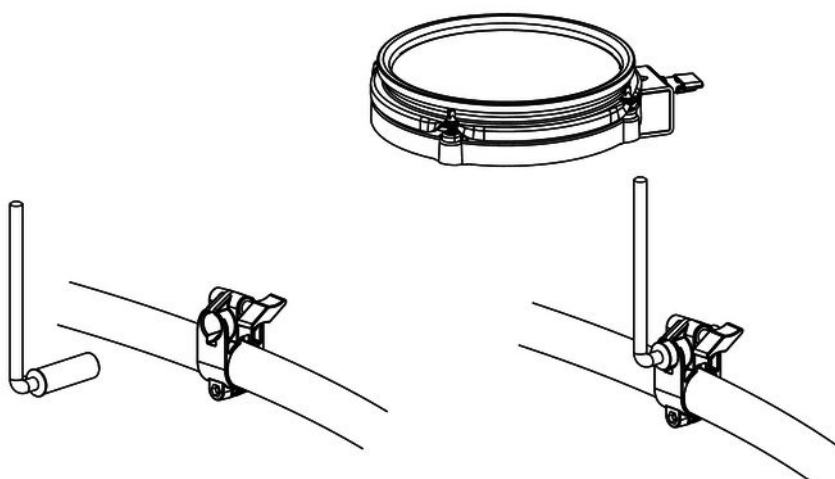
Loosen the screws of the clamps before sticking the tubes together. Mount the various elements in the specified sequence as shown in the illustration below.



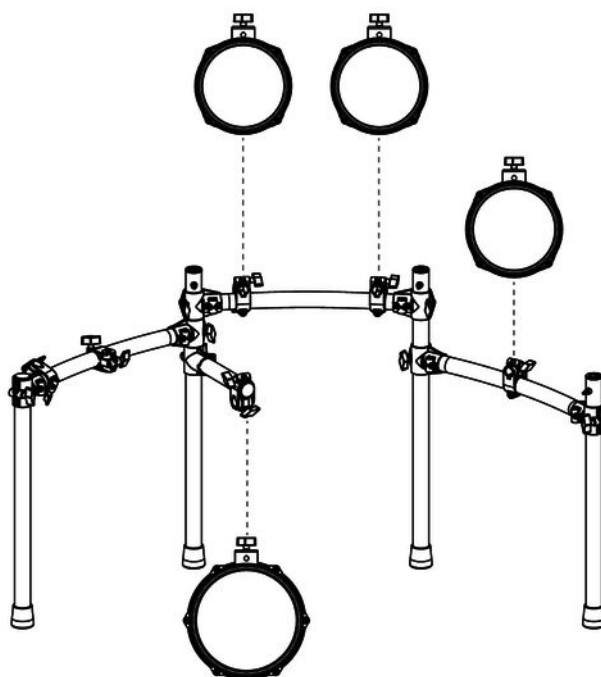
1. ▶ Attach the cymbal holders to the frame as shown.



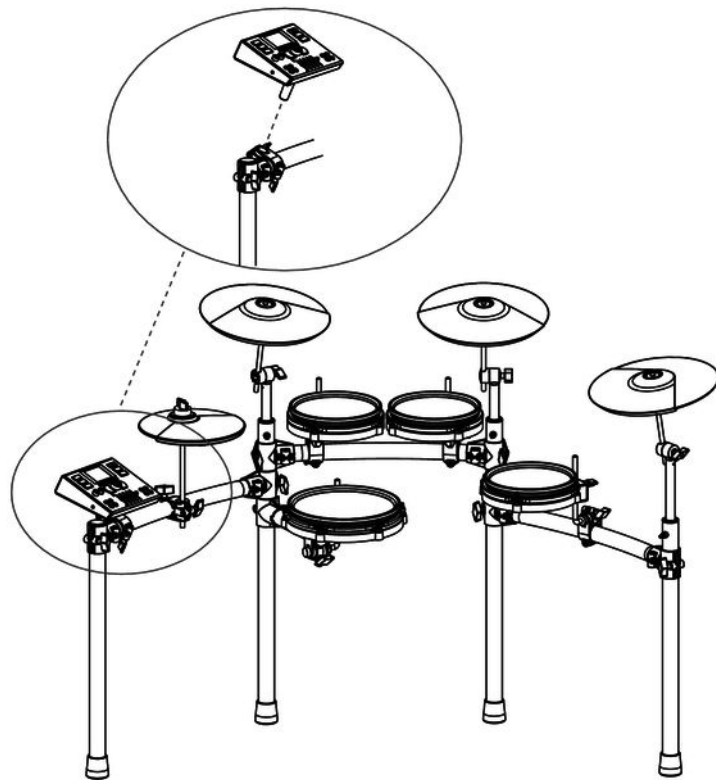
2. ▶ Attach the cymbals to the holders as shown.



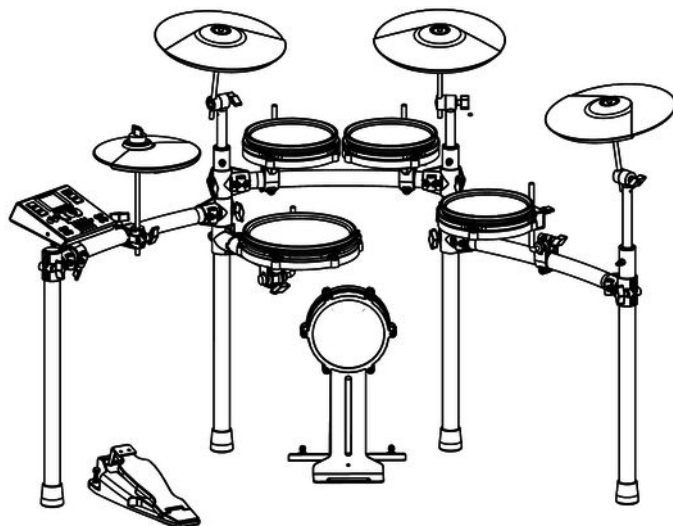
- 3.** Attach the angle pieces to the brackets. Insert the snare pad and the tom pads into the angle pieces and tighten the wing nuts.



- 4.** Attach the pads to the frame on the locations shown in the illustration.

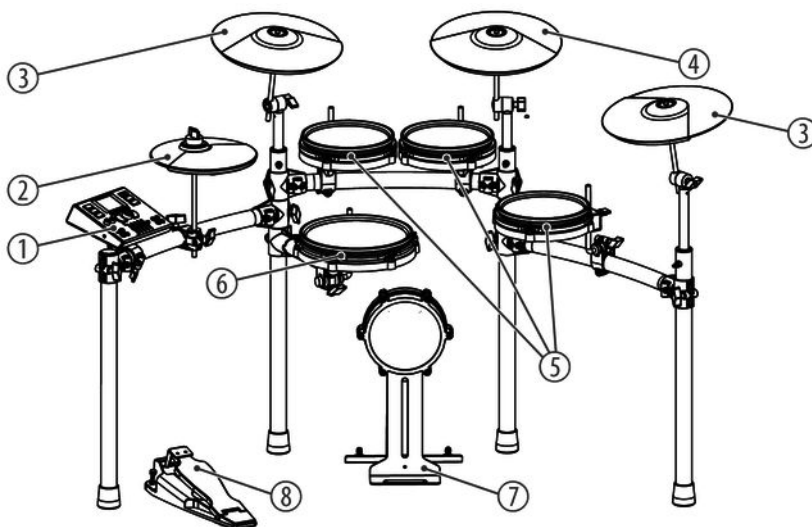


- 5.** ▶ Insert the rod of the drum module holder into the clamp on the frame and tighten the wing nut.



- 6.** ▶ Place the hi-hat controller pedal on the left side and the bass drum pedal (not included) in the middle.
- 7.** ▶ Connect the cable harness to the interface on the bottom and the cables from the crash cymbal pad and the tom pads to the side of the drum module. Now connect the marked cables to the corresponding pads, cymbals and pedal (see [🔗 'Set-up and cabling' on page 14](#)).

The assembled e-drum set should now look like the following illustration:

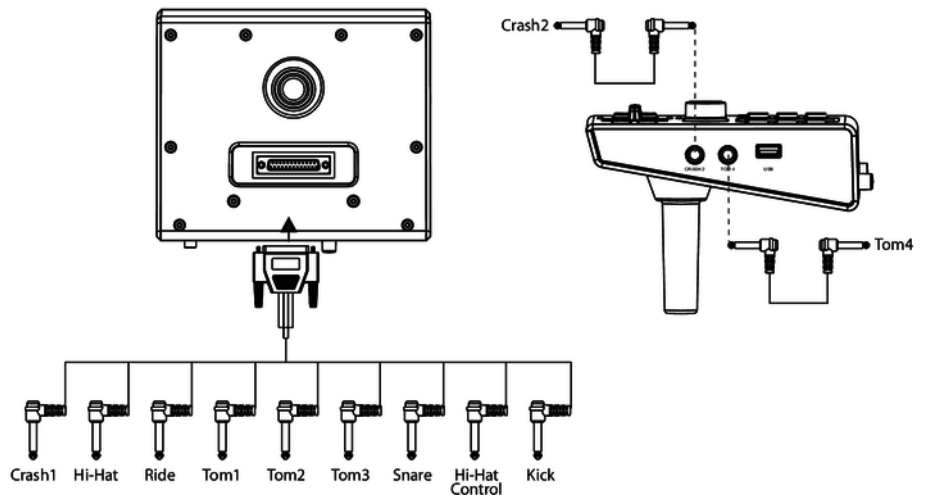


1	Drum module
2	Hi-Hat cymbal pad
3	Crash cymbal pads
4	Ride cymbal pad
5	Tom pads
6	Snare pad
7	Bass Drum
8	Hi-hat controller pedal

6 Installation

Set-up and cabling

Set up the pads and cymbals according to your needs. Connect the cable harness to the interface on the bottom and the cables from the crash cymbal pad and the tom pads to the side of the drum module. Wire all triggers to the pads, cymbals and the bass drum. Please observe the labelling on the drum module and the labelling on the individual cables. Finally check that all cables between the pads and the drum module have been properly connected.



