

MIDI Implementation

Model: TD-27

Date: Jan. 1. 2020

Version: 1.00

* In this implementation, the order in which the TD-27's buttons should be pressed is indicated in the following way. For example, [KIT EDIT]-[OTHER]-[KIT MIDI] means "press the [KIT EDIT] button, then press the [OTHER] (F5) button, then select [KIT MIDI] with the cursor, and finally press the [ENTER] button." For details, refer to the TD-27 owner's manual (Quick Start).

* The "Data List" referred to in this document can be obtained via the Roland website.

1. Receive Data

■ Channel Voice Messages

* The following Channel Voice Messages can be received by the channel assigned in [KIT EDIT]-[OTHER]-[KIT MIDI]-[MIDI CH] MIDI CH.

* Not received when [SYSTEM]-[MIDI]-[BASIC] MIDI Tx/Rx Sw is set to "OFF."

● Note On

Status	2nd byte	3rd byte
9nH	kkH	vvH
n = MIDI channel number:	0H-FH (ch. 1-ch. 16)	
kk = note number:	00H-7FH (0-127)	
vv = note on velocity:	01H-7FH (1-127)	

* Messages are received only on the channel that is assigned to the pad whose note number matches the message. For details on note numbers, refer to the PAD MIDI page of "TD-27 Data List" (PDF).

* When the [KIT EDIT]-[OTHER]-[BRUSH SW] Brush Switch is set to "ON," the note number selected in [KIT EDIT]-[OTHER]-[KIT MIDI]-[NOTE] Note No. (SNARE<BRUSH>) is received on the channel to which the SNARE<HEAD> is assigned (when an instrument compatible with brush performances is selected for the Snare pad head).

* The note number selected in [KIT EDIT]-[OTHER]-[KIT MIDI]-[NOTE] NOTE NO. (SNARE<XSTICK>) is received on the channel to which the SNARE<RIM> is assigned (when an instrument compatible with cross-sticking is selected for the Snare pad rim).

● Polyphonic Key Pressure

Status	2nd byte	3rd byte
AnH	kkH	vvH
n = MIDI channel number:	0H-FH (ch. 1-ch. 16)	
kk = note number:	00H-7FH (0-127)	
vv = value:	00H-7FH (0-127)	

* Messages are received only on the channel that is assigned to the pad whose note number matches the message. For details on note numbers, refer to the PAD MIDI page of “TD-27 Data List” (PDF).

* If the value is greater than 1, the decay of the note sounded by the received note number will be shortened based on the value (used in choking).

●Control Change

○Modulation (Controller number 1)

Status 2nd byte 3rd byte

BnH 01H vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

vv = Control value: 00H-7FH (0-127)

Pedal position: open to closed

Head strike position: center to perimeter

Rim strike position: deep to shallow

* In the channel to which the HI-HAT<BOW> is assigned, setting [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC to “MODULATION (1)” changes the hi-hat control pedal position.

* The strike position of the pad corresponding to the note number received changes immediately after [SYSTEM]-[MIDI]-[CONTROL] Snare CC (for the SNARE pad head and rim), Ride CC (for the RIDE pad bow), or Toms/AUXs CC (for head and rim of TOM 1-3, AUX 1-3 pads) is set to “MODULATION (1).”

○Breath Controller (Controller number 2)

Status 2nd byte 3rd byte

BnH 02H vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

vv = Control value: 00H-7FH (0-127)

Pedal position: open to closed

Head strike position: center to perimeter

Rim strike position: deep to shallow

* In the channel to which the HI-HAT<BOW> is assigned, setting [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC to “BREATH (2)” changes the hi-hat control pedal position.

* The strike position of the pad corresponding to the same note channel’s note number received changes immediately after [SYSTEM]-[MIDI]-[CONTROL] Snare CC (for the SNARE pad head and rim), Ride CC (for the RIDE pad bow), or Toms/AUXs CC (for head and rim of TOM 1-3, AUX 1-3 pads) is set to “BREATH (2).”

○Foot Controller (Controller number 4)

Status 2nd byte 3rd byte

BnH 04H vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

vv = Control value: 00H-7FH (0-127)

Pedal position: open to closed

Head strike position: center to perimeter

Rim strike position: deep to shallow

* In the channel to which the HI-HAT<BOW> is assigned, setting [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC to "FOOT (4)" changes the hi-hat control pedal position.

* The strike position of the pad corresponding to the same note channel's note number received changes immediately after [SYSTEM]-[MIDI]-[CONTROL] Snare CC (for the SNARE pad head and rim), Ride CC (for the RIDE pad bow), or Toms/AUXs CC (for head and rim of TOM 1-3, AUX 1-3 pads) is set to "FOOT (4)."

○Expression (Controller number 11)

Status 2nd byte 3rd byte

BnH 0BH vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

vv = Control value: 00H-7FH (0-127)

Pedal position: open to closed

Head strike position: center to perimeter

Rim strike position: deep to shallow

* In the channel to which the HI-HAT<BOW> is assigned, setting [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC to "EXPRESSION (11)" changes the hi-hat control pedal position.

* The strike position of the pad corresponding to the same note channel's note number received changes immediately after [SYSTEM]-[MIDI]-[CONTROL] Snare CC (for the SNARE pad head and rim), Ride CC (for the RIDE pad bow), or Toms/AUXs CC (for head and rim of TOM 1-3, AUX 1-3 pads) is set to "EXPRESSION (11)."

○General Purpose Controller 1 (Controller number 16)

Status 2nd byte 3rd byte

BnH 10H vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

vv = Control value: 00H-7FH (0-127)

Pedal position: open to closed

Head strike position: center to perimeter

Rim strike position: deep to shallow

* In the channel to which the HI-HAT<BOW> is assigned, setting [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC to "GENERAL1 (16)" changes the hi-hat control pedal position.

* The strike position of the pad corresponding to the same note channel's note number received changes immediately after [SYSTEM]-[MIDI]-[CONTROL] Snare CC (for the SNARE pad head and rim), Ride CC (for the RIDE pad bow), or Toms/AUXs CC (for head and rim of TOM 1-3, AUX 1-3 pads) is set to "GENERAL1 (16)."

○General Purpose Controller 2 (Controller number 17)

Status 2nd byte 3rd byte

BnH 11H vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

vv = Control value: 00H-7FH (0-127)

Pedal position: open to closed

Head strike position: center to perimeter

Rim strike position: deep to shallow

* In the channel to which the HI-HAT<BOW> is assigned, setting [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC to "GENERAL2 (17)" changes the hi-hat control pedal position.

* The strike position of the pad corresponding to the same note channel's note number received changes immediately after [SYSTEM]-[MIDI]-[CONTROL] Snare CC (for the SNARE pad head and rim), Ride CC (for the RIDE pad bow), or Toms/AUXs CC (for head and rim of TOM 1-3, AUX 1-3 pads) is set to "GENERAL2 (17)."

○General Purpose Controller 3 (Controller number 18)

Status 2nd byte 3rd byte

BnH 12H vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

vv = Control value: 00H-7FH (0-127)

Pedal position: open to closed

Head strike position: center to perimeter

Rim strike position: deep to shallow

* In the channel to which the HI-HAT<BOW> is assigned, setting [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC to "GENERAL3 (18)" changes the hi-hat control pedal position.

* The strike position of the pad corresponding to the same note channel's note number received changes immediately after [SYSTEM]-[MIDI]-[CONTROL] Snare CC (for the SNARE pad head and rim), Ride CC (for the RIDE pad bow), or Toms/AUXs CC (for head and rim of TOM 1-3, AUX 1-3 pads) is set to "GENERAL3 (18)."

○General Purpose Controller 4 (Controller number 19)

Status 2nd byte 3rd byte

BnH 13H vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

vv = Control value: 00H-7FH (0-127)

Pedal position: open to closed

Head strike position: center to perimeter

Rim strike position: deep to shallow

* In the channel to which the HI-HAT<BOW> is assigned, setting [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC to "GENERAL4 (19)" changes the hi-hat control pedal position.

* The strike position of the pad corresponding to the same note channel's note number received changes immediately after [SYSTEM]-[MIDI]-[CONTROL] Snare CC (for the SNARE pad head and rim), Ride CC (for the RIDE pad bow), or Toms/AUXs CC (for head and rim of TOM 1-3, AUX 1-3 pads) is set to "GENERAL4 (19)."

○High Resolution Velocity Prefix (Controller number 88)

Status 2nd byte 3rd byte

BnH 58H kkH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

kk = High resolution velocity prefix: 00H-40H (0-64)

* If a note-on message is received immediately thereafter on the same note channel, the force (velocity) of the pad strike is expressed as follows according to the values of the note-on velocity and the high resolution velocity prefix.

* When the note-on velocity is less than 127 and the high resolution velocity prefix is less than 64

The velocity is the same as the note-on velocity.

* When the note-on velocity is less than 127 and the high resolution velocity prefix is 64

If we let the note-on velocity be "x," the velocity is expressed as "x+0.5."

* When the note-on velocity is 127

If we let the high resolution velocity prefix be "y," the velocity is expressed as "127+(0.5*y)."

* Velocity values below the decimal point are not expressed in the screen of the TD-27. If we let the velocity be "x," velocities above 127 are expressed as "127+(x-127)."

* If a note-off is received immediately thereafter on the same note channel, the high resolution velocity prefix is reset.

* Not received when [SYSTEM]-[MIDI]-[CONTROL] HI-Reso Velocity is set to "OFF."

* If a message whose high resolution velocity prefix value of 65 or greater is received, it is received as a value of 64.

●Program Change

Status 2nd byte

CnH ppH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

pp = Program number: 00H-63H (prog.1-prog.100)

* Not received when [SYSTEM]-[MIDI]-[BASIC] program Change Rx is set to "OFF."

* Received only if the channel number matches the MIDI Channel of [SYSTEM]-[MIDI]-[BASIC].

* The sound will change beginning with the next Note-On after the Program Change is received. Voices which were already sounding before the Program Change was received will not be affected.

■Channel Mode Messages

* The following Channel Voice Messages can be received in [KIT EDIT]-[OTHER]-[KIT MIDI]-[MIDI CH] MIDI CH.

* Not received when [SYSTEM]-[MIDI]-[BASIC] Tx/Rx Sw is set to "OFF."

●All Sounds Off (Controller number 120)

Status 2nd byte 3rd byte

BnH 78H 00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)

* When this message is received, all currently-sounding notes on the corresponding channel will be silenced. However, the status of channel messages will not change.

●Reset All Controllers (Controller number 121)

Status 2nd byte 3rd byte

BnH 79H 00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)

* When this message is received, polyphonic key pressure for all pads assigned to the same channel number is reset to 0.

* If the channel number is the same as the channel that is assigned for HI-HAT<BOW>, the controller that is assigned by [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC is reset to 0.

●All Notes Off (Controller number 123)

Status 2nd byte 3rd byte

BnH 7BH 00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)

* The same processing will be carried out as when All Sounds Off is received.

●OMNI OFF (Controller number 124)

Status 2nd byte 3rd byte

BnH 7CH 00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)

* The same processing will be carried out as when All Sounds Off is received.

●OMNI ON (Controller number 125)

Status 2nd byte 3rd byte

BnH 7DH 00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)

* The same processing will be carried out as when All Sounds Off is received.

●MONO (Controller number 126)

Status 2nd byte 3rd byte

BnH 7EH mmH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

mm= mono number: 00H-10H (0-16)

* The same processing will be carried out as when All Sounds Off is received.

●POLY (Controller number 127)

Status 2nd byte 3rd byte

BnH 7FH 00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)

* The same processing will be carried out as when All Sounds Off is received.

■System Realtime Message

●Timing Clock

Status

F8H

* Recognized only when the [SYSTEM]-[MIDI]-[SYNC] Sync Mode is set at "EXTERNAL."

●Start

Status

FAH

* If a START message is received while the song is stopped, the click playback is reset. The song does not play.

* Recognized only when the [SYSTEM]-[MIDI]-[SYNC] Sync Mode is set at "EXTERNAL."

●Active Sensing

Status

FEH

* When Active Sensing is received, the unit will begin monitoring the intervals of all further messages. While monitoring, if the interval between messages exceeds about 500 ms, the same processing will be carried out as when All Sounds Off, All Notes Off and Reset All Controllers are received, and message interval monitoring will be halted.

■ System Exclusive Message

Status	Data byte	Status
F0H	iiH, ddH,, eeH	F7H
F0H:	System Exclusive Message status	
ii= ID number:	An ID number (manufacturer ID) to indicate the manufacturer whose Exclusive message this is. Roland' s manufacturer ID is 41H. ID numbers 7EH and 7FH are extensions of the MIDI standard; Universal Non-realtime Messages (7EH) and Universal Realtime Messages (7FH).	
dd, ..., ee= data:	00H-7FH (0-127)	
F7H:	EOX (End Of Exclusive)	

The System Exclusive Messages received by this device are Universal Non-realtime System Exclusive Messages.

This device receives the following system exclusive messages: universal non-realtime system exclusive messages, data request (RQ1), and data set (DT1).

● Universal Non-realtime System Exclusive Messages

○ Identity Request Message

Status	Data byte	Status
F0H	7EH, dev, 06H, 01H	F7H
Byte	Explanation	
F0H	Exclusive status	
7EH	ID number (Universal Non-realtime Message)	
dev	Device ID (10H-1FH (17-32), 7FH) Initial value is 10H (17)	
06H	Sub ID#1 (General Information)	
01H	Sub ID#2 (Identity Request)	
F7H	EOX (End Of Exclusive)	

* When Identity Request is received, Identity Reply message will be transmitted.

* The [SYSTEM]-[MIDI]-[BASIC] Device ID setting is used as the Device ID.

●Data Transmission

This instrument can use exclusive messages to exchange many varieties of internal settings with other devices. The model ID of the exclusive messages used by this instrument is 00H 00H 00H 63H.

○Data Request 1 (RQ1)

This message requests the other device to transmit data. The address and size indicate the type and amount of data that is requested. When a Data Request message is received, if the device is in a state in which it is able to transmit data, and if the address and size are appropriate, the requested data is transmitted as a Data Set 1 (DT1) message. If the conditions are not met, nothing is transmitted.

Status	Data byte	Status
F0H	41H, dev, 00H, 00H, 00H, 63H, 11H, aaH, bbH, ccH, ddH, ssH, ttH, uuH, vvH, sum	F7H

byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
dev	device ID (dev: 10H-1FH, 7FH)
00H	Model ID#1 (TD-27)
00H	Model ID#2 (TD-27)
00H	Model ID#3 (TD-27)
63H	Model ID#4 (TD-27)
11H	Command ID (RQ1)
aaH	Address MSB
bbH	Address
ccH	Address
ddH	Address LSB
ssH	Size MSB
ttH	Size
uuH	Size
vvH	Size LSB
sum	Checksum
F7H	EOX (End Of Exclusive)

* The size of data that can be transmitted at one time is fixed for each type of data. And data requests must be made with a fixed starting address and size. Refer to the address and size given in “3. Parameter Address Map.”

* For the checksum, refer to “How to calculate the checksum.”

○Data Set 1 (DT1)

These messages are used for transmitting the actual data and are used when you want to assign data to the device.

Status	Data byte	Status
F0H	41H, dev, 00H, 00H, 00H, 63H, 12H, aaH, bbH, ccH, ddH, eeH, ... ffH, sum	F7H
Byte	Explanation	
F0H	Exclusive status	
41H	ID number (Roland)	
dev	Model ID (dev: 10H-1FH, 7FH)	
00H	Model ID#1 (TD-27)	
00H	Model ID#2 (TD-27)	
00H	Model ID#3 (TD-27)	
63H	Model ID#4 (TD-27)	
12H	Command ID (DT1)	
aaH	Address MSB	
bbH	Address	
ccH	Address	
ddH	Address LSB	
eeH	Data: the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.	
:	:	
ffH	Data	
sum	Checksum	
F7H	EOX (End Of Exclusive)	

* The amount of data that can be transmitted at one time depends on the type of data, and data will be transmitted from the specified starting address and size. Refer to the address and size given in “3. Parameter Address Map.”

* Data larger than 256 bytes must be divided into packets of 256 bytes or less, and each packet must be sent at an interval of about 20 ms or longer.

* For the checksum, refer to “How to calculate the checksum.”

2. Transmit Data

* When [SYSTEM]-[MIDI]-[BASIC] Soft Thru MIDI In/Soft Thru USB MIDI In is set to “ON”, messages received in addition to the following messages are also sent to the corresponding jack.

■Channel Voice Messages

* The following channel voice messages are transmitted on the channel specified as the [KIT EDIT]-[OTHER]-[KIT MIDI]-[MIDI

CH] MIDI CH.

* Not transmitted when [SYSTEM]-[MIDI]-[BASIC] MIDI Tx/Rx Sw is set to "OFF."

●Note Off

Status	2nd byte	3rd byte
8nH	kkH	vvH
n = MIDI channel number:	0H-FH (ch.1-ch.16)	
kk = note number:	00H-7FH (0-127)	
vv = Note off velocity:	40H (64) fixed	

* In the channel assigned to the pad, after a pad is struck or the hi-hat control pedal is in the foot closed (splash) position, Note Off is transmitted after the interval set in Gate Time ([KIT EDIT]-[OTHER]-[KIT MIDI]-[GATE]).

●Note On

Status	2nd byte	3rd byte
9nH	kkH	vvH
n = MIDI channel number:	0H-FH (ch.1-ch.16)	
kk = note number:	00H-7FH (0-127)	
vv = Note on velocity:	01H-7FH (1-127)	

* In the channel assigned to the pad, after a pad is struck or the hi-hat control pedal is in the foot closed (splash) position, the note number set for the drum kit is transmitted.

* For a channel to which SNARE<HEAD> is assigned, when [KIT EDIT]-[OTHER]-[BRUSH SW] Brush Switch is "ON," the note number specified by [KIT EDIT]-[OTHER]-[KIT MIDI]-[NOTE] NOTE NO. (SNARE<BRUSH>) is transmitted.