Hi-hat controller

- You produce a closed hi-hat sound when you pedal the hi-hat controller while hitting the hi-hat
- You produce an open hi-hat sound when you do not pedal the hi-hat controller while hitting the hi-hat
- You produce the hi-hat pedal sound when pedalling the hi-hat controller directly without hitting the hi-hat
- An open hi-hat sound changes smoothly to a closed hi-hat sound when you pedal the hi-hat controller while hitting the hi-hat.

Connecting the power adapter

Connect the included power supply unit to the DC 9 V input on the rear panel of the drum module and then put the power plug into the power outlet.

Connecting USB devices

Connect your computer, tablet or smartphone to the USB port on the rear panel of the drum module.


Connecting audio devices

Connect audio devices like CD or MP3 player etc. to the [AUX IN] input socket on the rear panel of the drum module.

Connecting USB storage medium

Connect a USB storage medium to the USB host input on the side of the drum module.

Connecting headphones

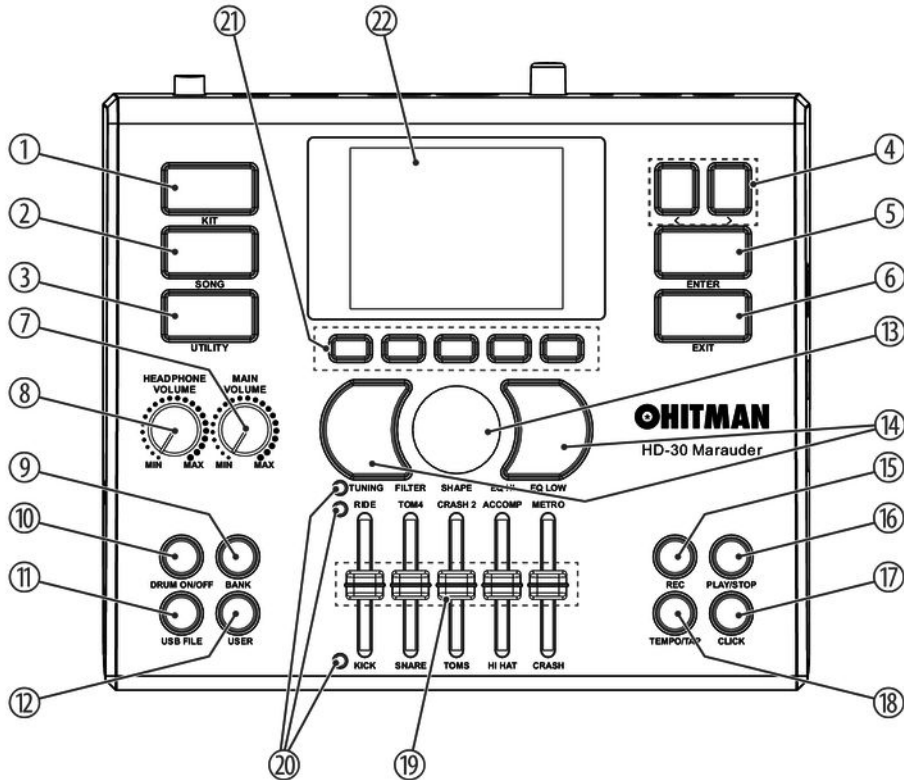
Connect your stereo headphones to the  output on the side panel of the drum module.

Connecting an external MIDI device

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

7 Connections and controls

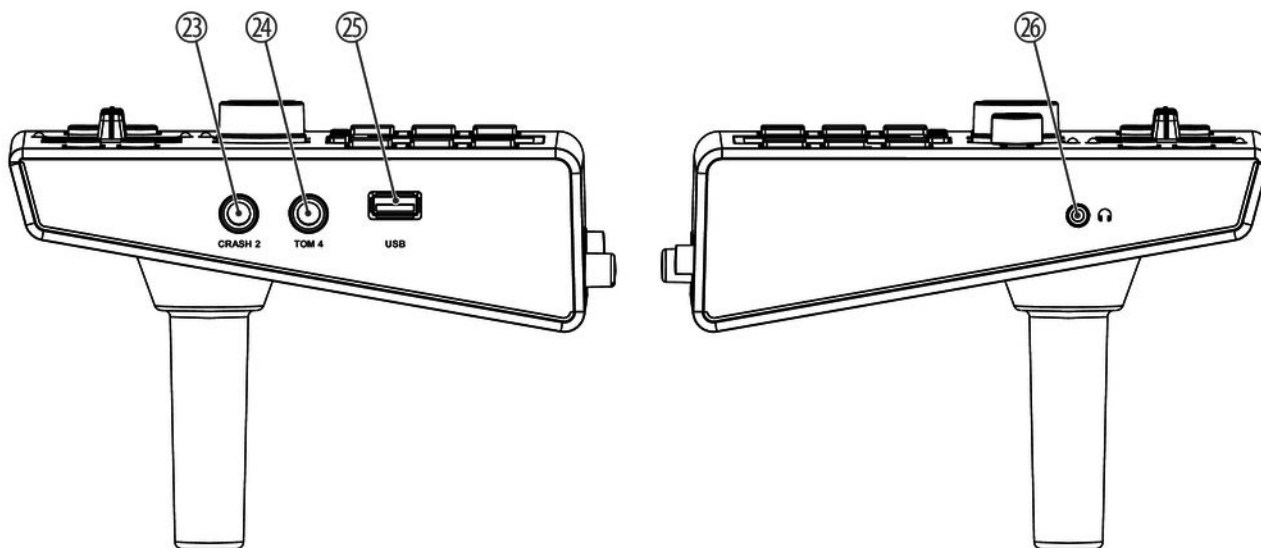
Drum module top view




1	[KIT] Opens the drum kit selection menu
2	[SONG] Opens the song selection menu
3	[UTILITY] Opens the menu for all other settings
4	< / > Scrolls forward or backward through menus
5	[ENTER] Confirms a selected value or parameter. Activates the next submenu level.
6	[EXIT] Returns to the parent menu level without changing the displayed value
7	[MAIN VOLUME] Controls the volume of the signals present at the outputs

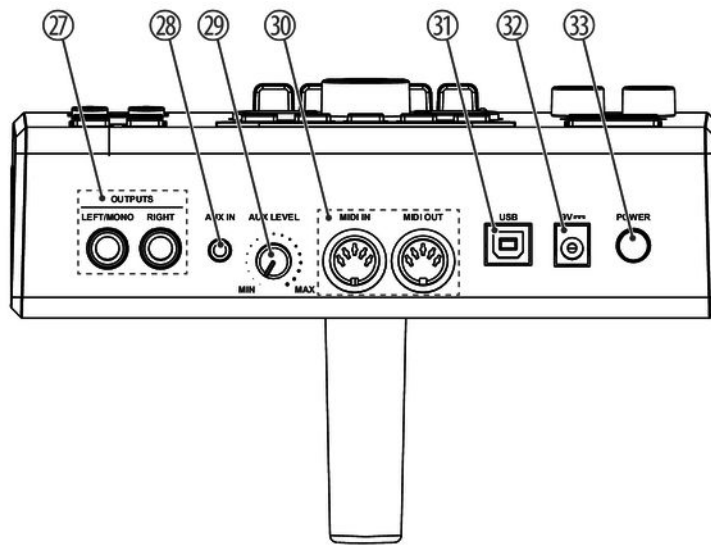
8	<i>[HEADPHONE VOLUME]</i> Adjusts the volume of the signal present at the headphone output
9	<i>[BANK]</i> Changes the fader assignment, which is indicated by the bank LED (20). To reset all settings to the default values, press and hold <i>[BANK]</i> .
10	<i>[DRUM ON/OFF]</i> Turns the drum track on or off during song playback.
11	<i>[USB FILE]</i> Selects a file from the USB storage medium
12	<i>[USER]</i> Selects custom settings
13	Jog wheel for value setting
14	Increases or decreases values by 1 or to select a drum kit or song
15	<i>[REC]</i> Opens the menu for song recording
16	<i>[PLAY / STOP]</i> Starts and stops song playback in Song mode
17	<i>[CLICK]</i> Turns the metronome on and off
18	<i>[TEMPO / TAP]</i> Sets the metronome tempo
19	Faders for setting the parameters for all kits until a reset is carried out
20	Bank LED Shows which bank can be edited with the faders. To change the bank, press <i>[BANK]</i> .
21	<i>[F1]...[F5]</i> Function keys for selecting parameters or menus
22	Display

Sides of the drum module



23	<i>[CRASH 2]</i> Input socket for connecting the second crash cymbal
24	<i>[TOM 4]</i> Input socket for connecting an additional tom pad (not included)
25	<i>[USB]</i> Connection for a USB storage medium for loading samples or storing songs
26	 Headphones (3.5-mm stereo mini jack)

Rear panel of the drum module



27	[OUTPUTS] Output sockets for monitor system. For mono operation, use the [LEFT/MONO] socket on the left.
28	[AUX IN] Input socket for smartphones, tablets and other audio sources
29	[AUX LEVEL] Adjusts the volume of the signal present at the AUX IN input
30	[MIDI IN] / [MIDI OUT] Connection sockets for an external MIDI device
31	[USB] USB port for connecting a computer, smartphone or tablet
32	[9V] Connection socket for the supplied 9 V power supply unit
33	[POWER] Main switch. Turns the device on and off.