* For a channel to which SNARE<RIM> is assigned, when an instrument that supports cross-stick technique is assigned to the rim of the SNARE pad, and either the [DRUM KIT]-[XSTICK] XStick Switch is "ON" or a digitally-connected pad that supports cross-stick technique (such as the PD-140DS) is assigned to the snare, then playing cross-stick technique on the SNARE pad will transmit the note number specified by [KIT EDIT]-[OTHER]-[KIT MIDI]-[NOTE] NOTE NO. (SNARE<XSTICK>) after the Gate Time has elapsed.

* In the channel to which the HI-HAT<BOW> is assigned, the note number transmitted when the hi-hat pad is struck (open, closed) switches with the value set with [SYSTEM]-[MIDI]-[CONTROL] HH Note# Border setting (the HH Pedal CC Control value) in accordance with the degree to which the hi-hat pedal is pressed.

●Polyphonic Key Pressure

Status	2nd byte	3rd byte
AnH	kkH	vvH
n = MIDI channel number:	0H-FH (ch.1-ch.16)	
kk = note number:	00H-7FH (0-127)	
vv = Value:	00H, 7FH (0, 127)	

* On the channel to which the pad is assigned, 7FH will be transmitted when the rim of the pad is pressed and 00H will be transmitted when the rim is released, for the note number specified for the head and rim. (When using a choking compatible pad and [SYSTEM]-[TRIGGER]-[PARAM] Trig Type is set to the corresponding pad.)

* In the case of a digitally-connected pad that supports choking technique (such as the CY-18DR), a value in the range of 7FH through 00H is transmitted according to the strength of choking.

* In the case of a digitally-connected pad that supports choking technique (such as the CY-18DR), polyphonic key pressure is also transmitted when you place your hand on the sensor.

●Control Change

○Modulation (Controller number 1)

Status 2nd byte 3rd byte

BnH 01H vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

vv = Control value: 00H-7FH (0-127)

Pedal position: open to closed

Head strike position: center to perimeter

Rim strike position: deep to shallow

* In the channel to which the HI-HAT<BOW> is assigned, when [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC is set to "MODULATION (1)," this is transmitted when the hi-hat control pedal is played. When the HI-HAT pad is struck, this is transmitted as a pedal position message before Note On.

* When the following three things are set, strike position data will be transmitted before the note-on data when a pad is struck.

* When "MODULATION (1)" is assigned to either [SYSTEM]-[MIDI]-[CONTROL] Snare CC (for head and rim of SNARE pad), Ride CC (for bow of RIDE pad), or Toms/AUXs CC (for head and rim of TOM 1-3, AUX 1-3 pads).

* When the [SYSTEM]-[TRIGGER]-[PARAM] Trig Type is set to a type that can detect the strike position, or a digitally-connected pad that can detect strike position is assigned.

* When Head and Rim for Position Detect for [SYSTEM]-[TRIGGER]-[PARAM] are set to "ON."

○Breath Controller (Controller number 2)

Status 2nd byte 3rd byte

BnH 02H vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

vv = Control value: 00H-7FH (0-127)

Pedal position: open to closed

Head strike position: center to perimeter

Rim strike position: deep to shallow

* In the channel to which the HI-HAT<BOW> is assigned, when [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC is set to "BREATH (2)," this is transmitted when the hi-hat control pedal is played. When the HI-HAT pad is struck, this is transmitted as a pedal position message before Note On.

* When the following three things are set, strike position data will be transmitted before the note-on data when a pad is struck.

* When "BREATH (2)" is assigned to either [SYSTEM]-[MIDI]-[CONTROL] Snare CC (for head and rim of SNARE pad), Ride CC (for bow of RIDE pad), or Toms/AUXs CC (for head and rim of TOM 1-3, AUX 1-3 pads).

* When the [SYSTEM]-[TRIGGER]-[PARAM] Trig Type is set to a type that can detect the strike position, or a digitally-connected pad that can detect strike position is assigned.

* When Head and Rim for Position Detect for [SYSTEM]-[TRIGGER]-[PARAM] are set to "ON."

○Foot Controller (Controller number 4)

Status 2nd byte 3rd byte

BnH 04H vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

vv = Control value: 00H-7FH (0-127)

 Pedal position: open to closed

 Head strike position: center to perimeter

 Rim strike position: deep to shallow

* In the channel to which the HI-HAT<BOW> is assigned, when [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC is set to "FOOT (4)," this is transmitted when the hi-hat control pedal is played. When the HI-HAT pad is struck, this is transmitted as a pedal position message before Note On.

* When the following three things are set, strike position data will be transmitted before the note-on data when a pad is struck.

* When "FOOT (4)" is assigned to either [SYSTEM]-[MIDI]-[CONTROL] Snare CC (for head and rim of SNARE pad), Ride CC (for bow of RIDE pad), or Toms/AUXs CC (for head and rim of TOM 1-3, AUX 1-3 pads).

* When the [SYSTEM]-[TRIGGER]-[PARAM] Trig Type is set to a type that can detect the strike position, or a digitally-connected pad that can detect strike position is assigned.

* When Head and Rim for Position Detect for [SYSTEM]-[TRIGGER]-[PARAM] are set to "ON."

○Expression (Controller number 11)

Status 2nd byte 3rd byte

BnH 0BH vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

vv = Control value: 00H-7FH (0-127)

 Pedal position: open to closed

 Head strike position: center to perimeter

 Rim strike position: deep to shallow

* In the channel to which the HI-HAT<BOW> is assigned, when [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC is set to "EXPRESSION (11)," this is transmitted when the hi-hat control pedal is played. When the HI-HAT pad is struck, this is transmitted as a pedal position message before Note On.

* When the following three things are set, strike position data will be transmitted before the note-on data when a pad is struck.

* When "EXPRESSION (11)" is assigned to either [SYSTEM]-[MIDI]-[CONTROL] Snare CC (for head and rim of SNARE pad), Ride CC (for bow of RIDE pad), or Toms/AUXs CC (for head and rim of TOM 1-3, AUX 1-3 pads).

* When the [SYSTEM]-[TRIGGER]-[PARAM] Trig Type is set to a type that can detect the strike position, or a digitally-connected pad that can detect strike position is assigned.

* When Head and Rim for Position Detect for [SYSTEM]-[TRIGGER]-[PARAM] are set to "ON."

○General Purpose Controller 1 (Controller number 16)

Status 2nd byte 3rd byte

BnH 10H vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

vv = Control value: 00H-7FH (0-127)

Pedal position: open to closed

Head strike position: center to perimeter

Rim strike position: deep to shallow

* In the channel to which the HI-HAT<BOW> is assigned, when [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC is set to "GENERAL1 (16)," this is transmitted when the hi-hat control pedal is played. When the HI-HAT pad is struck, this is transmitted as a pedal position message before Note On.

* When the following three things are set, strike position data will be transmitted before the note-on data when a pad is struck.

* When "GENERAL1 (16)" is assigned to either [SYSTEM]-[MIDI]-[CONTROL] Snare CC (for head and rim of SNARE pad), Ride CC (for bow of RIDE pad), or Toms/AUXs CC (for head and rim of TOM 1-3, AUX 1-3 pads).

* When the [SYSTEM]-[TRIGGER]-[PARAM] Trig Type is set to a type that can detect the strike position, or a digitally-connected pad that can detect strike position is assigned.

* When Head and Rim for Position Detect for [SYSTEM]-[TRIGGER]-[PARAM] are set to "ON."

○General Purpose Controller 2 (Controller number 17)

Status 2nd byte 3rd byte

BnH 11H vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

vv = Control value: 00H-7FH (0-127)

Pedal position: open to closed

Head strike position: center to perimeter

Rim strike position: deep to shallow

* In the channel to which the HI-HAT<BOW> is assigned, when [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC is set to "GENERAL2 (17)," this is transmitted when the hi-hat control pedal is played. When the HI-HAT pad is struck, this is transmitted as a pedal position message before Note On.

* When the following three things are set, strike position data will be transmitted before the note-on data when a pad is struck.

* When "GENERAL2 (17)" is assigned to either [SYSTEM]-[MIDI]-[CONTROL] Snare CC (for head and rim of SNARE pad), Ride CC (for bow of RIDE pad), or Toms/AUXs CC (for head and rim of TOM 1-3, AUX 1-3 pads).

* When the [SYSTEM]-[TRIGGER]-[PARAM] Trig Type is set to a type that can detect the strike position, or a digitally-connected pad that can detect strike position is assigned.

* When Head and Rim for Position Detect for [SYSTEM]-[TRIGGER]-[PARAM] are set to "ON."

○General Purpose Controller 3 (Controller number 18)

Status 2nd byte 3rd byte

BnH 12H vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

vv = Control value: 00H-7FH (0-127)

 Pedal position: open to closed

 Head strike position: center to perimeter

 Rim strike position: deep to shallow

* In the channel to which the HI-HAT<BOW> is assigned, when [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC is set to "GENERAL3 (18)," this is transmitted when the hi-hat control pedal is played. When the HI-HAT pad is struck, this is transmitted as a pedal position message before Note On.

* When the following three things are set, strike position data will be transmitted before the note-on data when a pad is struck.

* When "GENERAL3 (18)" is assigned to either [SYSTEM]-[MIDI]-[CONTROL] Snare CC (for head and rim of SNARE pad), Ride CC (for bow of RIDE pad), or Toms/AUXs CC (for head and rim of TOM 1-3, AUX 1-3 pads).

* When the [SYSTEM]-[TRIGGER]-[PARAM] Trig Type is set to a type that can detect the strike position, or a digitally-connected pad that can detect strike position is assigned.

* When Head and Rim for Position Detect for [SYSTEM]-[TRIGGER]-[PARAM] are set to "ON."

○General Purpose Controller 4 (Controller number 19)

Status 2nd byte 3rd byte

BnH 13H vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)

vv = Control value: 00H-7FH (0-127)

 Pedal position: open to closed

 Head strike position: center to perimeter

 Rim strike position: deep to shallow

* In the channel to which the HI-HAT<BOW> is assigned, when [SYSTEM]-[MIDI]-[CONTROL] HH Pedal CC is set to "GENERAL4 (19)," this is transmitted when the hi-hat control pedal is played. When the HI-HAT pad is struck, this is transmitted as a pedal position message before Note On.

* When the following three things are set, strike position data will be transmitted before the note-on data when a pad is struck.

* When "GENERAL4 (19)" is assigned to either [SYSTEM]-[MIDI]-[CONTROL] Snare CC (for head and rim of SNARE pad), Ride CC (for bow of RIDE pad), or Toms/AUXs CC (for head and rim of TOM 1-3, AUX 1-3 pads).

* When the [SYSTEM]-[TRIGGER]-[PARAM] Trig Type is set to a type that can detect the strike position, or a digitally-connected pad that can detect strike position is assigned.

* When Head and Rim for Position Detect for [SYSTEM]-[TRIGGER]-[PARAM] are set to "ON."

OH High Resolution Velocity Prefix (Controller number 88)

Status	2nd byte	3rd byte
BnH	58H	kkH
n = MIDI channel number:		0H-FH (ch.1-ch.16)
kk = High resolution velocity prefix:		00H-40H (0-64)

* Not transmitted when [SYSTEM]-[MIDI]-[CONTROL] HI-Reso Velocity is set to "OFF."

* When you strike a digitally-connected pad, the strike strength (velocity) is expressed in 0.5 steps across 317 levels (1, 1.5, ... , 158.5, 159), and is transmitted before the note-on as follows according to the velocity.

* When the velocity is less than 127 and the decimal portion is 0

The high resolution velocity prefix is 0.

* When the velocity is less than 127 and the decimal portion is 0.5

The high resolution velocity prefix is 64.

* When the velocity is 127 or more

If we let the high resolution velocity be "x," high resolution velocity prefix is $(x-127)/0.5$.

* Velocity values below the decimal point are not expressed in the screen of the TD-27. If we let the velocity be "x," velocities above 127 are expressed as "127+(x-127)."

● Program Change

Status	2nd byte
CnH	ppH
n = MIDI channel number:	0H-FH (ch.1-ch.16)
pp = Program number:	00H-63H (prog.1-prog.100)

* Not transmitted when [SYSTEM]-[MIDI]-[BASIC] Program Change TX is set to "OFF."

■ System Realtime Messages

● Timing Clock

Status

F8H

* Not transmitted when [SYSTEM]-[MIDI]-[SYNC] Sync Out is set to "OFF."

●Active Sensing

Status

FEH

* This message is transmitted at intervals of approximately 250 msec.

■System Exclusive Message

Identity Reply and Data Set (DT1) are the System Exclusive messages transmitted by this device.

●Universal Non-realtime System Exclusive Message

○Identity Reply

Status	Data byte	Status
F0H	7EH, dev, 06H, 02H, 41H, 63H, 03H, 00H, 00H, 00H, 01H, 00H, 00H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
dev	Device ID (10H-1FH (17-32), 7FH) Initial value is 10H (17)
06H	Sub ID#1 (General Information)
02H	Sub ID#2 (Identity Reply)
41H	ID number (Roland)
63H 03H	Device family code
00H 00H	Device family number code
00H 00H 00H 00H	Software revision level
F7H	EOX (End of Exclusive)

* When Identity Request is received, the above Identity Reply messages will be transmitted.

* The [SYSTEM]-[MIDI]-[BASIC] Device ID setting is used as the Device ID.

○Data Set 1 (DT1)

Status	Data byte	Status
F0H	41H, dev, 00H, 00H, 00H, 63H, 12H, aaH, bbH, ccH, ddH, eeH, ... ffH, sum	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
dev	Device ID (dev: 10H-1FH, 7FH)
00H	Model ID#1 (TD-27)
00H	Model ID#2 (TD-27)
00H	Model ID#3 (TD-27)
63H	Model ID#4 (TD-27)
12H	Command ID (DT1)
aaH	Address MSB
bbH	Address
ccH	Address
ddH	Address LSB
eeH	Data: the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.
:	:
ffH	Data
sum	Checksum
F7H	EOX (End Of Exclusive)

* The amount of data that can be transmitted at one time depends on the type of data, and data will be transmitted from the specified starting address and size. Refer to the address and size given in “3. Parameter Address Map.”

* Data larger than 256 bytes will be divided into packets of 256 bytes or less, and each packet will be sent at an interval of about 20 ms.

3. Parameter Address Map

* Transmission of “#” marked address is divided to multiple packets. For example, ABH in hexadecimal notation will be divided to 0AH and 0BH, and is sent/received in this order.

Trigger 1-8 corresponds to the TRIGGER BANK No.1-8 parameters.

Start	Description
Address	

```

| 00 00 00 00 | Current                               [Current] |
|-----+-----|
| 01 00 00 00 | Setup                                   [Setup] |
|-----+-----|
| 02 00 00 00 | Trigger 1                             [Trigger] |
| 02 01 00 00 | Trigger 2                             [Trigger] |
|           : |
| 02 07 00 00 | Trigger 8                             [Trigger] |
|-----+-----|
| 03 00 00 00 | SetList 1                             [SetListParams] |
| 03 00 10 00 | SetList 2                             [SetListParams] |
|           : |
| 03 03 70 00 | SetList 32                            [SetListParams] |
|-----+-----|
| 04 00 00 00 | Kit 1                                  [Kit] |
| 04 02 00 00 | Kit 2                                  [Kit] |
|           : |
| 05 46 00 00 | Kit 100                                [Kit] |
|-----+-----|

```

* [Kit]

The assignments to each pad within the [Kit] are as follows.

[KitPadCommon]、[KitPadInst]、[KitPadVEdit]

KICK HEAD	1
SNARE HEAD	2
SNARE RIM	3
TOM1 HEAD	4
TOM1 RIM	5
TOM2 HEAD	6
TOM2 RIM	7
TOM3 HEAD	8
TOM3 RIM	9
HI-HAT HEAD	10
HI-HAT RIM	11
CRASH1 HEAD	12
CRASH1 RIM	13
CRASH2 HEAD	14
CRASH2 RIM	15
RIDE HEAD	16
RIDE EDGE	17
RIDE BELL	18

AUX1 HEAD	19
AUX1 RIM	20
AUX2 HEAD	21
AUX2 RIM	22
AUX3 HEAD	23
AUX3 RIM	24

[KitPad]

KICK	1
SNARE	2
TOM1	3
TOM2	4
TOM3	5
HI-HAT	6
CRASH1	7
CRASH2	8
RIDE	9
AUX1	10
AUX2	11
AUX3	12

Offset	Address	Description
00 00 00	Kit Common	[KitCommon]
00 01 00	Kit MIDI	[KitMidi]
00 03 00	Kit Master Comp	[KitMasterComp]
00 04 00	Kit Master EQ	[KitMasterEQ]
00 10 00	Kit MFX 1	[KitMfx]
00 12 00	Kit MFX 2	[KitMfx]
00 14 00	Kit MFX 3	[KitMfx]
00 20 00	Kit Pad Common 1	[KitPadCommon]
00 21 00	Kit Pad Common 2	[KitPadCommon]
:		
00 37 00	Kit Pad Common 24	[KitPadCommon]

00 40 00 Kit Pad Main 1	[KitPadInst]	
00 41 00 Kit Pad Main 2	[KitPadInst]	
:		
00 57 00 Kit Pad Main 24	[KitPadInst]	

00 60 00 Kit Pad Sub 1	[KitPadInst]	
00 61 00 Kit Pad Sub 2	[KitPadInst]	
:		
00 77 00 Kit Pad Sub 24	[KitPadInst]	

01 00 00 Kit Pad VEdit Main 1	[KitPadVEdit]	
01 01 00 Kit Pad VEdit Main 2	[KitPadVEdit]	
:		
01 17 00 Kit Pad VEdit Main 24	[KitPadVEdit]	

01 20 00 Kit Pad VEdit Sub 1	[KitPadVEdit]	
01 21 00 Kit Pad VEdit Sub 2	[KitPadVEdit]	
:		
01 37 00 Kit Pad VEdit Sub 24	[KitPadVEdit]	

01 40 00 Kit Pad 1	[KitPad]	
01 41 00 Kit Pad 2	[KitPad]	
:		
01 4B 00 Kit Pad 12	[KitPad]	

01 60 00 Kit Room	[KitRoom]	

01 70 00 Kit Overhead	[KitOverhead]	

* [Setup]

Offset		
Address	Description	

00 00 00 Output	[SetupOutput]	

00 01 00 Control	[SetupControl]	

00 02 00 Click	[Click]	

00 03 00 Misc	[SetupMisc]	

+-----+

* [Trigger]

The assignments to each trigger within the [TrigAnalog] are as follows.

KICK	1
SNARE	2
TOM1	3
TOM2	4
TOM3	5
HI-HAT	6
CRASH1	7
CRASH2	8
RIDE	9
AUX1	10
AUX2	11
AUX3	12

[TrigDigital]

These are the trigger parameters for a digitally-connected pad. Digitally-connected pads detected by the TD-27 are assigned in the order in which they are recognized.

Normally you should edit these parameters from within the TD-27 itself.

+-----+

Offset		
Address	Description	
00 00 00	Trigger Misc	[TrigMisc]
00 01 00	Trigger Analog 1	[TrigAnalog]
00 02 00	Trigger Analog 2	[TrigAnalog]
:		
00 0C 00	Trigger Analog 12	[TrigAnalog]
00 0D 00	Trigger Digital 1	[TrigDigital]
00 0E 00	Trigger Digital 2	[TrigDigital]
:		
00 18 00	Trigger Digital 12	[TrigDigital]

+-----+

* [Current]

+-----+

Offset		
--------	--	--

Address	Description
00 00 0aaa aaaa	Drum Kit Number (0 - 99) 1 - 100
00 00 00 01	Total Size

* [KitCommon]

Some characters are not displayed for Kit Name and Kit Sub Name.

Offset	Address	Description
	00 00 0aaa aaaa	Kit Name 1 (1 - 126) 1 - 126 [ASCII]
	00 01 0aaa aaaa	Kit Name 2 (1 - 126) 1 - 126 [ASCII]
	00 02 0aaa aaaa	Kit Name 3 (1 - 126) 1 - 126 [ASCII]
	00 03 0aaa aaaa	Kit Name 4 (1 - 126) 1 - 126 [ASCII]
	00 04 0aaa aaaa	Kit Name 5 (1 - 126) 1 - 126 [ASCII]
	00 05 0aaa aaaa	Kit Name 6 (1 - 126) 1 - 126 [ASCII]
	00 06 0aaa aaaa	Kit Name 7 (1 - 126) 1 - 126 [ASCII]
	00 07 0aaa aaaa	Kit Name 8 (1 - 126) 1 - 126 [ASCII]
	00 08 0aaa aaaa	Kit Name 9 (1 - 126) 1 - 126 [ASCII]
	00 09 0aaa aaaa	Kit Name 10 (1 - 126) 1 - 126 [ASCII]
	00 0A 0aaa aaaa	Kit Name 11 (1 - 126) 1 - 126 [ASCII]
	00 0B 0aaa aaaa	Kit Name 12 (1 - 126) 1 - 126 [ASCII]
	00 0C 0aaa aaaa	Kit Sub Name 1 (1 - 126) 1 - 126 [ASCII]
	00 0D 0aaa aaaa	Kit Sub Name 2 (1 - 126)

			1 - 126 [ASCII]
	00 0E 0aaa aaaa Kit Sub Name 3		(1 - 126)
			1 - 126 [ASCII]
	00 0F 0aaa aaaa Kit Sub Name 4		(1 - 126)
			1 - 126 [ASCII]
	00 10 0aaa aaaa Kit Sub Name 5		(1 - 126)
			1 - 126 [ASCII]
	00 11 0aaa aaaa Kit Sub Name 6		(1 - 126)
			1 - 126 [ASCII]
	00 12 0aaa aaaa Kit Sub Name 7		(1 - 126)
			1 - 126 [ASCII]
	00 13 0aaa aaaa Kit Sub Name 8		(1 - 126)
			1 - 126 [ASCII]
	00 14 0aaa aaaa Kit Sub Name 9		(1 - 126)
			1 - 126 [ASCII]
	00 15 0aaa aaaa Kit Sub Name 10		(1 - 126)
			1 - 126 [ASCII]
	00 16 0aaa aaaa Kit Sub Name 11		(1 - 126)
			1 - 126 [ASCII]
	00 17 0aaa aaaa Kit Sub Name 12		(1 - 126)
			1 - 126 [ASCII]
	00 18 0aaa aaaa Kit Sub Name 13		(1 - 126)
			1 - 126 [ASCII]
	00 19 0aaa aaaa Kit Sub Name 14		(1 - 126)
			1 - 126 [ASCII]
	00 1A 0aaa aaaa Kit Sub Name 15		(1 - 126)
			1 - 126 [ASCII]
	00 1B 0aaa aaaa Kit Sub Name 16		(1 - 126)
			1 - 126 [ASCII]

#	00 1C 0000 aaaa		
	00 1D 0000 bbbb		
	00 1E 0000 cccc		
	00 1F 0000 dddd Volume		(-601 - 60)
			-INF, -60.0 - +6.0 [dB]
#	00 20 0000 aaaa		
	00 21 0000 bbbb		
	00 22 0000 cccc		
	00 23 0000 dddd Pedal HH Volume		(-601 - 60)
			-INF, -60.0 - +6.0 [dB]
	00 24 0000 000a Xstick Switch		(0 - 1)
			OFF, ON

	00 25	0aaa aaaa	Xstick Inst Number	(0 - 15)
				1 - 16
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Xstick Inst Volume	(-601 - 60)
				-INF, -60.0 - +6.0 [dB]
	00 2A	0000 000a	Brush Switch	(0 - 1)
				OFF, ON
	00 2B	0000 aaaa	Color	(0 - 9)
				1 - 10
	00 2C	0000 aaaa	Overhead Template	(0 - 8)
			1: CLEAR, 2: WARM, 3: DRY, 4: MILD, 5: BRIGHT,	
			6: OTHER 1, 7: OTHER 2, 8: OTHER 3, 9: OTHER 4	
	00 2D	0000 000a	Kit Tempo Sw	(0 - 1)
				OFF, ON
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	Kit Tempo	(20 - 260)
				20 - 260
#	00 32	0000 aaaa		
	00 33	0000 bbbb	HH Open/Close Balance	(-5 - 5)
				-5 - 5

	00 00 00 34	Total Size		

* [KitMidi]

Offset				
Address	Description			

#	00 00	0000 aaaa		
	00 01	0000 bbbb		
	00 02	0000 cccc		
	00 03	0000 dddd	Note KICK	(0 - 128)
				0 - 127, OFF
#	00 04	0000 aaaa		
	00 05	0000 bbbb		
	00 06	0000 cccc		
	00 07	0000 dddd	Note SNARE (HEAD)	(0 - 128)

				0 - 127, OFF	
#	00 08	0000	aaaa		
	00 09	0000	bbbb		
	00 0A	0000	cccc		
	00 0B	0000	dddd	Note SNARE (RIM)	(0 - 128)
				0 - 127, OFF	
#	00 0C	0000	aaaa		
	00 0D	0000	bbbb		
	00 0E	0000	cccc		
	00 0F	0000	dddd	Note SNARE (BRUSH)	(0 - 128)
				0 - 127, OFF	
#	00 10	0000	aaaa		
	00 11	0000	bbbb		
	00 12	0000	cccc		
	00 13	0000	dddd	Note SNARE (XSTICK)	(0 - 128)
				0 - 127, OFF	
#	00 14	0000	aaaa		
	00 15	0000	bbbb		
	00 16	0000	cccc		
	00 17	0000	dddd	Note TOM1 (HEAD)	(0 - 128)
				0 - 127, OFF	
#	00 18	0000	aaaa		
	00 19	0000	bbbb		
	00 1A	0000	cccc		
	00 1B	0000	dddd	Note TOM1 (RIM)	(0 - 128)
				0 - 127, OFF	
#	00 1C	0000	aaaa		
	00 1D	0000	bbbb		
	00 1E	0000	cccc		
	00 1F	0000	dddd	Note TOM2 (HEAD)	(0 - 128)
				0 - 127, OFF	
#	00 20	0000	aaaa		
	00 21	0000	bbbb		
	00 22	0000	cccc		
	00 23	0000	dddd	Note TOM2 (RIM)	(0 - 128)
				0 - 127, OFF	
#	00 24	0000	aaaa		
	00 25	0000	bbbb		
	00 26	0000	cccc		
	00 27	0000	dddd	Note TOM3 (HEAD)	(0 - 128)
				0 - 127, OFF	
#	00 28	0000	aaaa		

	00 29	0000 bbbb			
	00 2A	0000 cccc			
	00 2B	0000 dddd	Note TOM3 (RIM)	(0 - 128)	
				0 - 127, OFF	
#	00 2C	0000 aaaa			
	00 2D	0000 bbbb			
	00 2E	0000 cccc			
	00 2F	0000 dddd	Note HI-HAT OPEN (BOW)	(0 - 128)	
				0 - 127, OFF	
#	00 30	0000 aaaa			
	00 31	0000 bbbb			
	00 32	0000 cccc			
	00 33	0000 dddd	Note HI-HAT OPEN (EDGE)	(0 - 128)	
				0 - 127, OFF	
#	00 34	0000 aaaa			
	00 35	0000 bbbb			
	00 36	0000 cccc			
	00 37	0000 dddd	Note HI-HAT CLOSE (BOW)	(0 - 128)	
				0 - 127, OFF	
#	00 38	0000 aaaa			
	00 39	0000 bbbb			
	00 3A	0000 cccc			
	00 3B	0000 dddd	Note HI-HAT CLOSE (EDGE)	(0 - 128)	
				0 - 127, OFF	
#	00 3C	0000 aaaa			
	00 3D	0000 bbbb			
	00 3E	0000 cccc			
	00 3F	0000 dddd	Note HI-HAT PEDAL	(0 - 128)	
				0 - 127, OFF	
#	00 40	0000 aaaa			
	00 41	0000 bbbb			
	00 42	0000 cccc			
	00 43	0000 dddd	Note CRASH1 (BOW)	(0 - 128)	
				0 - 127, OFF	
#	00 44	0000 aaaa			
	00 45	0000 bbbb			
	00 46	0000 cccc			
	00 47	0000 dddd	Note CRASH1 (EDGE)	(0 - 128)	
				0 - 127, OFF	
#	00 48	0000 aaaa			
	00 49	0000 bbbb			
	00 4A	0000 cccc			

	00 4B	0000 dddd	Note CRASH2 (BOW)	(0 - 128)	
				0 - 127, OFF	
#	00 4C	0000 aaaa			
	00 4D	0000 bbbb			
	00 4E	0000 cccc			
	00 4F	0000 dddd	Note CRASH2 (EDGE)	(0 - 128)	
				0 - 127, OFF	
#	00 50	0000 aaaa			
	00 51	0000 bbbb			
	00 52	0000 cccc			
	00 53	0000 dddd	Note RIDE (BOW)	(0 - 128)	
				0 - 127, OFF	
#	00 54	0000 aaaa			
	00 55	0000 bbbb			
	00 56	0000 cccc			
	00 57	0000 dddd	Note RIDE (EDGE)	(0 - 128)	
				0 - 127, OFF	
#	00 58	0000 aaaa			
	00 59	0000 bbbb			
	00 5A	0000 cccc			
	00 5B	0000 dddd	Note RIDE (BELL)	(0 - 128)	
				0 - 127, OFF	
#	00 5C	0000 aaaa			
	00 5D	0000 bbbb			
	00 5E	0000 cccc			
	00 5F	0000 dddd	Note AUX1 (HEAD)	(0 - 128)	
				0 - 127, OFF	
#	00 60	0000 aaaa			
	00 61	0000 bbbb			
	00 62	0000 cccc			
	00 63	0000 dddd	Note AUX1 (RIM)	(0 - 128)	
				0 - 127, OFF	
#	00 64	0000 aaaa			
	00 65	0000 bbbb			
	00 66	0000 cccc			
	00 67	0000 dddd	Note AUX2 (HEAD)	(0 - 128)	
				0 - 127, OFF	
#	00 68	0000 aaaa			
	00 69	0000 bbbb			
	00 6A	0000 cccc			
	00 6B	0000 dddd	Note AUX2 (RIM)	(0 - 128)	
				0 - 127, OFF	

#	00 6C	0000 aaaa			
	00 6D	0000 bbbb			
	00 6E	0000 cccc			
	00 6F	0000 dddd	Note AUX3 (HEAD)	(0 - 128)	
				0 - 127, OFF	
#	00 70	0000 aaaa			
	00 71	0000 bbbb			
	00 72	0000 cccc			
	00 73	0000 dddd	Note AUX3 (RIM)	(0 - 128)	
				0 - 127, OFF	
	00 74	0aaa aaaa	Gate Time KICK	(1 - 80)	
				0.1 - 8.0	
	00 75	0aaa aaaa	Gate Time SNARE (HEAD)	(1 - 80)	
				0.1 - 8.0	
	00 76	0aaa aaaa	Gate Time SNARE (RIM)	(1 - 80)	
				0.1 - 8.0	
	00 77	0aaa aaaa	Gate Time TOM1 (HEAD)	(1 - 80)	
				0.1 - 8.0	
	00 78	0aaa aaaa	Gate Time TOM1 (RIM)	(1 - 80)	
				0.1 - 8.0	
	00 79	0aaa aaaa	Gate Time TOM2 (HEAD)	(1 - 80)	
				0.1 - 8.0	
	00 7A	0aaa aaaa	Gate Time TOM2 (RIM)	(1 - 80)	
				0.1 - 8.0	
	00 7B	0aaa aaaa	Gate Time TOM3 (HEAD)	(1 - 80)	
				0.1 - 8.0	
	00 7C	0aaa aaaa	Gate Time TOM3 (RIM)	(1 - 80)	
				0.1 - 8.0	
	00 7D	0aaa aaaa	Gate Time Hh (BOW)	(1 - 80)	
				0.1 - 8.0	
	00 7E	0aaa aaaa	Gate Time Hh (EDGE)	(1 - 80)	
				0.1 - 8.0	
	00 7F	0aaa aaaa	Gate Time CRASH1 (BOW)	(1 - 80)	
				0.1 - 8.0	
	01 00	0aaa aaaa	Gate Time CRASH1 (EDGE)	(1 - 80)	
				0.1 - 8.0	
	01 01	0aaa aaaa	Gate Time CRASH2 (BOW)	(1 - 80)	
				0.1 - 8.0	
	01 02	0aaa aaaa	Gate Time CRASH2 (EDGE)	(1 - 80)	
				0.1 - 8.0	
	01 03	0aaa aaaa	Gate Time RIDE (BOW)	(1 - 80)	
				0.1 - 8.0	

01 04	0aaa aaaa	Gate Time RIDE (EDGE)	(1 - 80)
			0.1 - 8.0
01 05	0aaa aaaa	Gate Time RIDE (BELL)	(1 - 80)
			0.1 - 8.0
01 06	0aaa aaaa	Gate Time AUX1 (HEAD)	(1 - 80)
			0.1 - 8.0
01 07	0aaa aaaa	Gate Time AUX1 (RIM)	(1 - 80)
			0.1 - 8.0
01 08	0aaa aaaa	Gate Time AUX2 (HEAD)	(1 - 80)
			0.1 - 8.0
01 09	0aaa aaaa	Gate Time AUX2 (RIM)	(1 - 80)
			0.1 - 8.0
01 0A	0aaa aaaa	Gate Time AUX3 (HEAD)	(1 - 80)
			0.1 - 8.0
01 0B	0aaa aaaa	Gate Time AUX3 (RIM)	(1 - 80)
			0.1 - 8.0
01 0C	000a aaaa	MIDI Ch KICK	(0 - 16)
			1 - 15, GLOBAL
01 0D	000a aaaa	MIDI Ch SNARE (HEAD)	(0 - 16)
			1 - 15, GLOBAL
01 0E	000a aaaa	MIDI Ch SNARE (RIM)	(0 - 16)
			1 - 15, GLOBAL
01 0F	000a aaaa	MIDI Ch TOM1 (HEAD)	(0 - 16)
			1 - 15, GLOBAL
01 10	000a aaaa	MIDI Ch TOM1 (RIM)	(0 - 16)
			1 - 15, GLOBAL
01 11	000a aaaa	MIDI Ch TOM2 (HEAD)	(0 - 16)
			1 - 15, GLOBAL
01 12	000a aaaa	MIDI Ch TOM2 (RIM)	(0 - 16)
			1 - 15, GLOBAL
01 13	000a aaaa	MIDI Ch TOM3 (HEAD)	(0 - 16)
			1 - 15, GLOBAL
01 14	000a aaaa	MIDI Ch TOM3 (RIM)	(0 - 16)
			1 - 15, GLOBAL
01 15	000a aaaa	MIDI Ch HI-HAT (BOW)	(0 - 16)
			1 - 15, GLOBAL
01 16	000a aaaa	MIDI Ch HI-HAT (EDGE)	(0 - 16)
			1 - 15, GLOBAL
01 17	000a aaaa	MIDI Ch CRASH1 (BOW)	(0 - 16)
			1 - 15, GLOBAL
01 18	000a aaaa	MIDI Ch CRASH1 (EDGE)	(0 - 16)
			1 - 15, GLOBAL