8 Operating

8.1 Functions

Switching on



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

1. Use the main switch [POWER] on the rear panel to turn the drum module on.
2. Use the buttons [KIT], [SONG] or [UTILITY] to select a menu.

8.2 'KIT' menu



If you check and change settings, the kit may respond with a delay when you hit drums or cymbals. Press [F5] ('BACK') to return to the 'KIT' start screen. Now the kit reacts without delay again.

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.

You can select pre-programmed kits (see ↗ Chapter 12.2 'Kit list' on page 53) or save your own settings (see ↗ Chapter 8.2.6 'Saving or changing a user kit' on page 24).

Use [KIT] to return to the kit selection at any time.

Use [F5] ('BACK') to return to the previous menu level without saving the settings.

8.2.1 Selecting a drum kit

1. Press [KIT] to select the 'KIT' menu.
 - ⇒ The number and name of a kit and the current settings are shown on the display.
2. Use [+] or [-] or the jog wheel to select the desired kit and confirm with [ENTER].

8.2.2 Setting the drum kit

1. Use < or > to select the setting to be changed: 'KIT VOLUME', 'EQ', 'HIGH GAIN', 'LOW GAIN' and 'REVERB'.
2. Use [+] or [-] or the jog wheel to select the desired value and confirm with [ENTER].

8.2.3 Setting the mix

Each drum kit has its own mix settings

1. Press [F1] ('MIX') to display the current mix settings.
2. Use [F1]...[F5] to select the setting to be changed ('VOLUME', 'PAN', 'EFFECT', 'PATTERNS', 'BACK')
3. Select the drum, rim or cymbal by hitting it (if 'Follow Trigger' is activated in the 'UTILITY' menu ('on'), see Chapter 8.4 'UTILITY' menu on page 28) or press < or >.

Adjusting the volume

1. Press [F1] ('VOLUME') to adjust the volume of the selected pad.
2. Control the volume with [+] or [-] or the jog wheel.
3. Press [ENTER] to store the selection.

Setting panorama

1. Press [F2] ('PAN') to adjust the panorama of the selected pad.
2. Control the panorama with [+] or [-] or the jog wheel.

C		centred sound
L	'L01' ... 'L64'	left-sided sound, the higher the value, the further left
R	'R01' ... 'R63'	right-sided sound, the higher the value, the further right

3. Press [ENTER] to store the selection.

Setting effect strength

1. Press [F3] ('EFFECT') to adjust the effect strength of the selected pad.
2. Control the effect strength with [+] or [-] or the jog wheel.
3. Press [ENTER] to store the selection.

Setting pattern

1. ➤ Press [F4] ('PATTERNS') to set a pattern for the selected pad.
2. ➤ Use [+] or [-] or the jog wheel to select a pattern.
3. ➤ To do this, select one of the following settings with < or >:

'Pattern'	Shows the selected pattern.
'Pad'	Select the pad that should trigger the pattern.
'Pattern SW'	'on' / 'off' Enables or disables playing the pattern for the pad
'Retrigger'	'Retrigger' / 'Start/Stop' With 'Retrigger' the pattern always starts from the beginning and is played once when the pad is hit. With 'Start/Stop' the pattern is started by hitting the pad and runs continuously until it is ended by hitting it again.
'Velocity'	'on' / 'off' Determines whether the pattern reacts to your pad's velocity ('on') or plays at a fixed volume ('off').
'Drum Sound'	'on' / 'off' With 'on' you hear the normal sound of the pad in addition to the pattern, with 'off' you only hear the pattern.

4. ➤ Use [+] or [-] or the jog wheel to select one of the options and confirm with [ENTER].
5. ➤ Press [ENTER] to store the selection.

8.2.4 Changing a kit's drum sound

1. ➤ Press [F2] ('DRUM') to display the current drum sound settings.
2. ➤ Use [+] or [-] or the jog wheel to select the desired drum sound from the list of preprogrammed sounds and confirm with [ENTER]. The complete list of available sounds can be found in the appendix (see 📖 Chapter 12.1 'Sound list' on page 35).
3. ➤ [F3] ('USER WAVE') has currently no function.
4. ➤ With [F1] ('PRESET') and [F2] ('USER') you can call up preprogrammed and custom sounds.

5. Use < or > to select one of the basic settings for the pad:

'PITCH'	Pitch setting
'PITCH FINE TUNE'	Pitch fine adjustment
'VELOCITY TO PITCH'	'on' / 'off' Activates or deactivates the control of the pitch by the touch velocity. Is only available when 'PITCH' and 'PITCH FINE TUNE' are not used.

6. Use [+] or [-] or the jog wheel to select the desired parameter and confirm with [ENTER].
7. Press [ENTER] to store the selection.

Filter editing

1. Press [F4] ('FILTER/ENV') to display the current filter settings.
2. Use < or > to select one of the settings:

'FILTER CUTOFF'	Controls the cut-off frequency for the low-pass filter
'FILTER RESONANCE'	Controls filter resonance to create an emphasis effect
'VELOCITY TO CUTOFF'	'on' / 'off' Activates or deactivates the control of the cut-off frequency by the touch velocity
'VELOCITY TO RESONANCE'	'on' / 'off' Activates or deactivates the control of the filter resonance by the touch velocity

Envelope editing

1. Press [F4] ('FILTER/ENV') and [F1] ('ENVELOPE') to display the current envelope settings.
2. Use < or > to select one of the settings 'ATTACK', 'DECAY' or 'VELOCITY TO DECAY' and confirm with [ENTER].
Use [+] or [-] or the jog wheel to select the desired parameter and confirm with [ENTER].

Storing drum settings

After setting all the desired parameters, you can save your settings.

1. Go to the 'DRUM' start page and press [ENTER].
⇒ The available memory locations are displayed.
2. Use [+] or [-] to select a memory location and confirm with [ENTER].
3. Enter a name for your sound. Use the jog wheel to select the letter. With < or > you can move the cursor position to the right or left.

4. ➤ Confirm the name entry with [ENTER].
⇒ The 'DRUM' start page with the entered name is displayed again.

8.2.5 Saving preprogrammed kits

Preprogrammed kits can also be changed. Depending on the setting of 'Preset Memory Protect' in the 'UTILITY' menu, a kit can be saved ('off') or the changes are discarded when turning off the drum module ('on') (see [Chapter 8.4 'UTILITY' menu](#) on page 28). When you reset to factory settings, the original values are restored.

8.2.6 Saving or changing a user kit

1. ➤ Go to the 'KIT' start page and press [ENTER].
⇒ The available memory locations are displayed.
2. ➤ Use [+] or [-] to select a memory location and confirm with [ENTER].
3. ➤ Enter a name for your kit. Use the jog wheel to select the letter. With < or > you can move the cursor position to the right or left.
4. ➤ Confirm the name entry with [ENTER].
⇒ The 'KIT' start page with the entered name is displayed again.

Changing a user kit

1. ➤ Go to the 'KIT' start page and press [F3] ('USER').
2. ➤ Use [+] or [-] or the jog wheel to select a user kit and confirm with [ENTER].
3. ➤ After changing the desired parameters, save your user kit again.



If you want to create your own kits and sounds, we recommend that you call up a preprogrammed kit and save it as a user kit with a new name. You then only have to change and save the desired parameters.



NOTICE!

When saving kits, custom settings for the drums are also saved, so they can override the custom drum settings used in this kit.

8.3 'SONG' menu

In 'SONG' menu, you can play along with audio files or be accompanied live. You can also record your own playing and play it later. MIDI recordings can also be used as a pattern.

There are two demo tracks that appear as the first two tracks in the 'SONG' menu. The tempo cannot be adjusted for demo tracks.

'SONG' menu functions

1. ➤ Press [SONG] to call up the 'SONG' menu.
 - ⇒ The following data on the current track is shown on the display: 'LENGTH', 'TEMPO', 'BPM' and 'TIME SIGNATURE'.
2. ➤ Use < or > to select one of the settings ('LEVEL', 'LOOP', 'PRE COUNT') and confirm with [ENTER].
3. ➤ Use [+] or [-] or the jog wheel to select the desired parameters and confirm with [ENTER].