01 19	000a aaaa	MIDI Ch CRASH2 (BOW)	(0 - 16)
			1 - 15, GLOBAL
01 1A	000a aaaa	MIDI Ch CRASH2 (EDGE)	(0 - 16)
			1 - 15, GLOBAL
01 1B	000a aaaa	MIDI Ch RIDE (BOW)	(0 - 16)
			1 - 15, GLOBAL
01 1C	000a aaaa	MIDI Ch RIDE (EDGE)	(0 - 16)
			1 - 15, GLOBAL
01 1D	000a aaaa	MIDI Ch RIDE (BELL)	(0 - 16)
			1 - 15, GLOBAL
01 1E	000a aaaa	MIDI Ch AUX1 (HEAD)	(0 - 16)
			1 - 15, GLOBAL
01 1F	000a aaaa	MIDI Ch AUX1 (RIM)	(0 - 16)
			1 - 15, GLOBAL
01 20	000a aaaa	MIDI Ch AUX2 (HEAD)	(0 - 16)
			1 - 15, GLOBAL
01 21	000a aaaa	MIDI Ch AUX2 (RIM)	(0 - 16)
			1 - 15, GLOBAL
01 22	000a aaaa	MIDI Ch AUX3 (HEAD)	(0 - 16)
			1 - 15, GLOBAL
01 23	000a aaaa	MIDI Ch AUX3 (RIM)	(0 - 16)
			1 - 15, GLOBAL

00 00 01 24	Total Size		

* [KitOverhead]

Offset	Address	Description	
	00 00	0000 000a	Switch (0 - 1)
			OFF, OVERHEAD ON
	00 01	0000 00aa	Mic Type (0 - 3)
			TYPE 1 - 4
	00 02	0000 0aaa	Mic Width (0 - 4)
			0 - 4
#	00 03	0000 aaaa	
	00 04	0000 bbbb	
	00 05	0000 cccc	
	00 06	0000 dddd	Level (-601 - 120)
			-INF, -60.0 - +12.0 [dB]

	00 07	0000 000a	Pre Limiter Comp Switch	(0 - 1)	
				OFF, COMP ON	
#	00 08	0000 aaaa			
	00 09	0000 bbbb	Pre Limiter Gain	(-48 - 48)	
				-24.0 - +24.0 [dB]	
#	00 0A	0000 aaaa			
	00 0B	0000 bbbb	Pre Limiter Threshold	(-60 - 0)	
				-60 - 0 [dB]	
	00 0C	0000 0aaa	Pre Limiter Ratio	(0 - 7)	
				1:1, 2:1, 3:1, 4:1	
				8:1, 16:1, 32:1, 100:1	
	00 0D	0000 00aa	Pre Limiter Knee	(0 - 3)	
				HARD, SOFT1 - 3	
	00 0E	0aaa aaaa	Pre Limiter Attack	(0 - 100)	
				0.1 - 100 [ms]	
	00 0F	0aaa aaaa	Pre Limiter Release	(0 - 99)	
				10 - 1000 [ms]	
	00 10	0000 000a	Comp Switch	(0 - 1)	
				OFF, COMP ON	
#	00 11	0000 aaaa			
	00 12	0000 bbbb	Comp Gain	(-48 - 48)	
				-24.0 - +24.0 [dB]	
#	00 13	0000 aaaa			
	00 14	0000 bbbb	Comp Threshold	(-60 - 0)	
				-60 - 0 [dB]	
	00 15	0000 0aaa	Comp Ratio	(0 - 7)	
				1:1, 2:1, 3:1, 4:1	
				8:1, 16:1, 32:1, 100:1	
	00 16	0000 00aa	Comp Knee	(0 - 3)	
				HARD, SOFT1 - 3	
	00 17	0aaa aaaa	Comp Attack	(0 - 100)	
				0.1 - 100 [ms]	
	00 18	0aaa aaaa	Comp Release	(0 - 99)	
				10 - 1000 [ms]	
	00 19	0000 0aaa	Output Width	(0 - 6)	
				DEFAULT, WIDE +1 - +6	
	00 1A	000a aaaa	EQ Low Freq	(0 - 29)	
				20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz,	
				80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz,	
				315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1kHz,	
				1.25kHz, 1.6kHz, 2kHz, 2.5kHz, 3.15kHz, 4kHz,	
				5kHz, 6.3kHz, 8kHz, 10kHz, 12.5kHz, 16kHz	

	00 1B	000a	aaaa	EQ Mid Freq	(0 - 29)	
				20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz,		
				80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz,		
				315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1kHz,		
				1.25kHz, 1.6kHz, 2kHz, 2.5kHz, 3.15kHz, 4kHz,		
				5kHz, 6.3kHz, 8kHz, 10kHz, 12.5kHz, 16kHz		
	00 1C	000a	aaaa	EQ High Freq	(0 - 29)	
				20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz,		
				80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz,		
				315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1kHz,		
				1.25kHz, 1.6kHz, 2kHz, 2.5kHz, 3.15kHz, 4kHz,		
				5kHz, 6.3kHz, 8kHz, 10kHz, 12.5kHz, 16kHz		
	00 1D	0000	0aaa	EQ Mid Q	(0 - 4)	
				0.5, 1.0, 2.0, 4.0, 8.0		
#	00 1E	0000	aaaa			
	00 1F	0000	bbbb			
	00 20	0000	cccc			
	00 21	0000	dddd	EQ Low Gain	(-400 - 150)	
				-40.0 - +15.0 [dB]		
#	00 22	0000	aaaa			
	00 23	0000	bbbb			
	00 24	0000	cccc			
	00 25	0000	dddd	EQ Mid Gain	(-400 - 150)	
				-40.0 - +15.0 [dB]		
#	00 26	0000	aaaa			
	00 27	0000	bbbb			
	00 28	0000	cccc			
	00 29	0000	dddd	EQ High Gain	(-400 - 150)	
				-40.0 - +15.0 [dB]		
	00 2A	0000	0aaa	Filter 1 Type	(0 - 5)	
				THRU, LO CUT, HI CUT,		
				LO SHELV, HI SHELV, PEAKING		
	00 2B	0000	0aaa	Filter 2 Type	(0 - 5)	
				THRU, LO CUT, HI CUT,		
				LO SHELV, HI SHELV, PEAKING		
	00 2C	0000	0aaa	Filter 3 Type	(0 - 5)	
				THRU, LO CUT, HI CUT,		
				LO SHELV, HI SHELV, PEAKING		
	00 2D	0000	0aaa	Filter 4 Type	(0 - 5)	
				THRU, LO CUT, HI CUT,		
				LO SHELV, HI SHELV, PEAKING		
#	00 2E	0000	aaaa			

	00 2F	0000 bbbb	
	00 30	0000 cccc	
	00 31	0000 dddd	Filter 1 Freq (0 - 29)
			20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz,
			80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz,
			315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1kHz,
			1.25kHz, 1.6kHz, 2kHz, 2.5kHz, 3.15kHz, 4kHz,
			5kHz, 6.3kHz, 8kHz, 10kHz, 12.5kHz, 16kHz
#	00 32	0000 aaaa	
	00 33	0000 bbbb	
	00 34	0000 cccc	
	00 35	0000 dddd	Filter 2 Freq (0 - 29)
			20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz,
			80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz,
			315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1kHz,
			1.25kHz, 1.6kHz, 2kHz, 2.5kHz, 3.15kHz, 4kHz,
			5kHz, 6.3kHz, 8kHz, 10kHz, 12.5kHz, 16kHz
#	00 36	0000 aaaa	
	00 37	0000 bbbb	
	00 38	0000 cccc	
	00 39	0000 dddd	Filter 3 Freq (0 - 29)
			20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz,
			80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz,
			315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1kHz,
			1.25kHz, 1.6kHz, 2kHz, 2.5kHz, 3.15kHz, 4kHz,
			5kHz, 6.3kHz, 8kHz, 10kHz, 12.5kHz, 16kHz
#	00 3A	0000 aaaa	
	00 3B	0000 bbbb	
	00 3C	0000 cccc	
	00 3D	0000 dddd	Filter 4 Freq (0 - 29)
			20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz,
			80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz,
			315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1kHz,
			1.25kHz, 1.6kHz, 2kHz, 2.5kHz, 3.15kHz, 4kHz,
			5kHz, 6.3kHz, 8kHz, 10kHz, 12.5kHz, 16kHz
#	00 3E	0000 aaaa	
	00 3F	0000 bbbb	
	00 40	0000 cccc	
	00 41	0000 dddd	Filter 1 Gain (-400 - 150)
			-40.0 - +15.0 [dB]
#	00 42	0000 aaaa	
	00 43	0000 bbbb	

	00 44	0000 cccc		
	00 45	0000 dddd	Filter 2 Gain	(-400 - 150)
				-40.0 - +15.0 [dB]
#	00 46	0000 aaaa		
	00 47	0000 bbbb		
	00 48	0000 cccc		
	00 49	0000 dddd	Filter 3 Gain	(-400 - 150)
				-40.0 - +15.0 [dB]
#	00 4A	0000 aaaa		
	00 4B	0000 bbbb		
	00 4C	0000 cccc		
	00 4D	0000 dddd	Filter 4 Gain	(-400 - 150)
				-40.0 - +15.0 [dB]
	00 4E	0000 0aaa	Filter 1 Q	(0 - 4)
				0.5, 1.0, 2.0, 4.0, 8.0
	00 4F	0000 0aaa	Filter 2 Q	(0 - 4)
				0.5, 1.0, 2.0, 4.0, 8.0
	00 50	0000 0aaa	Filter 3 Q	(0 - 4)
				0.5, 1.0, 2.0, 4.0, 8.0
	00 51	0000 0aaa	Filter 4 Q	(0 - 4)
				0.5, 1.0, 2.0, 4.0, 8.0
	00 52	0000 0aaa	Distance	(0 - 6)
				0 - 6

	00 00 00 53	Total Size		

* [KitMasterComp]

Offset				
Address	Description			

	00 00	0000 000a	Switch	(0 - 1)
				OFF, COMP ON
	00 01	0000 0aaa	Type	(0 - 5)
			SINGLE SOFT COMP, SINGLE HARD COMP,	
			SINGLE LIMITER, 2BAND SOFT COMP,	
			2BAND HARD COMP, 2BAND LIMITER	
#	00 02	0000 aaaa		
	00 03	0000 bbbb		
	00 04	0000 cccc		
	00 05	0000 dddd	Split Freq	(0 - 1600)

			SINGLE, 10 - 16000[Hz]
#	00 06	0000 aaaa	
	00 07	0000 bbbb	Lo Gain (-48 - 48)
			-24.0 - +24.0 [dB]
#	00 08	0000 aaaa	
	00 09	0000 bbbb	Hi Gain (-48 - 48)
			-24.0 - +24.0 [dB]
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	Lo Threshold (-48 - 0)
			-48 - 0 [dB]
#	00 0C	0000 aaaa	
	00 0D	0000 bbbb	Hi Threshold (-48 - 0)
			-48 - 0 [dB]
	00 0E	0000 0aaa	Lo Ratio (0 - 7)
			1:1, 2:1, 3:1, 4:1,
			8:1, 16:1, 32:1, 100:1
	00 0F	0000 0aaa	Hi Ratio (0 - 7)
			1:1, 2:1, 3:1, 4:1,
			8:1, 16:1, 32:1, 100:1
	00 10	0000 00aa	Lo Knee (0 - 3)
			HARD, SOFT 1 - 3
	00 11	0000 00aa	Hi Knee (0 - 3)
			HARD, SOFT 1 - 3
	00 12	0aaa aaaa	Lo Attack (0 - 100)
			0.1 - 100 [ms]
	00 13	0aaa aaaa	Hi Attack (0 - 100)
			0.1 - 100 [ms]
	00 14	0aaa aaaa	Lo Release (0 - 99)
			10 - 1000 [ms]
	00 15	0aaa aaaa	Hi Release (0 - 99)
			10 - 1000 [ms]

	00 00 00 16	Total Size	

* [KitMasterEQ]

Offset	Address	Description
	00 00	0000 000a Switch (0 - 1)
		OFF, ON

	00 01	0000 000a	Low Eq Type	(0 - 1)	
				SHELV, PEAK	
	00 02	000a aaaa	Low Freq	(0 - 17)	
			20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz,		
			80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz,		
			315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1KHz		
	00 03	0000 0aaa	Low Q	(0 - 4)	
			0.5, 1.0, 2.0, 4.0, 8.0		
#	00 04	0000 aaaa			
	00 05	0000 bbbb	Low Gain	(-12 - 12)	
				-12 - +12 [dB]	
	00 06	000a aaaa	Mid 1 Freq	(0 - 29)	
			20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz,		
			80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz,		
			315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1kHz,		
			1.25kHz, 1.6kHz, 2kHz, 2.5kHz, 3.15kHz, 4kHz,		
			5kHz, 3.3kHz, 8kHz, 10kHz, 12.5kHz, 16kHz		
	00 07	0000 0aaa	Mid 1 Q	(0 - 4)	
			0.5, 1.0, 2.0, 4.0 8.0		
#	00 08	0000 aaaa			
	00 09	0000 bbbb	Mid 1 Gain	(-12 - 12)	
				-12 - +12 [dB]	
	00 0A	000a aaaa	Mid 2 Freq	(0 - 29)	
			20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz,		
			80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz,		
			315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1kHz,		
			1.25kHz, 1.6kHz, 2kHz, 2.5kHz, 3.15kHz, 4kHz,		
			5kHz, 3.3kHz, 8kHz, 10kHz, 12.5kHz, 16kHz		
	00 0B	0000 0aaa	Mid 2 Q	(0 - 4)	
			0.5, 1.0, 2.0, 4.0, 8.0		
#	00 0C	0000 aaaa			
	00 0D	0000 bbbb	Mid 2 Gain	(-12 - 12)	
				-12 - +12 [dB]	
	00 0E	0000 000a	High Eq Type	(0 - 1)	
				SHELV, PEAK	
	00 0F	0000 aaaa	High Freq	(0 - 12)	
			1kHz, 1.25kHz, 1.6kHz, 2kHz, 2.5kHz,		
			3.15kHz, 4kHz, 5kHz, 6.3kHz, 8kHz,		
			10kHz, 12.5kHz, 16kHz		
	00 10	0000 0aaa	High Q	(0 - 4)	
			0.5, 1.0, 2.0, 4.0, 8.0		
#	00 11	0000 aaaa			

00 12	0000 bbbb	High Gain	(-12 - 12)
			-12 - +12 [dB]

00 00 00 13	Total Size		

* [KitPadInst]

Offset			
Address		Description	

# 00 00	0000 aaaa		
00 01	0000 bbbb		
00 02	0000 cccc		
00 03	0000 dddd	Instrument	(0 -)
# 00 04	0000 aaaa		
00 05	0000 bbbb		
00 06	0000 cccc		
00 07	0000 dddd	Volume	(-601 - 60)
			-INF, -60.0 - +6.0 [dB]
00 08	0000 000a	Inst Bank	(0 - 1)
			PRESET, USER SAMPLE
00 09	0000 000a	Transient Switch	(0 - 1)
			OFF, ON
00 0A	0000 aaaa	Transient Time	(1 - 10)
			1 - 10
# 00 0B	0000 aaaa		
00 0C	0000 bbbb	Transient Attack	(-100 - 100)
			-100 - 100
# 00 0D	0000 aaaa		
00 0E	0000 bbbb	Transient Release	(-100 - 100)
			-100 - 100
# 00 0F	0000 aaaa		
00 10	0000 bbbb	Transient Gain	(-120 - 60)
			-12.0 - +6.0 [dB]
00 11	0000 00aa	Dynamic Enhancer Switch	(0 - 2)
			OFF, NORMAL, WIDE
00 12	0aaa aaaa	Pad Decay	(1 - 100)
			1 - 100
# 00 13	0000 aaaa		
00 14	0000 bbbb		
00 15	0000 cccc		

	00 16	0000 dddd	Pad Pitch	(-4800 - 4800)
				-4800 - 4800
#	00 17	0000 aaaa		
	00 18	0000 bbbb	Pad Pitch Sweep	(-100 - 100)
				-100 - 100

	00 00 00 19	Total Size		

* [KitPadCommon]

Offset				
Address	Description			

#	00 00	0000 aaaa		
	00 01	0000 bbbb	Pan	(-30 - 30)
				L30 - 1, CTR, R1 - 30
	00 02	0000 aaaa	Minimum Volume	(0 - 15)
				0 - 15
#	00 03	0000 aaaa		
	00 04	0000 bbbb	Maximum Volume	(-5 - 0)
				-5 - 0
	00 05	0000 aaaa	Mute Group SEND	(0 - 8)
				OFF, 1 - 8
	00 06	0000 aaaa	Mute Group RECEIVE	(0 - 8)
				OFF, 1 - 8

	00 07	0000 000a	Sub Inst Switch	(0 - 1)
				OFF, SUB ON
	00 08	0000 0aaa	Layer Type	(0 - 4)
				MIX, FADE1 - 3, SWITCH
#	00 09	0000 aaaa		
	00 0A	0000 bbbb		
	00 0B	0000 cccc		
	00 0C	0000 dddd	Layer Fade Point	(1 - 159)
				1 - 127, 127+1 - 127+32

	00 0D	0000 000a	Eq Switch	(0 - 1)
				OFF, EQ ON
	00 0E	000a aaaa	Eq Low Freq	(0 - 17)
				20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz,

			80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz,	
			315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1KHz	
#	00 0F	0000 aaaa		
	00 10	0000 bbbb	Eq Low Gain	(-15 - 15)
				-15 - +15 [dB]
	00 11	000a aaaa	Eq Mid Freq	(0 - 29)
			20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz,	
			80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz,	
			315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1kHz,	
			1.25kHz, 1.6kHz, 2kHz, 2.5kHz, 3.15kHz, 4kHz,	
			5kHz, 6.3kHz, 8kHz, 10kHz, 12.5kHz, 16kHz	
	00 12	0000 0aaa	Eq Mid Q	(0 - 4)
				0.5, 1.0, 2.0, 4.0, 8.0
#	00 13	0000 aaaa		
	00 14	0000 bbbb	Eq Mid Gain	(-15 - 15)
				-15 - +15 [dB]
	00 15	0000 aaaa	Eq High Freq	(0 - 12)
			1kHz, 1.25kHz, 1.6kHz, 2kHz, 2.5kHz,	
			3.15kHz, 4kHz, 5kHz, 6.3kHz, 8kHz,	
			10kHz, 12.5kHz, 16kHz	
#	00 16	0000 aaaa		
	00 17	0000 bbbb	Eq High Gain	(-15 - 15)
				-15 - +15 [dB]