8.3.1 Track editing

1. ➤ Press [F2] ('EDIT') to edit a track.
2. ➤ Use < or > to select one the following settings:

'Accompaniment Volume'	Controls the accompaniment volume.
'Drum Track Volume'	Controls the drum track volume.
'Kit Link'	'on' / 'off' Enables or disables maintaining the preprogrammed drum sound associated with the demo track
'Click Volume'	Metronome volume
'Track Mute'	Selects the audio track that is addressed by 'PART'

3. ➤ Confirm with [ENTER].
4. ➤ Use [+] or [-] or the jog wheel to select the desired parameter and confirm with [ENTER].

8.3.2 Playing and recording your own drum pieces

You can record or play tracks with MIDI or audio. The audio mode requires a USB storage medium, the MIDI recorder saves to the internal memory.

MIDI recording

1. ➤ Press **[F5]** (**'MIDI PLAY/REC'**) to open the MIDI recorder.
⇒ The list of available MIDI files appears on the display. If there are no MIDI files yet, **'Record 01'** is shown at the top of the display.
2. ➤ Press **[F2]** (**'RECORD'**) to set the parameters for the recording.
3. ➤ Use **<** or **>** to select one the following settings:

'Pattern'	Selects the pattern to be overwritten
'Drum Track Volume'	Controls the drum track volume
'Synchronized Start'	The recording starts when you begin playing.
'Count In'	Selects the pre-counts ('0' ... '4')
'Click Volume'	Controls the metronome volume
'Time Signature'	Determines the metronome time signature

4. ➤ Confirm with **[ENTER]**.
5. ➤ Press **[REC]** on the panel to start recording.
6. ➤ Press **[PLAY/STOP]** on the panel to stop recording.

MIDI playback

1. ➤ Press **[F5]** (**'MIDI PLAY/REC'**) to open the MIDI recorder.
⇒ The list of available MIDI files appears on the display.
2. ➤ Use **[+]** or **[-]** or the jog wheel to select the track to be played and confirm with **[ENTER]**.
3. ➤ Press **[F1]** (**'PLAY'**) to play the selected track.
⇒ A pop-up window opens up in which the name and a counter of the playback time are displayed.
4. ➤ Press **[PLAY/STOP]** on the panel to start or stop recording.

MIDI file export

1. ➤ Press **[F5]** (**'MIDI PLAY/REC'**) to open the MIDI recorder.
⇒ The list of available MIDI files appears on the display.
2. ➤ Use **[+]** or **[-]** or the jog wheel to select the track to be exported from the internal memory to an USB memory medium and confirm with **[ENTER]**.
3. ➤ Press **[F3]** (**'EXPORT'**) to export the selected track. If there is no USB storage medium available, a corresponding error message appears.

Audio recording

Insert a USB storage medium into the USB slot on the side of the drum module.

1. ▶ Press *[F4]* ('AUDIO PLAY/REC') to open the audio player and press *[USB FILE]* on the panel.
2. ▶ Press *[F2]* ('RECORD') and *[REC]* on the panel to start recording.
⇒ The recording starts after five seconds. The *[REC]* button lights up blue at first and flashes as soon as the recording has started.
3. ▶ Press *[PLAY/STOP]* on the panel to stop recording.

The recordings are made in stereo and are saved in 16-bit MP3 files.

Audio playback

1. ▶ Press *[F4]* ('AUDIO PLAY/REC') to open the audio player and press *[USB FILE]* on the panel.
⇒ The list of audio files on the USB memory medium appears on the display.
2. ▶ Use *[+]* or *[-]* or the jog wheel to select the file to be played.
3. ▶ Press *[F3]* ('VOL-') or *[F4]* ('VOL+') to adjust the volume and confirm with *[ENTER]*.
4. ▶ Press *[F1]* ('PLAY').
⇒ A pop-up window opens up in which the selected file is displayed.
5. ▶ Press *[PLAY/STOP]* on the panel to start or stop recording.

8.4 'UTILITY' menu

The 'UTILITY' menu contains all other settings that do not appear in the 'KIT' or 'SONG'.

1. ➤ Press [UTILITY] to call up the 'UTILITY' menu.
2. ➤ Use < or > on the start page to select one of the following settings:

'AutoPower'	'on' / 'off' Enables or disables the automatic shutdown of the drum module after 4 hours of inactivity.
'MIDI Local'	'on' / 'off' Helps to avoid MIDI loops. Choose 'off' if you are recording to an external MIDI sequencer.
'MidiSoftThru'	'on' / 'off' Sets 'MIDI out' to 'MIDI thru'. This means that the signals arriving at the MIDI input can be sent to other MIDI devices at the same time.
'PresetMemoryProtect'	'on' / 'off' Protects preprogrammed kits against overwriting.

3. ➤ Confirm with [ENTER].
4. ➤ Use [+] or [-] or the jog wheel to select the desired parameter and confirm with [ENTER].

8.4.1 Trigger settings

The trigger settings are optimized for the drum set. Nevertheless, it can be helpful to adapt the trigger settings to your own playing skills, e. g. when adding pads from other brands or changing the arrangement of the drums.



If the trigger settings are changed at several points in a kit, the trigger reaction can be very slowed down. This is due to the updating of the displays. We therefore recommend changing only the parameters of a pad or cymbal and checking the setting by returning to the 'UTILITY' start screen with [F5] ('BACK').

1. ➤ Press **[F1]** (**'TRIGGER'**) to display the trigger settings.
2. ➤ Use **<** or **>** to select one of the following settings:

'Follow Trigger'	'on' / 'off' Allows you to select a pad or cymbal for editing by striking it.
'Current Trigger'	Manual selection of a trigger pad for editing.
'Sensitivity'	'01' ... '32' Controls the sensitivity of the trigger pad to adjust the pad stroke. A high value means that the pad produces a loud sound even when struck lightly.
'Threshold'	'00' ... '50' Sets the threshold that must be exceeded for a pad to respond. This is to prevent a pad from responding to the vibrations of other pads.
'Curve'	These curves can be assigned to each individual pad. Depending on the style of play, different pads and cymbals can be assigned different curves.
	'Easy' For players who want to achieve a high dynamic without striking very hard.
	'Fixed' The sound is always played at a fixed volume regardless of the touch velocity.
	'Normal' Most linear playing curve
	'Dynamic' Offers the highest dynamics
'Retrigger'	'01' ... '08' The trigger settings have been optimized for the current configuration. When using other pads, double triggering can occur. A low value can prevent double triggering in most cases, even if this can impair fast playing (e.g. rolls or flams). With 1, fast triggers of approx. 500 ms are avoided, with 8 all triggers are permitted.
'Cross Talk'	Sets the crosstalk value to avoid overlays caused by unintentionally addressed pads. If a pad unintentionally responds to the hit on another pad, this can be prevented by raising the crosstalk value for the respective pad. The value 0 is not permitted.
'Splash Sensitivity'	Controls the touch velocity of the hi-hat pedal.

3. ➤ Confirm with **[ENTER]**.
4. ➤ Use **[+]** or **[-]** or the jog wheel to select the desired parameter and confirm with **[ENTER]**.

8.4.2 Metronome

1. ➤ Press [F2] (‘METRO’) to display the metronome settings.
2. ➤ Use < or > to select one of the following settings:

‘Measure Sound’	Determines the metronome sound (click)
‘Measure Sound Volume’	Controls the click volume
‘Beat Sound’	Determines the tone of the beat
‘Beat Sound Volume’	Controls the beat volume
‘Tempo’	‘20’ ... ‘240’ Tempo setting in BPM (beats per minute).
‘Time Signature’	‘1/4’, ‘2/4’, ‘3/4’, ‘4/4’, ‘5/4’, ‘6/4’, ‘7/4’, ‘3/8’, ‘6/8’, ‘7/8’, ‘9/8’, ‘12/8’ Setting the time signature
‘Interval’	‘1/4’, ‘1/8’, ‘1/12’, ‘1/16’, ‘1/2’, ‘3/8’ Setting the metronome interval.

3. ➤ Confirm with [ENTER].
4. ➤ Use [+] or [-] or the jog wheel to select the desired parameter and confirm with [ENTER].

You can change the tempo at any time with [TEMPO/TAP] on the panel.

8.4.3 Restoring settings

1. ➤ Press [F3] (‘RESTORE’) to call up the menu for restoring settings.
2. ➤ Press [F1] (‘RESET TO FACTORY’) to reset the drum module to factory default settings. You can also reset the drum module to the factory settings by pressing [+] and [-] and [POWER] at the same time. The display shows ‘RESET’.
3. ➤ Press [F2] (‘CLEAR USER’) to delete all user programmes.
4. ➤ Press [F3] (‘CLEAR ALL SAMPLES’) to delete all imported user samples.

Simultaneously press [+] and [-] to reset most functions.

8.4.4 Saving settings

1. ▶ Press [F4] ('BACKUP') to call up the menu for saving settings.
2. ▶ Press [F1] ('LOAD SETTINGS') to load the settings.
3. ▶ Press [F1] ('SAVE SETTINGS') to save the settings.
4. ▶ Press [F3] ('USER KIT & VOICE') to save or load the custom kits and sounds.
Press [F1] ('LOAD') to load all custom kits and sounds.
Press [F2] ('SAVE') to save all custom kits and sounds. You can save any number of kits and sounds depending on the size of your storage medium.
5. ▶ Press [F4] ('ALL') to save and load all settings and custom kits and sounds..
Press [F1] ('LOAD ALL') to load all settings and custom kits and sounds.
Press [F2] ('SAVE') to save all settings and custom kits and sounds. Note: Saving and loading all data will take approximately 1.8 hours.