#	00 18	0000 aaaa		
	00 19	0000 bbbb		
	00 1A	0000 cccc		
	00 1B	0000 dddd	MFX Send Level	(-601 - 60)
				-INF, -60.0 - +6.0 [dB]
	00 1C	0000 00aa	MFX Assign	(1 - 3)
				MFX1, MFX2, MFX3

#	00 1D	0000 aaaa		
	00 1E	0000 bbbb	Pedal Bend Range	(-24 - 24)
				-24 - 24
	00 1F	0000 000a	Position Control	(0 - 1)
				OFF, ON
	00 20	0000 aaaa	Position Area	(0 - 10)
				INSIDE-5 - -1, DEFAULT, OUTSIDE+1 - +5
#	00 21	0000 aaaa		
	00 22	0000 bbbb		
	00 23	0000 cccc		

	00 24	0000 dddd	Room Send Level	(-601 - 60)
				-INF, -60.0 - +6.0 [dB]
#	00 25	0000 aaaa		
	00 26	0000 bbbb		
	00 27	0000 cccc		
	00 28	0000 dddd	Overhead Send Level	(-601 - 60)
				-INF, -60.0 - +6.0 [dB]
	00 29	0000 0aaa	Overhead Send Filter Select	(0 - 4)
				BYPASS, FILTER 1- 4

	00 00 00 2A	Total Size		

* [KitPad]

Offset	Address	Description
	00 00 0000 000a	MFX DRY+WET (0 - 1)
		MFX ONLY, DRY+MFX
	00 01 0000 000a	Comp Switch (0 - 1)
		OFF, COMP ON
	00 02 0000 aaaa	Comp Type (0 - 10)
		KICK 1, KICK 2, SNARE 1, SNARE 2,
		TOM 1, TOM 2, CYMBAL 1, CYMBAL 2,
		SOFT COMP, HARD COMP, LIMITER
#	00 03 0000 aaaa	
	00 04 0000 bbbb	Gain (-48 - 48)
		-24.0 - +24.0 [dB]
#	00 05 0000 aaaa	
	00 06 0000 bbbb	Threshold (-48 - 0)
		-48 - 0 [dB]
	00 07 0000 0aaa	Ratio (0 - 7)
		1:1, 2:1, 3:1, 4:1,
		8:1, 16:1, 32:1, 100:1
	00 08 0000 00aa	Knee (0 - 3)
		HARD, SOFT1 - 3
	00 09 0aaa aaaa	Attack (0 - 100)
		0.1 - 100 [ms]
	00 0A 0aaa aaaa	Release (0 - 99)

10 - 1000 [ms]

00 00 00 0B | Total Size

* [SetListParams]

Some characters are not displayed for SetList Name.

Offset	Address	Description
# 00 00	0000 aaaa	
00 01	0000 bbbb	SetList Name 1 (1 - 126) 1 - 126 [ASCII]
# 00 02	0000 aaaa	
00 03	0000 bbbb	SetList Name 2 (1 - 126) 1 - 126 [ASCII]
# 00 04	0000 aaaa	
00 05	0000 bbbb	SetList Name 3 (1 - 126) 1 - 126 [ASCII]
# 00 06	0000 aaaa	
00 07	0000 bbbb	SetList Name 4 (1 - 126) 1 - 126 [ASCII]
# 00 08	0000 aaaa	
00 09	0000 bbbb	SetList Name 5 (1 - 126) 1 - 126 [ASCII]
# 00 0A	0000 aaaa	
00 0B	0000 bbbb	SetList Name 6 (1 - 126) 1 - 126 [ASCII]
# 00 0C	0000 aaaa	
00 0D	0000 bbbb	SetList Name 7 (1 - 126) 1 - 126 [ASCII]
# 00 0E	0000 aaaa	
00 0F	0000 bbbb	SetList Name 8 (1 - 126) 1 - 126 [ASCII]
# 00 10	0000 aaaa	
00 11	0000 bbbb	SetList Name 9 (1 - 126) 1 - 126 [ASCII]
# 00 12	0000 aaaa	
00 13	0000 bbbb	SetList Name 10 (1 - 126) 1 - 126 [ASCII]

#	00 14	0000 aaaa		
	00 15	0000 bbbb	SetList Name 11	(1 - 126)
				1 - 126 [ASCII]
#	00 16	0000 aaaa		
	00 17	0000 bbbb	SetList Name 12	(1 - 126)
				1 - 126 [ASCII]

#	00 18	0000 aaaa		
	00 19	0000 bbbb	Step 1 KitNum	(-1 - 99)
				END (*1), 1 - 100
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb	Step 2 KitNum	(-1 - 99)
				END (*1), 1 - 100
#	00 1C	0000 aaaa		
	00 1D	0000 bbbb	Step 3 KitNum	(-1 - 99)
				END (*1), 1 - 100
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb	Step 4 KitNum	(-1 - 99)
				END (*1), 1 - 100
#	00 20	0000 aaaa		
	00 21	0000 bbbb	Step 5 KitNum	(-1 - 99)
				END (*1), 1 - 100
#	00 22	0000 aaaa		
	00 23	0000 bbbb	Step 6 KitNum	(-1 - 99)
				END (*1), 1 - 100
#	00 24	0000 aaaa		
	00 25	0000 bbbb	Step 7 KitNum	(-1 - 99)
				END (*1), 1 - 100
#	00 26	0000 aaaa		
	00 27	0000 bbbb	Step 8 KitNum	(-1 - 99)
				END (*1), 1 - 100
#	00 28	0000 aaaa		
	00 29	0000 bbbb	Step 9 KitNum	(-1 - 99)
				END (*1), 1 - 100
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb	Step 10 KitNum	(-1 - 99)
				END (*1), 1 - 100
#	00 2C	0000 aaaa		
	00 2D	0000 bbbb	Step 11 KitNum	(-1 - 99)
				END (*1), 1 - 100
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb	Step 12 KitNum	(-1 - 99)

			END (*1), 1 - 100	
#	00 30	0000 aaaa		
	00 31	0000 bbbb	Step 13 KitNum	(-1 - 99)
			END (*1), 1 - 100	
#	00 32	0000 aaaa		
	00 33	0000 bbbb	Step 14 KitNum	(-1 - 99)
			END (*1), 1 - 100	
#	00 34	0000 aaaa		
	00 35	0000 bbbb	Step 15 KitNum	(-1 - 99)
			END (*1), 1 - 100	
#	00 36	0000 aaaa		
	00 37	0000 bbbb	Step 16 KitNum	(-1 - 99)
			END (*1), 1 - 100	
#	00 38	0000 aaaa		
	00 39	0000 bbbb	Step 17 KitNum	(-1 - 99)
			END (*1), 1 - 100	
#	00 3A	0000 aaaa		
	00 3B	0000 bbbb	Step 18 KitNum	(-1 - 99)
			END (*1), 1 - 100	
#	00 3C	0000 aaaa		
	00 3D	0000 bbbb	Step 19 KitNum	(-1 - 99)
			END (*1), 1 - 100	
#	00 3E	0000 aaaa		
	00 3F	0000 bbbb	Step 20 KitNum	(-1 - 99)
			END (*1), 1 - 100	
#	00 40	0000 aaaa		
	00 41	0000 bbbb	Step 21 KitNum	(-1 - 99)
			END (*1), 1 - 100	
#	00 42	0000 aaaa		
	00 43	0000 bbbb	Step 22 KitNum	(-1 - 99)
			END (*1), 1 - 100	
#	00 44	0000 aaaa		
	00 45	0000 bbbb	Step 23 KitNum	(-1 - 99)
			END (*1), 1 - 100	
#	00 46	0000 aaaa		
	00 47	0000 bbbb	Step 24 KitNum	(-1 - 99)
			END (*1), 1 - 100	
#	00 48	0000 aaaa		
	00 49	0000 bbbb	Step 25 KitNum	(-1 - 99)
			END (*1), 1 - 100	
#	00 4A	0000 aaaa		
	00 4B	0000 bbbb	Step 26 KitNum	(-1 - 99)

			END (*1), 1 - 100
#	00 4C	0000 aaaa	
	00 4D	0000 bbbb	Step 27 KitNum (-1 - 99)
			END (*1), 1 - 100
#	00 4E	0000 aaaa	
	00 4F	0000 bbbb	Step 28 KitNum (-1 - 99)
			END (*1), 1 - 100
#	00 50	0000 aaaa	
	00 51	0000 bbbb	Step 29 KitNum (-1 - 99)
			END (*1), 1 - 100
#	00 52	0000 aaaa	
	00 53	0000 bbbb	Step 30 KitNum (-1 - 99)
			END (*1), 1 - 100
#	00 54	0000 aaaa	
	00 55	0000 bbbb	Step 31 KitNum (-1 - 99)
			END (*1), 1 - 100
#	00 56	0000 aaaa	
	00 57	0000 bbbb	Step 32 KitNum (-1 - 99)
			END (*1), 1 - 100

	00 00 00 58	Total Size	

(*1) The last step of each set list (shown as END on the actual unit) has a value of "-1."

* [Click]

Offset	Address	Description
	00 00	00aa aaaa Sound (0 - 14)
		METRONOME, CLICK, VOICE,
		BEEP 1, BEEP 2, TEK CLICK,
		STICKS, CLAVES, WOOD BLOCK,
		COWBELL, AGOGO, TRIANGLE,
		TAMBOURINE, MARACAS, CABASA
#	00 01	0000 aaaa
	00 02	0000 bbbb Click Pan (-30 - 30)
		L30 - 1, CTR, R1 - 30
#	00 03	0000 aaaa
	00 04	0000 bbbb
	00 05	0000 cccc
	00 06	0000 dddd Level (-601 - 60)

-INF, -60.0 - +6.0 [dB]

00 00 00 07 | Total Size

* [TrigMisc]

Some characters are not displayed for Trigger Bank Name.

Offset	Address	Description
# 00 00	0000 aaaa	
00 01	0000 bbbb	Trigger Bank Name 1 (1 - 126) 1 - 126 [ASCII]
# 00 02	0000 aaaa	
00 03	0000 bbbb	Trigger Bank Name 2 (1 - 126) 1 - 126 [ASCII]
# 00 04	0000 aaaa	
00 05	0000 bbbb	Trigger Bank Name 3 (1 - 126) 1 - 126 [ASCII]
# 00 06	0000 aaaa	
00 07	0000 bbbb	Trigger Bank Name 4 (1 - 126) 1 - 126 [ASCII]
# 00 08	0000 aaaa	
00 09	0000 bbbb	Trigger Bank Name 5 (1 - 126) 1 - 126 [ASCII]
# 00 0A	0000 aaaa	
00 0B	0000 bbbb	Trigger Bank Name 6 (1 - 126) 1 - 126 [ASCII]
# 00 0C	0000 aaaa	
00 0D	0000 bbbb	Trigger Bank Name 7 (1 - 126) 1 - 126 [ASCII]
# 00 0E	0000 aaaa	
00 0F	0000 bbbb	Trigger Bank Name 8 (1 - 126) 1 - 126 [ASCII]
# 00 10	0000 aaaa	
00 11	0000 bbbb	Trigger Bank Name 9 (1 - 126) 1 - 126 [ASCII]
# 00 12	0000 aaaa	
00 13	0000 bbbb	Trigger Bank Name 10 (1 - 126) 1 - 126 [ASCII]
# 00 14	0000 aaaa	

	00 15	0000 bbbb	Trigger Bank Name 11	(1 - 126)	
				1 - 126 [ASCII]	
#	00 16	0000 aaaa			
	00 17	0000 bbbb	Trigger Bank Name 12	(1 - 126)	
				1 - 126 [ASCII]	
#	00 18	0000 aaaa			
	00 19	0000 bbbb	Trigger Bank Name 13	(1 - 126)	
				1 - 126 [ASCII]	
#	00 1A	0000 aaaa			
	00 1B	0000 bbbb	Trigger Bank Name 14	(1 - 126)	
				1 - 126 [ASCII]	
#	00 1C	0000 aaaa			
	00 1D	0000 bbbb	Trigger Bank Name 15	(1 - 126)	
				1 - 126 [ASCII]	
#	00 1E	0000 aaaa			
	00 1F	0000 bbbb	Trigger Bank Name 16	(1 - 126)	
				1 - 126 [ASCII]	
#	00 20	0000 aaaa			
	00 21	0000 bbbb			
	00 22	0000 cccc			
	00 23	0000 dddd	HI-HAT VH-12 Offset	(-100 - 100)	
				-100 - 100	
#	00 24	0000 aaaa			
	00 25	0000 bbbb			
	00 26	0000 cccc			
	00 27	0000 dddd	HI-HAT VH-13 Offset	(-100 - 100)	
				-100 - 100	
#	00 28	0000 aaaa			
	00 29	0000 bbbb	HI-HAT VH-12 Foot Splash Sens	(-10 - 10)	
				-10 - 10	
#	00 2A	0000 aaaa			
	00 2B	0000 bbbb	HI-HAT VH-13 Foot Splash Sens	(-10 - 10)	
				-10 - 10	
#	00 2C	0000 aaaa			
	00 2D	0000 bbbb	HI-HAT FD Foot Splash Sens	(-10 - 10)	
				-10 - 10	
	00 2E	0000 00aa	HI-HAT VH-12 Noise Cancel	(0 - 2)	
				1 - 3	
	00 2F	0000 00aa	HI-HAT VH-13 Noise Cancel	(0 - 2)	
				1 - 3	
	00 30	0000 000a	HI-HAT CC MAX	(0 - 1)	
				90, 127	

00 31	0aaa aaaa	Analog XStick Threshold	(0 - 127)
			0 - 127
00 32	0aaa aaaa	XTalk Cancel Rate 1 (KICK)	(0 - 80)
			0 - 80
00 33	0aaa aaaa	XTalk Cancel Rate 2 (SNARE)	(0 - 80)
			0 - 80
00 34	0aaa aaaa	XTalk Cancel Rate 3 (TOM 1)	(0 - 80)
			0 - 80
00 35	0aaa aaaa	XTalk Cancel Rate 4 (TOM 2)	(0 - 80)
			0 - 80
00 36	0aaa aaaa	XTalk Cancel Rate 5 (TOM 3)	(0 - 80)
			0 - 80
00 37	0aaa aaaa	XTalk Cancel Rate 6 (HI-HAT)	(0 - 80)
			0 - 80
00 38	0aaa aaaa	XTalk Cancel Rate 7 (CRASH 1)	(0 - 80)
			0 - 80
00 39	0aaa aaaa	XTalk Cancel Rate 8 (CRASH 2)	(0 - 80)
			0 - 80
00 3A	0aaa aaaa	XTalk Cancel Rate 9 (RIDE)	(0 - 80)
			0 - 80
00 3B	0aaa aaaa	XTalk Cancel Rate 10 (AUX 1)	(0 - 80)
			0 - 80
00 3C	0aaa aaaa	XTalk Cancel Rate 11 (AUX 2)	(0 - 80)
			0 - 80
00 3D	0aaa aaaa	XTalk Cancel Rate 12 (AUX 3)	(0 - 80)
			0 - 80

00 00 00 3E	Total Size		

* [TrigAnalog]

This area is valid for a pad that is connected to a TRIGGER IN jack.

Offset	Address	Description
00 00	00aa aaaa	Trig Type (0 - 50)
		KDA22, KD200, KD140, KD120, KD85,
		KD10, KD9, KD8, KD7, KT10,
		KT9, PDA120, PDA100, PDA140F, PD128,
		PD125X, PD125, PD108, PD105X, PD105,
		PD85, PDX100, PDX12, PDX8, PDX6,

			PD8, VH13, VH12, VH11, VH10,	
			CY16RT, CY15R, CY14CT, CY14C, CY13R,	
			CY12C, CY12R/C, CY8, CY5, BT1,	
			BT1 SENS, PAD1, PAD2, PAD3, RT30K,	
			RT30HR, RT30H SN, RT30H TM, RT10K, RT10S,	
			RT10T,	
00 01	00aa aaaa	Sensitivity	(0 - 62)	
			1.0 - 32.0	
00 02	00aa aaaa	Rim Gain	(0 - 32)	
			0 - 3.2	
00 03	000a aaaa	Threshold	(0 - 31)	
			0 - 31	
00 04	0000 0aaa	Curve	(0 - 7)	
			LINEAR, EXP1, EXP2, LOG1,	
			LOG2, SPLINE, LOUD1, LOUD2	
00 05	0000 0aaa	ExtNoiseCancel	(0 - 5)	
			OFF, 1 - 5	
00 06	0aaa aaaa	Head/Rim Adjust	(0 - 80)	
			0 - 80	
00 07	00aa aaaa	Scan Time	(0 - 40)	
			0 - 4.0	
00 08	0aaa aaaa	Mask Time	(0 - 64)	
			0 - 64	
00 09	0000 aaaa	Retrigger Cancel	(0 - 15)	
			1 - 16	
00 0A	0000 000a	Position Head	(0 - 1)	
			OFF, ON	
00 0B	0000 000a	Position Rim	(0 - 1)	
			OFF, ON	

00 00 00 0C	Total Size			

* [SetupOutput]

Offset	Address	Description	
	00 00	0000 000a Master Assign (KICK)	(0 - 1)
			PHONES ONLY, PHONES+MASTER (L+R)
	00 01	0000 000a Master Assign (SNARE)	(0 - 1)
			PHONES ONLY, PHONES+MASTER (L+R)

00 02	0000 000a	Master Assign (TOM 1)	(0 - 1)
		PHONES ONLY, PHONES+MASTER (L+R)	
00 03	0000 000a	Master Assign (TOM 2)	(0 - 1)
		PHONES ONLY, PHONES+MASTER (L+R)	
00 04	0000 000a	Master Assign (TOM 3)	(0 - 1)
		PHONES ONLY, PHONES+MASTER (L+R)	
00 05	0000 000a	Master Assign (HI-HAT)	(0 - 1)
		PHONES ONLY, PHONES+MASTER (L+R)	
00 06	0000 000a	Master Assign (CRASH 1)	(0 - 1)
		PHONES ONLY, PHONES+MASTER (L+R)	
00 07	0000 000a	Master Assign (CRASH 2)	(0 - 1)
		PHONES ONLY, PHONES+MASTER (L+R)	
00 08	0000 000a	Master Assign (RIDE)	(0 - 1)
		PHONES ONLY, PHONES+MASTER (L+R)	
00 09	0000 000a	Master Assign (AUX 1)	(0 - 1)
		PHONES ONLY, PHONES+MASTER (L+R)	
00 0A	0000 000a	Master Assign (AUX 2)	(0 - 1)
		PHONES ONLY, PHONES+MASTER (L+R)	
00 0B	0000 000a	Master Assign (AUX 3)	(0 - 1)
		PHONES ONLY, PHONES+MASTER (L+R)	
00 0C	0000 0aaa	Direct Assign (KICK)	(0 - 6)
		OFF,	
		DIRECT 1, DIRECT 2, DIRECT 1+2 (L+R),	
		MASTER DIRECT L, MASTER DIRECT R,	
		MASTER DIRECT L+R	
00 0D	0000 0aaa	Direct Assign (SNARE)	(0 - 6)
		OFF,	
		DIRECT 1, DIRECT 2, DIRECT 1+2 (L+R),	
		MASTER DIRECT L, MASTER DIRECT R,	
		MASTER DIRECT L+R	
00 0E	0000 0aaa	Direct Assign (TOM 1)	(0 - 6)
		OFF,	
		DIRECT 1, DIRECT 2, DIRECT 1+2 (L+R),	
		MASTER DIRECT L, MASTER DIRECT R,	
		MASTER DIRECT L+R	
00 0F	0000 0aaa	Direct Assign (TOM 2)	(0 - 6)
		OFF,	
		DIRECT 1, DIRECT 2, DIRECT 1+2 (L+R),	
		MASTER DIRECT L, MASTER DIRECT R,	
		MASTER DIRECT L+R	
00 10	0000 0aaa	Direct Assign (TOM 3)	(0 - 6)
		OFF,	

			DIRECT 1,	
			DIRECT 2,	
			DIRECT 1+2 (L+R),	
			MASTER DIRECT L,	
			MASTER DIRECT R,	
			MASTER DIRECT L+R	
	00 11	0000 0aaa	Direct Assign (HI-HAT)	(0 - 6)
			OFF,	
			DIRECT 1,	
			DIRECT 2,	
			DIRECT 1+2 (L+R),	
			MASTER DIRECT L,	
			MASTER DIRECT R,	
			MASTER DIRECT L+R	
	00 12	0000 0aaa	Direct Assign (CRASH 1)	(0 - 6)
			OFF,	
			DIRECT 1,	
			DIRECT 2,	
			DIRECT 1+2 (L+R),	
			MASTER DIRECT L,	
			MASTER DIRECT R,	
			MASTER DIRECT L+R	
	00 13	0000 0aaa	Direct Assign (CRASH 2)	(0 - 6)
			OFF,	
			DIRECT 1,	
			DIRECT 2,	
			DIRECT 1+2 (L+R),	
			MASTER DIRECT L,	
			MASTER DIRECT R,	
			MASTER DIRECT L+R	
	00 14	0000 0aaa	Direct Assign (RIDE)	(0 - 6)
			OFF,	
			DIRECT 1,	
			DIRECT 2,	
			DIRECT 1+2 (L+R),	
			MASTER DIRECT L,	
			MASTER DIRECT R,	
			MASTER DIRECT L+R	
	00 15	0000 0aaa	Direct Assign (AUX 1)	(0 - 6)
			OFF,	
			DIRECT 1,	
			DIRECT 2,	

			DIRECT 1+2 (L+R),	
			MASTER DIRECT L,	
			MASTER DIRECT R,	
			MASTER DIRECT L+R	
00 16	0000 0aaa	Direct Assign (AUX 2)	(0 - 6)	
			OFF,	
			DIRECT 1,	
			DIRECT 2,	
			DIRECT 1+2 (L+R),	
			MASTER DIRECT L,	
			MASTER DIRECT R,	
			MASTER DIRECT L+R	
00 17	0000 0aaa	Direct Assign (AUX 3)	(0 - 6)	
			OFF,	
			DIRECT 1,	
			DIRECT 2,	
			DIRECT 1+2 (L+R),	
			MASTER DIRECT L,	
			MASTER DIRECT R,	
			MASTER DIRECT L+R	
00 18	0000 000a	Master Assign (MFX1)	(0 - 1)	
			PHONES ONLY, PHONES+MASTER (L+R)	
00 19	0000 000a	Master Assign (MFX2)	(0 - 1)	
			PHONES ONLY, PHONES+MASTER (L+R)	
00 1A	0000 000a	Master Assign (MFX3)	(0 - 1)	
			PHONES ONLY, PHONES+MASTER (L+R)	
00 1B	0000 000a	Master Assign (SONG)	(0 - 1)	
			PHONES ONLY, PHONES+MASTER (L+R)	
00 1C	0000 000a	Master Assign (CLICK)	(0 - 1)	
			PHONES ONLY, PHONES+MASTER (L+R)	
00 1D	0000 000a	Master Assign (MIX IN)	(0 - 1)	
			PHONES ONLY, PHONES+MASTER (L+R)	
00 1E	0000 000a	Master Assign (USB IN MAIN)	(0 - 1)	
			PHONES ONLY, PHONES+MASTER (L+R)	
00 1F	0000 000a	Master Assign (USB IN SUB)	(0 - 1)	
			PHONES ONLY, PHONES+MASTER (L+R)	
00 20	0000 0aaa	Direct Assign (MFX1)	(0 - 6)	
			OFF,	
			DIRECT 1,	
			DIRECT 2,	
			DIRECT 1+2 (L+R),	
			MASTER DIRECT L,	

			MASTER DIRECT R,	
			MASTER DIRECT L+R	
	00 21	0000 0aaa	Direct Assign (MFX2)	(0 - 6)
			OFF,	
			DIRECT 1,	
			DIRECT 2,	
			DIRECT 1+2 (L+R),	
			MASTER DIRECT L,	
			MASTER DIRECT R,	
			MASTER DIRECT L+R	
	00 22	0000 0aaa	Direct Assign (MFX3)	(0 - 6)
			OFF,	
			DIRECT 1,	
			DIRECT 2,	
			DIRECT 1+2 (L+R),	
			MASTER DIRECT L,	
			MASTER DIRECT R,	
			MASTER DIRECT L+R	
	00 23	0000 0aaa	Direct Assign (SONG)	(0 - 6)
			OFF,	
			DIRECT 1,	
			DIRECT 2,	
			DIRECT 1+2 (L+R),	
			MASTER DIRECT L,	
			MASTER DIRECT R,	
			MASTER DIRECT L+R	
	00 24	0000 0aaa	Direct Assign (CLICK)	(0 - 6)
			OFF,	
			DIRECT 1,	
			DIRECT 2,	
			DIRECT 1+2 (L+R),	
			MASTER DIRECT L,	
			MASTER DIRECT R,	
			MASTER DIRECT L+R	
	00 25	0000 0aaa	Direct Assign (MIXIN)	(0 - 6)
			OFF,	
			DIRECT 1,	
			DIRECT 2,	
			DIRECT 1+2 (L+R),	
			MASTER DIRECT L,	
			MASTER DIRECT R,	
			MASTER DIRECT L+R	

	00 26	0000 0aaa	Direct Assign (USB IN MAIN)	(0 - 6)	
				OFF,	
				DIRECT 1,	
				DIRECT 2,	
				DIRECT 1+2 (L+R),	
				MASTER DIRECT L,	
				MASTER DIRECT R,	
				MASTER DIRECT L+R	
	00 27	0000 0aaa	Direct Assign (USB IN SUB)	(0 - 6)	
				OFF,	
				DIRECT 1,	
				DIRECT 2,	
				DIRECT 1+2 (L+R),	
				MASTER DIRECT L,	
				MASTER DIRECT R,	
				MASTER DIRECT L+R	
	00 28	0000 000a	Master Output Mode	(0 - 1)	
				NORMAL, DIRECT	
	00 29	0000 000a	PadEq/Comp to Direct	(0 - 1)	
				OFF, ON	
	00 2A	0000 000a	Pad Comp to Phones	(0 - 1)	
				OFF, ON	
#	00 2B	0000 aaaa			
	00 2C	0000 bbbb	Direct Output Gain	(-12 - 12)	
				-12 - +12.0 [dB]	
	00 2D	0000 aaaa	LoCut Frequency	(0 - 10)	
				20, 25, 31.5, 40, 50, 63,	
				80, 100, 125, 160, 200[Hz]	
	00 2E	0000 000a	Master Output LoCut Switch	(0 - 1)	
				OFF, ON	
	00 2F	0000 000a	Phones Output LoCut Switch	(0 - 1)	
				OFF, ON	
	00 30	0000 000a	Direct Output LoCut Switch	(0 - 1)	
				OFF, ON	
	00 31	0000 000a	Master Assign (OVERHEAD)	(0 - 1)	
				PHONES ONLY, PHONES+MASTER (L+R)	
	00 32	0000 000a	Master Assign (ROOM)	(0 - 1)	
				PHONES ONLY, PHONES+MASTER (L+R)	
	00 33	0000 0aaa	Direct Assign (OVERHEAD)	(0 - 6)	
				OFF,	
				DIRECT 1,	
				DIRECT 2,	

			DIRECT 1+2 (L+R),	
			MASTER DIRECT L,	
			MASTER DIRECT R,	
			MASTER DIRECT L+R	
	00 34	0000 0aaa	Direct Assign (ROOM)	(0 - 6)
			OFF,	
			DIRECT 1,	
			DIRECT 2,	
			DIRECT 1+2 (L+R),	
			MASTER DIRECT L,	
			MASTER DIRECT R,	
			MASTER DIRECT L+R	
	00 35	0000 000a	(reserve)	
#	00 36	0000 aaaa		
	00 37	0000 bbbb	Master Output Gain	(-12 - 12)
				-12 - +12.0 [dB]
#	00 38	0000 aaaa		
	00 39	0000 bbbb	Phones Output Gain	(-12 - 12)
				-12 - +12.0 [dB]

	00 00 00 3A	Total Size		

* [SetupControl]

Offset				
Address		Description		

	00 00	0000 0aaa	Trig Bank Number	(0 - 7)
				1 - 8

	00 00 00 01	Total Size		

* [SetupMisc]

Offset				
Address		Description		

	00 00	0000 00aa	Mix In Gain	(0 - 2)
				0, +6, +12 [dB]
#	00 01	0000 aaaa		

	00 02	0000 bbbb	USB Audio Input Gain	(-36 - 12)
				-36 - +12[dB]
#	00 03	0000 aaaa		
	00 04	0000 bbbb	USB Audio Output Gain	(-24 - 24)
				-24 - +24[dB]

	00 00 00 05	Total Size		

* [KitRoom]

Offset	Address	Description
	00 00	0000 000a Switch (0 - 1)
		OFF, ROOM/REVERB ON
	00 01	0000 000a Type (0 - 1)
		ROOM, REVERB
#	00 02	0000 aaaa
	00 03	0000 bbbb
	00 04	0000 cccc
	00 05	0000 dddd Level (-601 - 60)
		-INF, -60.0 - +6.0 [dB]
#	00 06	0000 aaaa
	00 07	0000 bbbb
	00 08	0000 cccc
	00 09	0000 dddd Room Parameter 1 (*2)
#	00 0A	0000 aaaa
	00 0B	0000 bbbb
	00 0C	0000 cccc
	00 0D	0000 dddd Room Parameter 2 (*2)
#	00 0E	0000 aaaa
	00 0F	0000 bbbb
	00 10	0000 cccc
	00 11	0000 dddd Room Parameter 3 (*2)
#	00 12	0000 aaaa
	00 13	0000 bbbb
	00 14	0000 cccc
	00 15	0000 dddd Room Parameter 4 (*2)
#	00 16	0000 aaaa
	00 17	0000 bbbb
	00 18	0000 cccc

	00 19	0000 dddd	Room Parameter 5	(*2)	
#	00 1A	0000 aaaa			
	00 1B	0000 bbbb			
	00 1C	0000 cccc			
	00 1D	0000 dddd	Room Parameter 6	(*2)	
#	00 1E	0000 aaaa			
	00 1F	0000 bbbb			
	00 20	0000 cccc			
	00 21	0000 dddd	Room Parameter 7	(*2)	
#	00 22	0000 aaaa			
	00 23	0000 bbbb			
	00 24	0000 cccc			
	00 25	0000 dddd	Room Parameter 8	(*2)	
#	00 26	0000 aaaa			
	00 27	0000 bbbb			
	00 28	0000 cccc			
	00 29	0000 dddd	Room Parameter 9	(*2)	
#	00 2A	0000 aaaa			
	00 2B	0000 bbbb			
	00 2C	0000 cccc			
	00 2D	0000 dddd	Room Parameter 10	(*2)	
#	00 2E	0000 aaaa			
	00 2F	0000 bbbb			
	00 30	0000 cccc			
	00 31	0000 dddd	Room Parameter 11	(*2)	
#	00 32	0000 aaaa			
	00 33	0000 bbbb			
	00 34	0000 cccc			
	00 35	0000 dddd	Room Parameter 12	(*2)	
#	00 36	0000 aaaa			
	00 37	0000 bbbb			
	00 38	0000 cccc			
	00 39	0000 dddd	Room Parameter 13	(*2)	
#	00 3A	0000 aaaa			
	00 3B	0000 bbbb			
	00 3C	0000 cccc			
	00 3D	0000 dddd	Room Parameter 14	(*2)	
#	00 3E	0000 aaaa			
	00 3F	0000 bbbb			
	00 40	0000 cccc			
	00 41	0000 dddd	Room Parameter 15	(*2)	
#	00 42	0000 aaaa			

	00 43	0000	bbbb		
	00 44	0000	cccc		
	00 45	0000	dddd	Room Parameter 16	(*2)
#	00 46	0000	aaaa		
	00 47	0000	bbbb		
	00 48	0000	cccc		
	00 49	0000	dddd	Room Parameter 17	(*2)
#	00 4A	0000	aaaa		
	00 4B	0000	bbbb		
	00 4C	0000	cccc		
	00 4D	0000	dddd	Room Parameter 18	(*2)
#	00 4E	0000	aaaa		
	00 4F	0000	bbbb		
	00 50	0000	cccc		
	00 51	0000	dddd	Room Parameter 19	(*2)
#	00 52	0000	aaaa		
	00 53	0000	bbbb		
	00 54	0000	cccc		
	00 55	0000	dddd	Room Parameter 20	(*2)

	00 00	00 56	Total Size		
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(*2) This area is assigned as follows according to the selected KitRoom Type. Addresses for which the KitRoom Type has no assignment are ignored.