9 Technical specifications

Input connections	Voltage supply	Connector socket for plug-in power supply
	USB port	USB 2.0 type A USB 2.0 type B
	Combined trigger connection	1 × sub-D connector
	Crash cymbal pad	1 × 1/4" jack socket
	Tom pad	1 × 1/4" jack socket
	AUX IN	1 × 3.5 mm jack socket
	MIDI IN	MIDI input socket
Output connections	Headphones	1 × 3.5 mm jack socket
	Main output (LEFT/MONO)	1 × 1/4" jack socket
	Main output (RIGHT)	1 × 1/4" jack socket
	MIDI OUT	MIDI output socket
Voices	1022 sounds, 128 custom sounds	
Effects	Reverb	
Drum kits	50 preset kits, 25 user kits	
Demo and practice songs	2 preprogrammed songs	
Voltage supply	Plug-in power supply (9 V $\overline{=}$, centre positive)	
Dimensions (W × H × D)	1440 mm × 680 mm × 1170 mm	
Weight	23.4 kg	
Ambient conditions	Temperature range	0 °C...40 °C
	Relative humidity	50 %, non-condensing

Further information

Incl. rack	Yes
Incl. seat	No
Incl. bass drum pedal	No
Incl. headphones	No
Mesh Head Pads	Yes
Stereo pads	Yes
Number of direct outputs	0

10 Cleaning

Device components

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

- Clean with a soft dry cloth.
- Stubborn dirt can be removed with a slightly dampened cloth.
- Use only pH-neutral, solvent-free and non-abrasive cleaning agents. Never use cleaners containing alcohol or thinner.
- Do not place vinyl objects on the device, as vinyl may stick to the surface or cause it to discolour.

11 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.

12 Appendix

12.1 Sound list

Kick			
01	Acoustic kick 1	24	Electronic k 1
02	Acoustic kick_2	25	Electronic k 2
03	Room kick 1	26	Analog kick
04	Room kick 2	27	Drum box kick 1
05	Rock kick 1	28	Drum box kick 2
06	Jazz kick 1	29	Crunch kick
07	Early R&B kick	30	Electro-pop kick
08	Compressed kick	31	Thick kick
09	Latin kick	32	BD_DP50_Fatso
10	Pop kick	33	BD_DP50_Tape
11	Trash kick	34	Warm_Fatso
12	Rock kick 2	35	Warm_Tape
13	Reggae-pop kick	36	BD_DP50_X
14	Brush kick	37	BD_DP50_Warm_X
15	Modern R&B kick	38	DM16_BD_Elec_1
16	Big kick	39	DM16_BD_Gated_2
17	Rock kick 3	40	DM16_BD_Slap_1
18	Rock kick 4	41	DM16_BD_Slap_2
19	Rock kick 5	42	Studio Kick
20	8-oh kick	43	Standard Kick
21	9-oh kick	44	Room Kick
22	Dance club kick	45	Pop Kick
23	Rap-hop kick	46	Punk Kick

Snare			
47	Acoustic snare 1	78	Crunch snare 1
48	Piccolo snare 1	79	Electronic sn 2
49	Piccolo snare 2	80	Analog snare 2
50	Room snare 1	81	Crunch snare 2
51	Room snare 2	82	Drum box snare 3
52	Rock snare 1	83	Noise snare
53	Rock snare 2	84	Reso-snare
54	Rock snare 3	85	Bubble snare
55	Rock snare 4	86	Acoustic rt 1
56	Compressed snare	87	Early R&B rt
57	Jazz snare	88	Pop rimshot 1
58	Acoustic snare 2	89	Piccolo rimshot 1
59	Acoustic snare 3	90	Rock rimshot 1
60	Trash snare	91	Jazz rimshot 1
61	Pop snare 1	92	Acoustic rt 2
62	Reggae-pop snare	93	Compressed rt
63	Brush snare	94	Room rimshot
64	Early R&B snare	95	Pop rimshot 2
65	Pop snare 2	96	Rock rimshot 2
66	Latin1	97	Reggae-pop rt
67	Electro-pop sn	98	Brush rimshot
68	Rap-hop snare	99	Analog rimshot 1
69	Analog snare 1	100	Modern R&B rt
70	Modern R&B snare	101	Trash rimshot
71	Rock snare 5	102	Drum box rt
72	Electronic sn 1	103	8-oh rimshot
73	Drum box snare 1	104	Dance club rt
74	8-oh snare	105	Electronic rt 1
75	Dance club snare	106	Crunch rimshot
76	9-oh snare	107	Electronic rt 2
77	Drum box snare 2	108	Analog rimshot 2

Snare			
109	Drum box rt 2	128	MD16_Stick_2
110	Electro-pop rt	129	MD16_Stick_3
111	Piccolo snare 3	130	MD16_SD_Ska_3
112	Piccolo rt 2	131	MD16_Clap_1
113	Rock snare 6	132	Studio CenterA
114	Rock rimshot 3	133	Studio CenterB
115	SD_DP50_Fatso	134	Snare Rim Stick
116	SD_DP50_Tape	135	Acoustic snare 2
117	Sn_warm_Fatso	136	Acoustic snare 3
118	Sn_DP50_warm_Tap	137	Standard Snare1
119	MD16_SD_Fusion_1	138	Room Snare
120	MD16_SD_Acoust_1	139	Standard Sn Rim
121	MD16_SD_Killa_1	140	Room Snare Rim
122	MD16_SD_Acoust_1	141	Standard Sn Rim2
123	Rim_DP50_Fatso	142	Room Snare Rim2
124	Rim_DP50_Tape	143	Pop Snare
125	Rim_warm_Fatso	144	Punk Snare
126	Rim_warm_Tape	145	Pop Snare Rim
127	Tamb_DP50_Fatso	146	Punk Snare Rim

Toms			
147	Acoustic tom 1 h	178	Rock tom 3 (mid)
148	Acoustic tom 1 m	179	Rock tom 3 (low)
149	Acoustic tom 1 l	180	Rock tom 4 h
150	Acoustic tom 2 h	181	Rock tom 4 (mid)
151	Acoustic tom 2 m	182	Rock tom 4 (low)
152	Acoustic tom 2 l	183	Rock tom 5
153	Room tom 1 h	184	Modern R&B tom h
154	Room tom 1 (mid)	185	Modern R&B tom m
155	Room tom 1 (low)	186	Modern R&B tom l
156	Compressed tom h	187	Jazz tom (high)
157	Compressed tom m	188	Jazz tom (mid)
158	Compressed tom l	189	Jazz tom (low)
159	Rock tom 1 h	190	Brush tom (high)
160	Rock tom 1 (mid)	191	Brush tom (mid)
161	Rock tom 1 (low)	192	Brush tom (low)
162	Rock tom 2 h	193	Early R&B tom h
163	Rock tom 2 (mid)	194	Early R&B tom m
164	Rock tom 2 (low)	195	Early R&B tom l
165	Pop tom 1 (high)	196	tom & timbale
166	Pop tom 1 (mid)	197	pop tom & cong1
167	Pop tom 1 (low)	198	pop tom & cong2
168	Pop tom 2 (high)	199	tom & conga
169	Pop tom 2 (mid)	200	tom & bongo
170	Pop tom 2 (low)	201	Elec-pop tom h
171	Tight tom (high)	202	Elec-pop tom m
172	Tight tom (mid)	203	Elec-pop tom l
173	Tight tom (low)	204	Elec-pop tom2 h
174	D-dub tom (high)	205	Elec-pop tom2 m
175	D-dub tom (mid)	206	Elec-pop tom2 l
176	D-dub tom (low)	207	Trash tom h
177	Rock tom 3 h	208	Trash tom m

Toms			
209	Trash tom (low)	240	Dance club t(h)
210	Crunch tom (h)	241	Dance club t(m)
211	Crunch tom (mid)	242	Dance club t(l)
212	Crunch tom (low)	243	Tom_Dp50_1_Fatso
213	Rap-hop tom (h)	244	Tom_Dp50_2_Fatso
214	Rap-hop tom (m)	245	Tom_Dp50_3_Fatso
215	Rap-hop tom (l)	246	Tom_DP50_1_Tape
216	Elec tom 1 (h)	247	Tom_DP50_2_Tape
217	Elec tom 1 (mid)	248	Tom_DP50_3_Tape
218	Elec tom 1 (low)	249	Tom_DP50_1_Fatso
219	Elec tom 2 (h)	250	Tom_DP50_2_Fatso
220	Elec tom 2 (mid)	251	Tom_DP50_3_Fatso
221	Elec tom 2 (low)	252	Tom_DP50_1_Tape
222	Analog tom (h)	253	Tom_DP50_2_Tape
223	Analog tom (mid)	254	Tom_DP50_3_Tape
224	Analog tom (low)	255	Tom_DP50_1_X
225	9-oh tom (h)	256	Tom_DP50_2_X
226	9-oh tom (mid)	257	Tom_DP50_3_X
227	9-oh tom (low)	258	Tom_DP50_1__X
228	9-oh tom 2 (hi)	259	Tom_DP50_02__X
229	9-oh tom 2 (mid)	260	Tom_DP50_03__X
230	9-oh tom 2 (low)	261	Conga_DP50_H_
231	8-oh t-fall (h)	262	Conga_DP50_L_
232	8-oh t-fall (m)	263	MD16_Tom_Elec_1
233	8-oh t-fall (l)	264	MD16_Tom_Elec_2
234	Drum box t 1 (h)	265	MD16_Tom_Elec_3
235	Drum box t 1 (m)	266	MD16_Tom_1
236	Drum box t 1 (l)	267	MD16_Tom_2
237	Drum box t 2 (h)	268	MD16_Tom_3
238	Drum box t 2 (m)	269	MD16_Timb_1
239	Drum box t 2 (l)	270	MD16_Timb_2