Type:ROOM

Offset	Address	Description
#	00 06	0000 aaaa
	00 07	0000 bbbb
	00 08	0000 cccc
	00 09	0000 dddd Room Type (0 - 19)
		SMALL STUDIO 1 - 4, LARGE STUDIO 1 - 4,
		LIVE HOUSE 1 - 4, STAGE 1 - 4, MIDDLE HALL 1-4
#	00 0A	0000 aaaa
	00 0B	0000 bbbb
	00 0C	0000 cccc
	00 0D	0000 dddd Distance (0 - 6)
		0 - 6
#	00 0E	0000 aaaa

00 0F	0000 bbbb		
00 10	0000 cccc		
00 11	0000 dddd	Time	(-64 - 0)
			-64 - 0

Type: REVERB

Offset	Address	Description	
# 00 06	0000 aaaa		
00 07	0000 bbbb		
00 08	0000 cccc		
00 09	0000 dddd	Reverb Type	(0 - 4)
		ROOM1, ROOM2, HALL1, HALL2, PLATE	
# 00 0A	0000 aaaa		
00 0B	0000 bbbb		
00 0C	0000 cccc		
00 0D	0000 dddd	Pre Delay	(0 - 100)
			0 - 100 [msec]
# 00 0E	0000 aaaa		
00 0F	0000 bbbb		
00 10	0000 cccc		
00 11	0000 dddd	Time	(1 - 100)
			0.1 - 10 [sec]
# 00 12	0000 aaaa		
00 13	0000 bbbb		
00 14	0000 cccc		
00 15	0000 dddd	Density	(0 - 127)
			0 - 127
# 00 16	0000 aaaa		
00 17	0000 bbbb		
00 18	0000 cccc		
00 19	0000 dddd	Diffusion	(0 - 127)
			0 - 127
# 00 1A	0000 aaaa		
00 1B	0000 bbbb		
00 1C	0000 cccc		
00 1D	0000 dddd	LF Damp	(0 - 100)
			0 - 100
# 00 1E	0000 aaaa		

	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	HF Damp	(0 - 100)
				0 - 100
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Spread	(0 - 127)
				0 - 127
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Tone	(0 - 127)
				0 - 127

* [KitMfx]

Offset	Address	Description
	00 00	000a aaaa Type (0 - 29)
		DELAY, TAPE ECHO, REVERSE DELAY,
		3TAP PAN DELAY, OD->DELAY, DS->DELAY,
		CHORUS, SPACE-D, OD->CHORUS, DS->CHORUS,
		PHASER A, PHASER B, STEP PHASER, FLANGER,
		REVERB, LONG REVERB, SUPER FILTER,
		FILTER+DRIVE, AUTO WAH, OD/DS->TWAH,
		LOFI COMPRESS, DISTORTION, OVERDRIVE,
		SATURATOR, T-SCREAM, BIT CRUSHER,
		ISOLATOR, RING MODULATOR, PITCH SHIFTER,
		AUTO PAN
	00 01	0000 000a Switch (0 - 1)
		OFF, ON
#	00 02	0000 aaaa
	00 03	0000 bbbb
	00 04	0000 cccc
	00 05	0000 dddd Level (-601 - 60)
		-INF, -60.0 - +6.0 [dB]
#	00 06	0000 aaaa
	00 07	0000 bbbb
	00 08	0000 cccc

	00 09	0000 dddd	MFX Parameter 1	(*3)	
#	00 0A	0000 aaaa			
	00 0B	0000 bbbb			
	00 0C	0000 cccc			
	00 0D	0000 dddd	MFX Parameter 2	(*3)	
#	00 0E	0000 aaaa			
	00 0F	0000 bbbb			
	00 10	0000 cccc			
	00 11	0000 dddd	MFX Parameter 3	(*3)	
#	00 12	0000 aaaa			
	00 13	0000 bbbb			
	00 14	0000 cccc			
	00 15	0000 dddd	MFX Parameter 4	(*3)	
#	00 16	0000 aaaa			
	00 17	0000 bbbb			
	00 18	0000 cccc			
	00 19	0000 dddd	MFX Parameter 5	(*3)	
#	00 1A	0000 aaaa			
	00 1B	0000 bbbb			
	00 1C	0000 cccc			
	00 1D	0000 dddd	MFX Parameter 6	(*3)	
#	00 1E	0000 aaaa			
	00 1F	0000 bbbb			
	00 20	0000 cccc			
	00 21	0000 dddd	MFX Parameter 7	(*3)	
#	00 22	0000 aaaa			
	00 23	0000 bbbb			
	00 24	0000 cccc			
	00 25	0000 dddd	MFX Parameter 8	(*3)	
#	00 26	0000 aaaa			
	00 27	0000 bbbb			
	00 28	0000 cccc			
	00 29	0000 dddd	MFX Parameter 9	(*3)	
#	00 2A	0000 aaaa			
	00 2B	0000 bbbb			
	00 2C	0000 cccc			
	00 2D	0000 dddd	MFX Parameter 10	(*3)	
#	00 2E	0000 aaaa			
	00 2F	0000 bbbb			
	00 30	0000 cccc			
	00 31	0000 dddd	MFX Parameter 11	(*3)	
#	00 32	0000 aaaa			

	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	MFX Parameter 12	(*3)
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	MFX Parameter 13	(*3)
#	00 3A	0000 aaaa		
	00 3B	0000 bbbb		
	00 3C	0000 cccc		
	00 3D	0000 dddd	MFX Parameter 14	(*3)
#	00 3E	0000 aaaa		
	00 3F	0000 bbbb		
	00 40	0000 cccc		
	00 41	0000 dddd	MFX Parameter 15	(*3)
#	00 42	0000 aaaa		
	00 43	0000 bbbb		
	00 44	0000 cccc		
	00 45	0000 dddd	MFX Parameter 16	(*3)
#	00 46	0000 aaaa		
	00 47	0000 bbbb		
	00 48	0000 cccc		
	00 49	0000 dddd	MFX Parameter 17	(*3)
#	00 4A	0000 aaaa		
	00 4B	0000 bbbb		
	00 4C	0000 cccc		
	00 4D	0000 dddd	MFX Parameter 18	(*3)
#	00 4E	0000 aaaa		
	00 4F	0000 bbbb		
	00 50	0000 cccc		
	00 51	0000 dddd	MFX Parameter 19	(*3)
#	00 52	0000 aaaa		
	00 53	0000 bbbb		
	00 54	0000 cccc		
	00 55	0000 dddd	MFX Parameter 20	(*3)
#	00 56	0000 aaaa		
	00 57	0000 bbbb		
	00 58	0000 cccc		
	00 59	0000 dddd	MFX Parameter 21	(*3)
#	00 5A	0000 aaaa		
	00 5B	0000 bbbb		
	00 5C	0000 cccc		

	00 5D	0000 dddd	MFX Parameter 22	(*3)
#	00 5E	0000 aaaa		
	00 5F	0000 bbbb		
	00 60	0000 cccc		
	00 61	0000 dddd	MFX Parameter 23	(*3)
#	00 62	0000 aaaa		
	00 63	0000 bbbb		
	00 64	0000 cccc		
	00 65	0000 dddd	MFX Parameter 24	(*3)
#	00 66	0000 aaaa		
	00 67	0000 bbbb		
	00 68	0000 cccc		
	00 69	0000 dddd	MFX Parameter 25	(*3)
#	00 6A	0000 aaaa		
	00 6B	0000 bbbb		
	00 6C	0000 cccc		
	00 6D	0000 dddd	MFX Parameter 26	(*3)
#	00 6E	0000 aaaa		
	00 6F	0000 bbbb		
	00 70	0000 cccc		
	00 71	0000 dddd	MFX Parameter 27	(*3)
#	00 72	0000 aaaa		
	00 73	0000 bbbb		
	00 74	0000 cccc		
	00 75	0000 dddd	MFX Parameter 28	(*3)
#	00 76	0000 aaaa		
	00 77	0000 bbbb		
	00 78	0000 cccc		
	00 79	0000 dddd	MFX Parameter 29	(*3)
#	00 7A	0000 aaaa		
	00 7B	0000 bbbb		
	00 7C	0000 cccc		
	00 7D	0000 dddd	MFX Parameter 30	(*3)
#	00 7E	0000 aaaa		
	00 7F	0000 bbbb		
	01 00	0000 cccc		
	01 01	0000 dddd	MFX Parameter 31	(*3)
#	01 02	0000 aaaa		
	01 03	0000 bbbb		
	01 04	0000 cccc		
	01 05	0000 dddd	MFX Parameter 32	(*3)

| 00 00 01 06 |Total Size |

(*3) This area is assigned as follows according to the selected MFX Type. Addresses for which the MFX Type has no assignment are ignored.

MFX Type: DELAY

Offset	Address	Description
# 00 06	0000 aaaa	
00 07	0000 bbbb	
00 08	0000 cccc	
00 09	0000 dddd	Tempo Sync L (0 - 1) OFF, ON
# 00 0A	0000 aaaa	
00 0B	0000 bbbb	
00 0C	0000 cccc	
00 0D	0000 dddd	Delay L Time (msec) (1 - 1300) 1 - 1300 [msec]
# 00 0E	0000 aaaa	
00 0F	0000 bbbb	
00 10	0000 cccc	
00 11	0000 dddd	Delay L Time (note) (0 - 21) MUSICAL-NOTES
# 00 12	0000 aaaa	
00 13	0000 bbbb	
00 14	0000 cccc	
00 15	0000 dddd	Tempo Sync R (0 - 1) OFF, ON
# 00 16	0000 aaaa	
00 17	0000 bbbb	
00 18	0000 cccc	
00 19	0000 dddd	Delay R Time (msec) (1 - 1300) 1 - 1300 [msec]
# 00 1A	0000 aaaa	
00 1B	0000 bbbb	
00 1C	0000 cccc	
00 1D	0000 dddd	Delay R Time (note) (0 - 21) MUSICAL-NOTES
# 00 1E	0000 aaaa	
00 1F	0000 bbbb	

	00 20	0000 cccc		
	00 21	0000 dddd	Phase Left	(0 - 1)
				NORMAL, INVERSE
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Phase Right	(0 - 1)
				NORMAL, INVERSE
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Feedback Mode	(0 - 1)
				NORMAL, CROSS
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Feedback	(0 - 98)
				-98 - +98 [%]
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	HF Damp	(0 - 17)
			200, 250, 315, 400, 500, 630, 800,	
			1000, 1250, 1600, 2000, 2500, 3150,	
			4000, 5000, 6300, 8000, BYPASS[Hz]	
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	Low Gain	(0 - 30)
				-15 - +15 [dB]
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]
#	00 3A	0000 aaaa		
	00 3B	0000 bbbb		
	00 3C	0000 cccc		
	00 3D	0000 dddd	dummy (ignored)	
#	00 3E	0000 aaaa		
	00 3F	0000 bbbb		
	00 40	0000 cccc		

00 41	0000 dddd	Level	(0 - 127)
			0 - 127

MFX Type: TAPE ECHO

Offset	Address	Description	
# 00 06	0000 aaaa		
00 07	0000 bbbb		
00 08	0000 cccc		
00 09	0000 dddd	Mode	(0 - 6)
		S, M, L, S+M, S+L, M+L, S+M+L	
# 00 0A	0000 aaaa		
00 0B	0000 bbbb		
00 0C	0000 cccc		
00 0D	0000 dddd	Repeat Rate	(0 - 127)
			0 - 127
# 00 0E	0000 aaaa		
00 0F	0000 bbbb		
00 10	0000 cccc		
00 11	0000 dddd	Intensity	(0 - 127)
			0 - 127
# 00 12	0000 aaaa		
00 13	0000 bbbb		
00 14	0000 cccc		
00 15	0000 dddd	Bass	(0 - 30)
			-15 - +15 [dB]
# 00 16	0000 aaaa		
00 17	0000 bbbb		
00 18	0000 cccc		
00 19	0000 dddd	Treble	(0 - 30)
			-15 - +15 [dB]
# 00 1A	0000 aaaa		
00 1B	0000 bbbb		
00 1C	0000 cccc		
00 1D	0000 dddd	Head S Pan	(0 - 127)
			L64 - R63
# 00 1E	0000 aaaa		
00 1F	0000 bbbb		
00 20	0000 cccc		

	00 21	0000 dddd	Head M Pan	(0 - 127)
				L64 - R63
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Head L Pan	(0 - 127)
				L64 - R63
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Tape Distortion	(0 - 5)
				0 - 5
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	W/F Rate	(0 - 127)
				0 - 127
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	W/F Depth	(0 - 127)
				0 - 127
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	dummy (ignored)	
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	dummy (ignored)	
#	00 3A	0000 aaaa		
	00 3B	0000 bbbb		
	00 3C	0000 cccc		
	00 3D	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: REVERSE DELAY

Offset	Address	Description
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#	00 06	0000 aaaa			
	00 07	0000 bbbb			
	00 08	0000 cccc			
	00 09	0000 dddd	Threshold	(0 - 127)	
				0 - 127	
#	00 0A	0000 aaaa			
	00 0B	0000 bbbb			
	00 0C	0000 cccc			
	00 0D	0000 dddd	Tempo Sync Rev	(0 - 1)	
				OFF, ON	
#	00 0E	0000 aaaa			
	00 0F	0000 bbbb			
	00 10	0000 cccc			
	00 11	0000 dddd	Rev Delay Time (msec)	(1 - 1300)	
				1 - 1300 [msec]	
#	00 12	0000 aaaa			
	00 13	0000 bbbb			
	00 14	0000 cccc			
	00 15	0000 dddd	Rev Delay Time (note)	(0 - 21)	
				MUSICAL-NOTES	
#	00 16	0000 aaaa			
	00 17	0000 bbbb			
	00 18	0000 cccc			
	00 19	0000 dddd	Rev Delay Feedback	(0 - 98)	
				-98 - +98 [%]	
#	00 1A	0000 aaaa			
	00 1B	0000 bbbb			
	00 1C	0000 cccc			
	00 1D	0000 dddd	Rev Delay HF Damp	(0 - 17)	
				200, 250, 315, 400, 500, 630, 800,	
				1000, 1250, 1600, 2000, 2500, 3150,	
				4000, 5000, 6300, 8000, BYPASS[Hz]	
#	00 1E	0000 aaaa			
	00 1F	0000 bbbb			
	00 20	0000 cccc			
	00 21	0000 dddd	Rev Delay Pan	(0 - 127)	
				L64 - R63	
#	00 22	0000 aaaa			
	00 23	0000 bbbb			
	00 24	0000 cccc			
	00 25	0000 dddd	Rev Delay Level	(0 - 127)	
				0 - 127	

#	00 26	0000 aaaa			
	00 27	0000 bbbb			
	00 28	0000 cccc			
	00 29	0000 dddd	Tempo Sync Delay1	(0 - 1)	
				OFF, ON	
#	00 2A	0000 aaaa			
	00 2B	0000 bbbb			
	00 2C	0000 cccc			
	00 2D	0000 dddd	Delay1 Time (msec)	(1 - 1300)	
				1 - 1300 [msec]	
#	00 2E	0000 aaaa			
	00 2F	0000 bbbb			
	00 30	0000 cccc			
	00 31	0000 dddd	Delay1 Time (note)	(0 - 21)	
				MUSICAL-NOTES	
#	00 32	0000 aaaa			
	00 33	0000 bbbb			
	00 34	0000 cccc			
	00 35	0000 dddd	Tempo Sync Delay2	(0 - 1)	
				OFF, ON	
#	00 36	0000 aaaa			
	00 37	0000 bbbb			
	00 38	0000 cccc			
	00 39	0000 dddd	Delay2 Time (msec)	(1 - 1300)	
				1 - 1300 [msec]	
#	00 3A	0000 aaaa			
	00 3B	0000 bbbb			
	00 3C	0000 cccc			
	00 3D	0000 dddd	Delay2 Time (note)	(0 - 21)	
				MUSICAL-NOTES	
#	00 3E	0000 aaaa			
	00 3F	0000 bbbb			
	00 40	0000 cccc			
	00 41	0000 dddd	Tempo Sync Delay3	(0 - 1)	
				OFF, ON	
#	00 42	0000 aaaa			
	00 43	0000 bbbb			
	00 44	0000 cccc			
	00 45	0000 dddd	Delay3 Time (msec)	(1 - 1300)	
				1 - 1300 [msec]	
#	00 46	0000 aaaa			
	00 47	0000 bbbb			

	00 48		0000 cccc			
	00 49		0000 dddd		Delay3 Time (note)	(0 - 21)
						MUSICAL-NOTES
#	00 4A		0000 aaaa			
	00 4B		0000 bbbb			
	00 4C		0000 cccc			
	00 4D		0000 dddd		Delay 3 Feedback	(0 - 98)
						-98 - +98 [%]
#	00 4E		0000 aaaa			
	00 4F		0000 bbbb			
	00 50		0000 cccc			
	00 51		0000 dddd		Delay HF Damp	(0 - 17)
					200, 250, 315, 400, 500, 630, 800,	
					1000, 1250, 1600, 2000, 2500, 3150,	
					4000, 5000, 6300, 8000, BYPASS[Hz]	
#	00 52		0000 aaaa			
	00 53		0000 bbbb			
	00 54		0000 cccc			
	00 55		0000 dddd		Delay 1 Pan	(0 - 127)
						L64 - R63
#	00 56		0000 aaaa			
	00 57		0000 bbbb			
	00 58		0000 cccc			
	00 59		0000 dddd		Delay 2 Pan	(0 - 127)
						L64 - R63
#	00 5A		0000 aaaa			
	00 5B		0000 bbbb			
	00 5C		0000 cccc			
	00 5D		0000 dddd		Delay 1 Level	(0 - 127)
						0 - 127
#	00 5E		0000 aaaa			
	00 5F		0000 bbbb			
	00 60		0000 cccc			
	00 61		0000 dddd		Delay 2 Level	(0 - 127)
						0 - 127
#	00 62		0000 aaaa			
	00 63		0000 bbbb			
	00 64		0000 cccc			
	00 65		0000 dddd		Low Gain	(0 - 30)
						-15 - +15 [dB]
#	00 66		0000 aaaa			
	00 67		0000 bbbb			

	00 68	0000 cccc		
	00 69	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]
#	00 6A	0000 aaaa		
	00 6B	0000 bbbb		
	00 6C	0000 cccc		
	00 6D	0000 dddd	dummy (ignored)	
#	00 6E	0000 aaaa		
	00 6F	0000 bbbb		
	00 70	0000 cccc		
	00 71	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: 3TAP PAN DELAY

Offset	Address	Description	
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Tempo Sync L
			(0 - 1)
			OFF, ON
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Delay L Time (msec)
			(1 - 2600)
			1 - 2600 [msec]
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Delay L Time (note)
			(0 - 21)
			MUSICAL-NOTES
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Tempo Sync R
			(0 - 1)
			OFF, ON
#	00 16	0000 aaaa	
	00 17	0000 bbbb	
	00 18	0000 cccc	

	00 19	0000 dddd	Delay R Time (msec)	(1 - 2600)	
				1 - 2600 [msec]	
#	00 1A	0000 aaaa			
	00 1B	0000 bbbb			
	00 1C	0000 cccc			
	00 1D	0000 dddd	Delay R Time (note)	(0 - 21)	
				MUSICAL-NOTES	
#	00 1E	0000 aaaa			
	00 1F	0000 bbbb			
	00 20	0000 cccc			
	00 21	0000 dddd	Tempo Sync Center	(0 - 1)	
				OFF, ON	
#	00 22	0000 aaaa			
	00 23	0000 bbbb			
	00 24	0000 cccc			
	00 25	0000 dddd	Delay Ctr Time (msec)	(1 - 2600)	
				1 - 2600 [msec]	
#	00 26	0000 aaaa			
	00 27	0000 bbbb			
	00 28	0000 cccc			
	00 29	0000 dddd	Delay Ctr Time (note)	(0 - 21)	
				MUSICAL-NOTES	
#	00 2A	0000 aaaa			
	00 2B	0000 bbbb			
	00 2C	0000 cccc			
	00 2D	0000 dddd	Center Feedback	(0 - 98)	
				-98 - +98 [%]	
#	00 2E	0000 aaaa			
	00 2F	0000 bbbb			
	00 30	0000 cccc			
	00 31	0000 dddd	HF Damp	(0 - 17)	
				200, 250, 315, 400, 500, 630, 800,	
				1000, 1250, 1600, 2000, 2500, 3150,	
				4000, 5000, 6300, 8000, BYPASS[Hz]	
#	00 32	0000 aaaa			
	00 33	0000 bbbb			
	00 34	0000 cccc			
	00 35	0000 dddd	Left Level	(0 - 127)	
				0 - 127	
#	00 36	0000 aaaa			
	00 37	0000 bbbb			
	00 38	0000 cccc			