Toms			
271	MD16_Timb_3	273	MD16_Cow_02
272	MD16_Cow_03		

Crash&Ride			
274	Crash cymbal 1	302	Low ride
275	Crash cymbal 2	303	Early R&B ride
276	Rap-hop crash	304	Ride crash
277	Mid crash 1	305	Brush ride
278	Mid crash 2	306	ride plus bell 3
279	Dark crash	307	ride & cowbell
280	18" crash 1	308	ride plus bell 1
281	18" crash 2	309	ride plus bell 2
282	Mid splash	310	Trash ride
283	High splash	311	Electronic ride 1
284	Crispy splash	312	Electro-pop ride
285	Trash splash	313	High ping ride
286	Small splash	314	Drum box ride
287	Electro splash	315	9-oh ride crash
288	Dark splash	316	Pie tin ride
289	Low crash 1	317	Electronic ride2
290	Low crash 2	318	Crunch ride
291	Analog crash	319	Elec crash-ride
292	Electro-p crash	320	Elec ride 3
293	Dance club crash	321	Ride_DP50_Fatso
294	Electro crash 1	322	Ride_DP50_Tape
295	Electro crash 2	323	Crash_DP50_Tape
296	Falling crash	324	Ride_DP50_Fatso
297	Submarine crash	325	Crash_DP50_Fatso
298	Sizzle ride	326	DP50_Fatsp
299	ride plus bell	327	MD16_Ride
300	Cy ride bell 1	328	MD16_Crash
301	Dy ride bell 2	329	MD16_Whistle

Crash&Ride			
330	MD16_Shaker	361	Trash ride_Rim
331	Ride crash_Rim	362	Trash splash_Rim
332	18" crash_Rim	363	ride plus bell_R
333	ride plus bell_R	364	Mid splash_Rim
334	Mid crash 1_Rim	365	Brush ride_Rim
335	Low ride_Rim	366	Elec ride 3_Rim
336	Crash 1_Rim	367	Elec ride x_Rim
337	9-oh ride crashR	368	95 DP50_Fatso_R
338	Crispy splash_R	369	96 DP50_Fatso_R
339	Cymbal ride Rim	370	CYM Crash2
340	Drum box rd_Rim	371	CYM Ride2 BowA
341	High splash_Rim	372	CYM Ride2 BowB
342	Pie tin rd_Rim	373	CYM Ride2 BellA
343	Rap-hop cr_Rim	374	CYM Ride2 BellB
344	Early R&B rd_Rim	375	Ride Cymbal
345	Mid crash 2_Rim	376	Room Ride
346	Elec rd 2_Rim	377	Standard Crash
347	Rap-hop cr_Rim	378	Room Crash
348	Crunch ride_Rim	379	Ride Cymbal Rim
349	Falling cr_Rim	380	Room Ride Rim
350	Elec rd 1_Rim	381	Standard Crash R
351	Low crash 2_Rim	382	Room Crash Rim
352	ping ride_Rim	383	Pop Ride
353	Analog crash_Rim	384	Punk Ride
354	Electro splash_R	385	Pop Crash Right
355	Dance club cr_R	386	Punk Crash Right
356	ride & cowbell_R	387	Pop Crash Left
357	ride plus bell_R	388	Punk Crash Left
358	18" crash 2_Rim	389	Pop Cr Right Rim
359	Electro ride_Rim	390	Punk Cr Right R
360	Electro crash_R		

Hi-hat			
391	Brush hat1 c	422	Snappyhat splash
392	Brush hat1 foot	423	Trash hat closed
393	Brush hat1 open	424	Trash hat foot
394	Brush hat1 spl	425	Trash hat open
395	Brush hat2 c	426	Trash hat splash
396	Brush hat2 foot	427	R&B hat closed
397	Brush hat2 open	428	R&B hat foot
398	Brush hat2 spl	429	R&B hat open
399	Room hat closed	430	R&B hat splash
400	Room hat foot	431	snap hat closed
401	Room hat open	432	snap hat open
402	Room hat splash	433	snap hat splash
403	Rock hat1 closed	434	hat 3 closed
404	Rock hat1 foot	435	hat 3 open
405	Rock hat1 open	436	8-oh hat closed
406	Rock hat1 splash	437	8-oh hat foot
407	Rock hat2 closed	438	8-oh hat open
408	Rock hat2 foot	439	club hat closed
409	Rock hat2 open	440	club hat foot
410	Rock hat2 splash	441	club hat open
411	Smallhat1 closed	442	Rap-hop hat c
412	Smallhat1 foot	443	Rap-hop hat foot
413	Smallhat1 open	444	Rap-hop hat open
414	Smallhat1 splash	445	Rap-hop hat spl
415	Smallhat2 closed	446	Elect hat 1 c
416	Smallhat2 foot	447	Elect hat 1 foot
417	Smallhat2 open	448	Elect hat 1 open
418	Smallhat2 splash	449	Crunch hat c
419	Snappyhat closed	450	Crunch hat foot
420	Snappyhat foot	451	Crunch hat open
421	Snappyhat open	452	Elec hat 2 c

Hi-hat			
453	Elec hat 2 foot	478	HHo_DP50_Fatso
454	Elec hat 2 open	479	HH_DP50_Fatso
455	Elec hat 2 spl	480	HHo_DP50_Tape
456	Analog hat c	481	HH_DP50_Tape
457	Analog hat foot	482	TriOpen_DP50_F
458	Analog hat open	483	TriClosed_DP50_F
459	Drum box hat 1 c	484	MD16_HH_2
460	Drum box hat 1 f	485	MD16_HH_1
461	Drum box hat 1 o	486	MD16_HH_pedal
462	9-oh hat closed	487	MD16_HHo
463	9-oh hat foot	488	CYM Close Hihat
464	9-oh hat open	489	CYM Hihat Foot
465	9-oh hat splash	490	CYM Hihat Open
466	Elec-pop hat c	491	Standard Open H
467	Elec-pop hat f	492	Room Open Hihat
468	Elec-pop hat o	493	Standard Close H
469	Elec-pop hat spl	494	Room Close Hihat
470	Modern R&B hat c	495	Standard Hihat P
471	Modern R&B hat f	496	Room Hihat Pedal
472	Modern R&B hat o	497	Pop Hihat Close
473	Modern R&B hat s	498	Punk Hihat Close
474	Drum box hat 2 c	499	Pop Closed Hihat
475	Drum box hat 2 f	500	Punk Closed HH
476	Drum box hat 2 o	501	Pop Open Hihat
477	Shaker hat c	502	Punk Open Hihat

Percussion 1			
503	Agogo (high)	513	Triangle (open)
504	Agogo (low)	514	Woodblock (high)
505	Agogo (high/low)	515	Woodblock (low)
506	Conga (high)	516	Woodblock (high/low)
507	Conga (low)	517	Shaker
508	Hand claps	518	Tambourine(d)
509	Timbale (high)	519	Tambourine(up)
510	Timbale (low)	520	Tambourine(down)
511	Triangle mute	521	Cowbell
512	Triangle open	522	8-oh cowbell

Percussion 2			
523	DP_Fatso_Tom_04	543	Acoutom2 low r
524	DR_Tom1	544	Roomtom1 high r
525	DR_Tom2	545	Roomtom1 mid r
526	DR_Tom3	546	Roomtom1 low r
527	MD_Tabla_3	547	9-oh tom high r
528	M6_Tabla_4	548	9-oh tom mid r
529	MD_Tabla_5	549	9-oh tom low r
530	MD_Tabla_4	550	Rocktom1 (h) rim
531	MD_Tabla_5	551	Rocktom1 (m) rim
532	DRe_Tom1	552	Rocktom1 (l) rim
533	DRe_Tom2	553	Drumbox(h) rim
534	DRe_Tom3	554	Drumbox(m) rim
535	DMX_Tom_01	555	Drumbox(l) rim
536	DMX_Tom_03	556	Jazztom (h) rim
537	DMX_Tom_05	557	Jazztom (m) rim
538	Acoutom1 high r	558	Jazztom (l) rim
539	Acoutom1 mid r	559	Raphoptom(h) rim
540	Acoutom1 low r	560	Raphoptom(m) rim
541	Acoutom2 high r	561	Raphoptom(l) rim
542	Acoutom2 mid r	562	Early R&B(h) rim

Percussion 2			
563	Early R&B(m) rim	594	Trashtom(low) r
564	Early R&B(l) rim	595	Rocktom2 (hig) r
565	Electrtom (h) r	596	Rocktom2 (mid) r
566	Electom (m) rim	597	Rocktom2 (low) r
567	Electrtom (l) r	598	Reggae-pop tom r
568	Crunchtom (h) r	599	Reggae-pop tom r
569	Crunchtom (m) r	600	Reggae-pop tom r
570	Crunchtom (l) r	601	Brushtom (hig) r
571	Compretom (h) r	602	Brushtom (mid) r
572	Compretom (m) r	603	Brushtom (low) r
573	Compretom (l) r	604	Moderntom (h) r
574	Elect 2 (hi) rim	605	Moderntom (m) r
575	Elect 2 (mi) rim	606	Moderntom (l) r
576	Elect 2 (lo) rim	607	Drboxtom (h) rim
577	Analogtom(h) rim	608	Drboxtom (m) rim
578	Analogtom(m) rim	609	Dancetom (l) rim
579	Analogtom(l) rim	610	FatsoTom 1 rim
580	9-ohtom2(h) rim	611	FatsoTom 2 rim
581	9-ohtom2(m) rim	612	FatsoTom 3 rim
582	9-ohtom2(l) rim	613	MD TomB_3 rim
583	Poptom1 (high) r	614	MD TomB_4 rim
584	Poptom1 (mid) r	615	MD TomB_5 rim
585	Poptom1 (low) r	616	DR Tom1 rim
586	Dancetom(high) r	617	DR Tom2 rim
587	Dancetom(mid) r	618	DR Tom3 rim
588	Dancetom(low) r	619	DMX Tom1 rim
589	E-poptom(high) r	620	DMX Tom2 rim
590	E-poptom(mid) r	621	DMX Tom3 rim
591	E-poptom(low) r	622	DPX Tom1 Rim
592	Trashtom(high) r	623	DPX Tom2 Rim
593	Trashtom(mid) r	624	DPX Tom3 Rim

Percussion 2			
625	DPX WarmTom1 Rim	638	MD TomB 4
626	DPX WarmTom2 Rim	639	MD TomB 5
627	DPX WarmTom3 Rim	640	Studio Tom Low
628	Fatso CongaH Rim	641	Studio Tom Mid
629	Fatso CongaL Rim	642	Studio Tom Hi
630	Fatso Tom 4 rim	643	Acoustic R
631	MD Tom1 Elec Rim	644	Pop Tom1
632	MD Tom2 Elec Rim	645	Pop Tom2
633	MD Tom3 Elec Rim	646	Pop Tom3
634	MD Tom1 Rim	647	Punk Tom1
635	MD Tom2 Rim	648	Punk Tom2
636	MD Tom3 Rim	649	Punk Tom3
637	MD TomB 3		

Percussion 3			
650	Rock rimshot 3_r	667	Elec-pop sn rim2
651	Rock_rim_1	668	Trash snare rim2
652	OH_Snare_Rim	669	Rock snare rim2
653	Rock_Rim_2	670	Reg-pop snare r
654	Drum box snare R	671	Brush snare rim2
655	Jazz snare Rim2	672	Mode R&B sn rim2
656	Rap-hop snare R	673	Drum box sn rim2
657	R&B snare Rim	674	Fatso_Rim
658	Elec sn 1 Rim	675	Tape_Rim
659	Crunch snare 1 R	676	warm_Fatso_Rim
660	Compressed sn R	677	warm_Tape_Rim
661	Electronic sn2 R	678	Fusion_1_Rim
662	Analog snare 1 R	679	Acoust_1_Rim
663	Dance club sn R	680	Killa_1_Rim
664	Latin1 rim	681	St_Tom1
665	Pop snare 1 rim	682	Rm_Tom1
666	8-oh snare rim2	683	St_Tom2

Percussion 3			
684	Rm_Tom2	692	Rm_Tom3Rim
685	St_Tom3	693	Pop Tom1 Rim
686	Rm_Tom3	694	Pop Tom2 Rim
687	St_Tom1Rim	695	Pop Tom3 Rim
688	Rm_Tom1Rim	696	Punk Tom 1 Rim
689	St_Tom2Rim	697	Punk Tom 2 Rim
690	Rm_Tom2Rim	698	Punk Tom 3 Rim
691	St_Tom3Rim		

Percussion 4			
699	Studio_Kick	721	Studio_Tom2
700	LaMetal_Kick	722	Studio_Tom3
701	Studio_Snare	723	LaMetal_Tom1
702	Studio_SnareRim	724	LaMetal_Tom2
703	LaMetal_Snare	725	LaMetal_Tom3
704	LaMetal_SnareRim	726	Studio_Tom1Rim
705	Studio_Ride	727	Studio_Tom2Rim
706	StudioCrash2Core	728	Studio_Tom3Rim
707	Studio_Crash2	729	Metal_Tom1Rim
708	Studio_Crash1	730	Metal_Tom2Rim
709	LaMetal_Ride	731	Metal_Tom3Rim
710	LaMetalCrash2Rim	732	Metal_Ride_Core
711	LaMetal_Crash2	733	Studio_Ride_Core
712	LaMetal_Crash1	734	Metal_Crash1_Rim
713	LaMetalRide_Bell	735	Studio_Crash2_R
714	Studio_H_Pedaled	736	Studio_Crash1_R
715	Studio_HH_Open	737	Studio_Ride_Bell
716	Studio_HH_Close	738	Metal_SnareRimDa
717	LaMetal_HH_Pedal	739	StudioSnareRimDa
718	LaMetal_HH_Open	740	Studio_HH_Duo
719	LaMetal_HH_Close	741	Metal_HH_Duo
720	Studio_Tom1	742	Rock_rim_3

Percussion 4			
743	Rock_rim_4	774	LaMetal_Tom4Rim
744	OH_Snare_Rim	775	Studio_Tom4Rim
745	Rock_Rim_5	776	LaMetal_Tom4
746	DrumboxsnareRim2	777	Studio_Tom4
747	Jazz snare Rim2	778	DAS_Tom4
748	Rap-hop snare R	779	DRS_Tom4
749	KEarlyR&Bsnare R	780	DAV_Tom4
750	Electronicsn 1 R	781	DSD_Tom4
751	Crunch snare 1 R	782	Tom4_BG
752	CompressedsnareR	783	073 Tom4_SADF
753	Electronic sn2 R	784	Tom4_SDFS
754	Analog snare 1 R	785	Tom4_EWRQ
755	Danceclubsnare R	786	Tom4_GFDS
756	Latin1 rim	787	Tom4_FDFW
757	Pop snare 1 rim	788	Tom4_VDDS
758	8-oh snare rim2	789	Tom4_IUYK
759	Elec-pop sn rim2	790	Tom4_NKGY
760	Trash snare rim2	791	Tom4_YYUR
761	Rock snare rim2	792	Tom4_TYRE
762	Reg-pop snare r2	793	Tom4_PONG
763	Brush snare rim2	794	Tom4_ETEVE
764	Mode R&B sn rim2	795	Tom4_EFVB
765	Drum box sn rim2	796	Tom4_JTRW
766	Fatso_Rim	797	Tom4_RYXE
767	Tape_Rim	798	Tom4_YYHN
768	warm_Fatso_Rim	799	Tom4_WHNN
769	warm_Tape_Rim	800	Dp_Fatso_Tom4
770	Fusion_1_Rim	801	MD_Tom4
771	Acoust_1_Rim	802	DR_Tom4
772	Killa_1_Rim	803	DMX_Tom4
773	Acoust_1_Rim	804	DP_Tom4

Percussion 4			
805	DPX_warm_Tom4	810	Standard Tom4
806	DP_Fatso_Tom4	811	Room Tom4
807	MD_Elec_Tom4	812	Pop Tom4
808	MD_Tom4	813	Punk Tom4
809	MD_Timb_Tom4		

Percussion 5			
814	Acoustic tom 4 R	838	Metal_Tom4Rim
815	Acoustic2tom 4 R	839	Studio_Tom4Rim
816	Room tom4 Rim	840	18" crash 2
817	K9-oh tom4 Rim	841	Mid crash 2
818	Rock tom4 Rim	842	Crash cymbal 2
819	Drum box tom4 R	843	Crispy splash 2
820	Jazz tom4 Rim	844	High splash
821	Early R&B tom4 R	845	Crash cymbal 2
822	Trash tom4 Rim	846	Rap-hop crash 2
823	Crunch tom4 Rim	847	Mid crash 2
824	Compressedtom4 R	848	Electro crash 2
825	Electronictom4 R	849	Falling crash 2
826	9-oh tom 4 Rim	850	18" crash 2 Rim
827	Latin bongo Rim	851	0851 Mid crash 2 Rim
828	Pop tom4 Rim	852	Crash cymbal 2 R
829	MD_Tom4 Rim	853	Crispy splash2 R
830	Dance clubtom4 R	854	High splash2 Rim
831	Elec-pop tom4 R	855	Crash cymbal2 R
832	Trash tom4 Rim	856	Rap-hop crash2 R
833	Rock tom4 Rim	857	Mid crash 2 Rim
834	Reg-pop tom4 R	858	Electro crash2 R
835	Brush tom4 Rim	859	Falling crash2 R
836	ModernR&B tom4 R	860	Low crash 2 Rim
837	Compressedtom4 R	861	Analog crash2 R

Percussion 5			
862	Dance club crash	885	Crispy splash2
863	18" crash 3	886	18" crash 3
864	Electro crash 2	887	Fatso_Crash2_Rim
865	Ele-pop crash 2	888	Tape_Crash2_Rim
866	Trash splash 2	889	MD_Crash2
867	Mid crash 3	890	MD_Crash2Rim
868	Mid splash 3	891	Standard Crash2
869	Mid crash 4	892	StandardCrash2 R
870	Electro crash 3	893	Room Crash2
871	Low crash 3	894	Room Crash2 Rim
872	Analog crash 2	895	Pop Crash Right
873	Danceclubcrash 2	896	PopCrash Right R
874	18" crash 3	897	Punk Crash Right
875	Electro crash 2	898	PunkCrashRight R
876	Elec-pop crash 2	899	Studio Crash2
877	Trash splash 2	900	Studio Crash2 R
878	Mid crash 3	901	Metal Crash2
879	Mid splash 2	902	Metal Crash2 Rim
880	Mid crash 2	903	Pop Ride Rim
881	Mid crash 3	904	Punk Ride Rim
882	Electrocrash2 R	905	PopCrash Right R
883	Fatso_Crash2	906	PunkCrash Left R
884	Tape_Crash2		

Percussion 6			
907	Brushhat1closedR	914	Brushhat2splashR
908	Brushhat1foot_R	915	Roomhat closed_R
909	Brushhat1open_r	916	Roomhat foot_rim
910	Brushhat1splashR	917	Roomhat open_rim
911	Brushhat2closedR	918	Roomhat splash_R
912	Brushhat2foot_R	919	Rockhat1 closedR
913	Brushhat2open_R	920	Rockhat1 foot_r

Percussion 6			
921	Rockhat1 open_r	952	8-ohhatclosed_r
922	Rockhat1splash_r	953	8-ohhatf_rim
923	Rockhat2closed_r	954	8-ohhatopen_rim
924	Rockhat2foot_rim	955	Dance club c_rim
925	Rockhat2open_rim	956	Dance club riM
926	Rockhat2splash_r	957	Dance club openR
927	Smallhat1closedR	958	Rap-hop hat c_r
928	Smallhat1foot_r	959	Rap-hop hat rim
929	Smallhat1open_r	960	Rap-hop hat o_r
930	Smallhat1splashR	961	Rap-hop hat s_r
931	Smallhat2closedR	962	Elec hat 1 c rim
932	Smallhat2foot_r	963	Elec hat 1 rim
933	Smallhat2open_r	964	Elec hat 1 o rim
934	Smallhat2splashR	965	Crunch hat c rim
935	Snappyhat c_rim	966	Crunch hat rim
936	Snappyhat f_rim	967	Crunch hatopen r
937	Snappyhat o_rim	968	Elec hat 2 c rim
938	Snappyhat spl_r	969	Elec hat 2 f_rim
939	Trashhatclosed_r	970	Elec hat2 open r
940	Trashhatrim 1	971	Elec hat 2 s_rim
941	Trashhatopen_rim	972	AnaloghatclosedR
942	Trashhatrim 2	973	Analoghatrim
943	EarlyR&Bhat c_r	974	Analoghatopen r
944	EarlyR&Bhat f_r	975	Drumboxhat 1 c r
945	EarlyR&Bhat o_r	976	Drumboxhat 1 rim
946	EarlyR&Bhat s_r	977	Drumboxhat 1 o R
947	Boomsnaphat c_r	978	9-ohhat closed R
948	Boomsnaphat o_r	979	9-ohhat rim
949	Boomsnaphat s_r	980	9-ohhat open rim
950	Rockhat3 closedR	981	9-ohhat splash R
951	Rockhat3 open_r	982	Elec-pop hat c R

Percussion 6			
983	Elec-pop hat f_R	1003	MD16_HHo_Rim
984	Elec-pop hat o R	1004	CYM Hihat Closed
985	Elec-pop hat s_r	1005	CYM Hihat Foot
986	ModernR&Bhat c R	1006	CYM Hihat Open
987	ModernR&Bhat f_R	1007	StandardOpen H R
988	ModernR&Bhat o R	1008	RoomOpenHihat R
989	ModernR&Bhat s_R	1009	Standard C HH R
990	Drumboxhat 2 c R	1010	RoomCloseHihat R
991	Drumboxhat 2 rim	1011	Standard P HH R
992	Drumboxhat 2 o R	1012	Room P Hihat Rim
993	Shakerhat c rim	1013	Pop Hihat C Rim
994	HHo_DP50_Fatso_R	1014	Punk Hihat C Rim
995	HH_DP50_Fatso_R	1015	Pop HH C Rim 2
996	HHo_DP50_Tape_R	1016	Punk HH C Rim 2
997	HH_DP50_Tape_Rim	1017	Pop Hihat O Rim
998	TriOpenDP50FatsR	1018	Punk Hihat O Rim
999	TriClosedDP50FaR	1019	Studio HH O Rim
1000	MD16_HH_2_Rim	1020	Studio HH C Rim
1001	MD16_HH_1_Rim	1021	Metal HH O Rim
1002	MD16_HH_pedal_R	1022	Metal HH C Rim

12.2 Kit list

No.	Name	No.	Name
1	Acoustic 1	27	Latin 3
2	Acoustic 2	28	Electronic 1
3	Room	29	Standard 3
4	Nine-oh	30	Jazz 1
5	Rock	31	Jazz 2
6	Dance Club	32	MuteElecYc
7	jazz	33	Standard
8	Rap-hop	34	Synth Pop
9	Early R&B	35	Bali
10	Electronic 1	36	Poycheddie
11	Crunch	37	Electro Rock 1
12	Compressed	38	Hard Rock 1
13	Electronic 2	39	Explosion
14	Latin 1	40	Electro Rock 2
15	Latin 2	41	Hard Rock 2
16	Pop 1	42	Electro Rock 3
17	Pop 2	43	Latin Rock
18	Eight-oh	44	Metal
19	Electro-pop	45	Power Rock 2
20	Trash	46	Punk Rock
21	Power Rock 1	47	Glitch
22	Reggae-pop	48	Jungle 1
23	Brush	49	Jungle 2
24	Modern R&B	50	Jungle 3
25	Drum Box	51...75	User kits
26	Power Pop		

12.3 Pattern list

No.	Name	BPM	Time signature	Kit	Assigned to
01	Africa 1	120	4/4	West Africa	Tom 1 Rim
02	Africa 2	130	4/4		
03	Son Clave	105	4/4	Salsa	Tom 3 Rim
04	PartidoAlto	120	4/4		
05	Mambo	105	4/4		
06	Rhumba Flm	125	4/4		
07	Flamenco	128	12/8		
08	Samba Regg	90	4/4	Brazil	Tom 1 Rim
09	BollyHood	90	4/4		
10	India	90	7/8	India	Tom 1 Rim
11	MidEast 1	98	4/4		
12	MidEast 2	80	5/8	MidEast	Tom 1 Rim
13	NA Ritual	85	4/4	Native American	Tom 2 Rim
14	SD Perc 1	90	4/4		
15	SD Perc 2	125	4/4	SDS9	Tom 2 Rim
16	Nails Dub	120	4/4	Nails	Tom 3 Rim
17	Nails BStp	140	6/8		

12.4 MIDI implementation

Function		Sent	Received	Notes
Basic Channel	Default	10 CH	1-16 CH	
	Changed	No	1-16 CH	
Mode	Default	Mode 3	Mode 3	
	Messages	No	No	
	Altered	*****	No	
Note Number		0...127	0...127	
	True voice	*****	0...127	
Velocity	Note ON	Yes 9nH, v = 0...127	Yes 9nH, v = 0...127	
	Note OFF	Yes, 8nH, v = 0	Yes, 9nH, v = 0 or 8nh	
After Keys		No	No	
Pitch Bender		No	Yes	
Control Change	0.32	Yes	Yes	Bank Select
	1	No	Yes	Modulation
	5	No	Yes	Portamento time
	6	Yes	Yes	Data Entry
	7	Yes	Yes	Volume
	10	No	Yes	Pan
	11	No	Yes	Expression
	64	No	Yes	Sustain
	65	No	Yes	Portamento
	66	No	Yes	Sostenuto
	67	No	Yes	Soft Pedal
	80, 81	Yes	Yes	DSP TYPE
	91, 93	Yes	Yes	DSP DEPTH
	100, 101	No	Yes (*1)	RPN LSB, MSB
121	No	Yes	Reset all Controllers	
Program Change	True	Yes, 0...127	Yes, 0...127	
		0 ... 127	0 ... 127	
System Exclusive		No	Yes	
System Common		Song Position	No	

Function		Sent	Received	Notes
	Song Select	No	No	
	Tune	No	No	
Aux Messages	Local on/off	Yes	No	
	All Notes Off	No	No	
	Active Sense	No	No	
	Reset	No	No	

Mode 1: OMNI ON, POLY. Mode 2: OMNI ON, MONO. Mode 3: OMNI OFF, POLY. Mode 4: OMNI OFF, MONO

*1: Registered parameter number: #0: Pitch sensitivity, #1: Fine tuning, #2: Coarse tuning in half-tones