	00 39	0000 dddd	Right Level	(0 - 127)
				0 - 127
#	00 3A	0000 aaaa		
	00 3B	0000 bbbb		
	00 3C	0000 cccc		
	00 3D	0000 dddd	Center Level	(0 - 127)
				0 - 127
#	00 3E	0000 aaaa		
	00 3F	0000 bbbb		
	00 40	0000 cccc		
	00 41	0000 dddd	Low Gain	(0 - 30)
				-15 - +15 [dB]
#	00 42	0000 aaaa		
	00 43	0000 bbbb		
	00 44	0000 cccc		
	00 45	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]
#	00 46	0000 aaaa		
	00 47	0000 bbbb		
	00 48	0000 cccc		
	00 49	0000 dddd	dummy (ignored)	
#	00 4A	0000 aaaa		
	00 4B	0000 bbbb		
	00 4C	0000 cccc		
	00 4D	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: OD -> DELAY

Offset	Address	Description	
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Overdrive Drive
			(0 - 127)
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Overdrive Pan
			(0 - 127)

			L64 - R63
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Tempo Sync (0 - 1)
			OFF, ON
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Delay Time (msec) (1 - 2600)
			1 - 2600 [msec]
#	00 16	0000 aaaa	
	00 17	0000 bbbb	
	00 18	0000 cccc	
	00 19	0000 dddd	Delay Time (note) (0 - 21)
			MUSICAL-NOTES
#	00 1A	0000 aaaa	
	00 1B	0000 bbbb	
	00 1C	0000 cccc	
	00 1D	0000 dddd	Delay Feedback (0 - 98)
			-98 - +98 [%]
#	00 1E	0000 aaaa	
	00 1F	0000 bbbb	
	00 20	0000 cccc	
	00 21	0000 dddd	Delay HF Damp (0 - 17)
			200, 250, 315, 400, 500, 630, 800,
			1000, 1250, 1600, 2000, 2500, 3150,
			4000, 5000, 6300, 8000, BYPASS[Hz]
#	00 22	0000 aaaa	
	00 23	0000 bbbb	
	00 24	0000 cccc	
	00 25	0000 dddd	Delay Balance (0 - 100)
			D100:0W - D0:100W
#	00 26	0000 aaaa	
	00 27	0000 bbbb	
	00 28	0000 cccc	
	00 29	0000 dddd	Level (0 - 127)
			0 - 127

MFX Type: DS -> DELAY

Offset	Address	Description
#	00 06 0000 aaaa	
	00 07 0000 bbbb	
	00 08 0000 cccc	
	00 09 0000 dddd	Distortion Drive (0 - 127)
		0 - 127
#	00 0A 0000 aaaa	
	00 0B 0000 bbbb	
	00 0C 0000 cccc	
	00 0D 0000 dddd	Distortion Pan (0 - 127)
		L64 - R63
#	00 0E 0000 aaaa	
	00 0F 0000 bbbb	
	00 10 0000 cccc	
	00 11 0000 dddd	Tempo Sync (0 - 1)
		OFF, ON
#	00 12 0000 aaaa	
	00 13 0000 bbbb	
	00 14 0000 cccc	
	00 15 0000 dddd	Delay Time (msec) (1 - 2600)
		1 - 2600 [msec]
#	00 16 0000 aaaa	
	00 17 0000 bbbb	
	00 18 0000 cccc	
	00 19 0000 dddd	Delay Time (note) (0 - 21)
		MUSICAL-NOTES
#	00 1A 0000 aaaa	
	00 1B 0000 bbbb	
	00 1C 0000 cccc	
	00 1D 0000 dddd	Delay Feedback (0 - 98)
		-98 - +98 [%]
#	00 1E 0000 aaaa	
	00 1F 0000 bbbb	
	00 20 0000 cccc	
	00 21 0000 dddd	Delay HF Damp (0 - 17)
		200, 250, 315, 400, 500, 630, 800,
		1000, 1250, 1600, 2000, 2500, 3150,
		4000, 5000, 6300, 8000, BYPASS[Hz]
#	00 22 0000 aaaa	
	00 23 0000 bbbb	

	00 24	0000 cccc		
	00 25	0000 dddd	Delay Balance	(0 - 100)
				D100:0W - D0:100W
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: CHORUS

Offset	Address	Description	
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Filter Type (0 - 2)
			OFF, LPF, HPF
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Cutoff Freq (0 - 16)
			200, 250, 315, 400, 500, 630, 800,
			1000, 1250, 1600, 2000, 2500, 3150,
			4000, 5000, 6300, 8000[Hz]
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Pre Delay (0 - 125)
			0.0 - 100 [msec]
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Tempo Sync (0 - 1)
			OFF, ON
#	00 16	0000 aaaa	
	00 17	0000 bbbb	
	00 18	0000 cccc	
	00 19	0000 dddd	Rate (Hz) (1 - 200)
			0.05 - 10.00 [Hz]

#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Rate (note)	(0 - 21)
				MUSICAL-NOTES
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Depth	(0 - 127)
				0 - 127
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Phase	(0 - 90)
				0 - 180 [deg]
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Low Gain	(0 - 30)
				-15 - +15 [dB]
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	dummy (ignored)	
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: SPACE-D

Offset	Address	Description
#	00 06	0000 aaaa

	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Pre Delay	(0 - 125)
				0.0 - 100 [msec]
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Tempo Sync	(0 - 1)
				OFF, ON
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Rate (Hz)	(1 - 200)
				0.05 - 10.00 [Hz]
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Rate (note)	(0 - 21)
				MUSICAL-NOTES
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Depth	(0 - 127)
				0 - 127
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Phase	(0 - 90)
				0 - 180 [deg]
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Low Gain	(0 - 30)
				-15 - +15 [dB]
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		

	00 29	0000 dddd	dummy (ignored)	
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: OD -> CHORUS

Offset	Address	Description	
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Overdrive Drive (0 - 127)
			0 - 127
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Overdrive Pan (0 - 127)
			L64 - R63
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Pre Delay (0 - 125)
			0.0 - 100 [msec]
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Tempo Sync (0 - 1)
			OFF, ON
#	00 16	0000 aaaa	
	00 17	0000 bbbb	
	00 18	0000 cccc	
	00 19	0000 dddd	Rate (Hz) (1 - 200)
			0.05 - 10.00 [Hz]
#	00 1A	0000 aaaa	
	00 1B	0000 bbbb	
	00 1C	0000 cccc	
	00 1D	0000 dddd	Rate (note) (0 - 21)

			MUSICAL-NOTES
#	00 1E	0000 aaaa	
	00 1F	0000 bbbb	
	00 20	0000 cccc	
	00 21	0000 dddd	Chorus Depth (0 - 127)
			0 - 127
#	00 22	0000 aaaa	
	00 23	0000 bbbb	
	00 24	0000 cccc	
	00 25	0000 dddd	Chorus Balance (0 - 100)
			D100:0W - D0:100W
#	00 26	0000 aaaa	
	00 27	0000 bbbb	
	00 28	0000 cccc	
	00 29	0000 dddd	Level (0 - 127)
			0 - 127

MFX Type: DS -> CHORUS

Offset			
	Address		Description
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Distortion Drive (0 - 127)
			0 - 127
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Distortion Pan (0 - 127)
			L64 - R63
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Pre Delay (0 - 125)
			0.0 - 100 [msec]
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Tempo Sync (0 - 1)

				OFF, ON	
#	00 16	0000	aaaa		
	00 17	0000	bbbb		
	00 18	0000	cccc		
	00 19	0000	dddd	Rate (Hz)	(1 - 200)
					0.05 - 10.00 [Hz]
#	00 1A	0000	aaaa		
	00 1B	0000	bbbb		
	00 1C	0000	cccc		
	00 1D	0000	dddd	Rate (note)	(0 - 21)
					MUSICAL-NOTES
#	00 1E	0000	aaaa		
	00 1F	0000	bbbb		
	00 20	0000	cccc		
	00 21	0000	dddd	Chorus Depth	(0 - 127)
					0 - 127
#	00 22	0000	aaaa		
	00 23	0000	bbbb		
	00 24	0000	cccc		
	00 25	0000	dddd	Chorus Balance	(0 - 100)
					D100:0W - D0:100W
#	00 26	0000	aaaa		
	00 27	0000	bbbb		
	00 28	0000	cccc		
	00 29	0000	dddd	Level	(0 - 127)
					0 - 127

MFX Type: PHASER A

Offset	Address	Description	
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Mode
			4-STAGE, 8-STAGE, 12-STAGE
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Manual
			(0 - 127)

				0 - 127	
#	00 0E	0000	aaaa		
	00 0F	0000	bbbb		
	00 10	0000	cccc		
	00 11	0000	dddd	Tempo Sync	(0 - 1)
				OFF, ON	
#	00 12	0000	aaaa		
	00 13	0000	bbbb		
	00 14	0000	cccc		
	00 15	0000	dddd	Rate (Hz)	(1 - 200)
				0.05 - 10.00 [Hz]	
#	00 16	0000	aaaa		
	00 17	0000	bbbb		
	00 18	0000	cccc		
	00 19	0000	dddd	Rate (note)	(0 - 21)
				MUSICAL-NOTES	
#	00 1A	0000	aaaa		
	00 1B	0000	bbbb		
	00 1C	0000	cccc		
	00 1D	0000	dddd	Depth	(0 - 127)
				0 - 127	
#	00 1E	0000	aaaa		
	00 1F	0000	bbbb		
	00 20	0000	cccc		
	00 21	0000	dddd	Polarity	(0 - 1)
				INVERSE, SYNCHRO	
#	00 22	0000	aaaa		
	00 23	0000	bbbb		
	00 24	0000	cccc		
	00 25	0000	dddd	Resonance	(0 - 127)
				0 - 127	
#	00 26	0000	aaaa		
	00 27	0000	bbbb		
	00 28	0000	cccc		
	00 29	0000	dddd	Cross Feedback	(0 - 98)
				-98 - +98 [%]	
#	00 2A	0000	aaaa		
	00 2B	0000	bbbb		
	00 2C	0000	cccc		
	00 2D	0000	dddd	dummy (ignored)	
#	00 2E	0000	aaaa		
	00 2F	0000	bbbb		

	00 30	0000 cccc		
	00 31	0000 dddd	Low Gain	(0 - 30)
				-15 - +15 [dB]
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: PHASER B

Offset	Address	Description	
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Speed
			(0 - 100)
			0 - 100
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Depth
			(0 - 127)
			0 - 127
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Low Gain
			(0 - 30)
			-15 - +15 [dB]
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	High Gain
			(0 - 30)
			-15 - +15 [dB]
#	00 16	0000 aaaa	
	00 17	0000 bbbb	

00 18	0000 cccc	
00 19	0000 dddd	Level (0 - 127)
		0 - 127

MFX Type: STEP PHASER

Offset	Address	Description
# 00 06	0000 aaaa	
00 07	0000 bbbb	
00 08	0000 cccc	
00 09	0000 dddd	Mode (0 - 2) 4-STAGE, 8-STAGE, 12-STAGE
# 00 0A	0000 aaaa	
00 0B	0000 bbbb	
00 0C	0000 cccc	
00 0D	0000 dddd	Manual (0 - 127) 0 - 127
# 00 0E	0000 aaaa	
00 0F	0000 bbbb	
00 10	0000 cccc	
00 11	0000 dddd	Tempo Sync (Rate) (0 - 1) OFF, ON
# 00 12	0000 aaaa	
00 13	0000 bbbb	
00 14	0000 cccc	
00 15	0000 dddd	Rate (Hz) (1 - 200) 0.05 - 10.00 [Hz]
# 00 16	0000 aaaa	
00 17	0000 bbbb	
00 18	0000 cccc	
00 19	0000 dddd	Rate (note) (0 - 21) MUSICAL-NOTES
# 00 1A	0000 aaaa	
00 1B	0000 bbbb	
00 1C	0000 cccc	
00 1D	0000 dddd	Depth (0 - 127) 0 - 127
# 00 1E	0000 aaaa	
00 1F	0000 bbbb	

	00 20	0000 cccc		
	00 21	0000 dddd	Polarity	(0 - 1)
				INVERSE, SYNCHRO
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Resonance	(0 - 127)
				0 - 127
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Cross Feedback	(0 - 98)
				-98 - +98 [%]
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Tempo Sync (Step Rate)	(0 - 1)
				OFF, ON
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	Step Rate (Hz)	(1 - 200)
				0.10 - 20.00 [Hz]
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	Step Rate (note)	(0 - 21)
				MUSICAL-NOTES
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	dummy (ignored)	
#	00 3A	0000 aaaa		
	00 3B	0000 bbbb		
	00 3C	0000 cccc		
	00 3D	0000 dddd	Low Gain	(0 - 30)
				-15 - +15 [dB]
#	00 3E	0000 aaaa		
	00 3F	0000 bbbb		
	00 40	0000 cccc		
	00 41	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]

#	00 42	0000	aaaa		
	00 43	0000	bbbb		
	00 44	0000	cccc		
	00 45	0000	dddd	Level	(0 - 127)
					0 - 127

MFX Type: FLANGER

Offset	Address	Description			
#	00 06	0000	aaaa		
	00 07	0000	bbbb		
	00 08	0000	cccc		
	00 09	0000	dddd	Filter Type	(0 - 2)
				OFF, LPF, HPF	
#	00 0A	0000	aaaa		
	00 0B	0000	bbbb		
	00 0C	0000	cccc		
	00 0D	0000	dddd	Cutoff Freq	(0 - 16)
				200, 250, 315, 400, 500, 630, 800,	
				1000, 1250, 1600, 2000, 2500, 3150,	
				4000, 5000, 6300, 8000[Hz]	
#	00 0E	0000	aaaa		
	00 0F	0000	bbbb		
	00 10	0000	cccc		
	00 11	0000	dddd	Pre Delay	(0 - 125)
				0.0 - 100 [msec]	
#	00 12	0000	aaaa		
	00 13	0000	bbbb		
	00 14	0000	cccc		
	00 15	0000	dddd	Tempo Sync	(0 - 1)
				OFF, ON	
#	00 16	0000	aaaa		
	00 17	0000	bbbb		
	00 18	0000	cccc		
	00 19	0000	dddd	Rate (Hz)	(1 - 200)
				0.05 - 10.00 [Hz]	
#	00 1A	0000	aaaa		
	00 1B	0000	bbbb		
	00 1C	0000	cccc		

	00 1D	0000 dddd	Rate (note)	(0 - 21)
				MUSICAL-NOTES
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Depth	(0 - 127)
				0 - 127
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Phase	(0 - 90)
				0 - 180 [deg]
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Feedback	(0 - 98)
				-98 - +98 [%]
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Low Gain	(0 - 30)
				-15 - +15 [dB]
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	dummy (ignored)	
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: REVERB

Offset	Address	Description
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#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Type (0 - 5)
			ROOM1, ROOM2, STAGE1, STAGE2, HALL1, HALL2
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Pre Delay (0 - 125)
			0.0 - 100 [msec]
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Time (0 - 127)
			0 - 127
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	HF Damp (0 - 17)
			200, 250, 315, 400, 500, 630, 800,
			1000, 1250, 1600, 2000, 2500, 3150,
			4000, 5000, 6300, 8000, BYPASS[Hz]
#	00 16	0000 aaaa	
	00 17	0000 bbbb	
	00 18	0000 cccc	
	00 19	0000 dddd	Low Gain (0 - 30)
			-15 - +15 [dB]
#	00 1A	0000 aaaa	
	00 1B	0000 bbbb	
	00 1C	0000 cccc	
	00 1D	0000 dddd	High Gain (0 - 30)
			-15 - +15 [dB]
#	00 1E	0000 aaaa	
	00 1F	0000 bbbb	
	00 20	0000 cccc	
	00 21	0000 dddd	dummy (ignored)
#	00 22	0000 aaaa	
	00 23	0000 bbbb	
	00 24	0000 cccc	
	00 25	0000 dddd	Level (0 - 127)
			0 - 127

MFX Type: LONG REVERB

Offset	Address	Description
# 00 06	0000 aaaa	
00 07	0000 bbbb	
00 08	0000 cccc	
00 09	0000 dddd	Depth (0 - 127)
		0 - 127
# 00 0A	0000 aaaa	
00 0B	0000 bbbb	
00 0C	0000 cccc	
00 0D	0000 dddd	Time (0 - 127)
		0 - 127
# 00 0E	0000 aaaa	
00 0F	0000 bbbb	
00 10	0000 cccc	
00 11	0000 dddd	Pre LPF (1 - 32)
		16, 20, 25, 32, 40, 50, 63, 80, 100,
		125, 160, 200, 250, 315, 400, 500,
		630, 800, 1000, 1250, 1600, 2000,
		2500, 3150, 4000, 5000, 6300, 8000,
		10000, 12500, 15000, BYPASS[Hz]
# 00 12	0000 aaaa	
00 13	0000 bbbb	
00 14	0000 cccc	
00 15	0000 dddd	Pre HPF (0 - 31)
		BYPASS, 16, 20, 25, 32, 40, 50, 63, 80,
		100, 125, 160, 200, 250, 315, 400, 500,
		630, 800, 1000, 1250, 1600, 2000, 2500,
		3150, 4000, 5000, 6300, 8000, 10000,
		12500, 15000[Hz]
# 00 16	0000 aaaa	
00 17	0000 bbbb	
00 18	0000 cccc	
00 19	0000 dddd	Peaking Freq (0 - 16)
		200, 250, 315, 400, 500, 630, 800,
		1000, 1250, 1600, 2000, 2500, 3150,
		4000, 5000, 6300, 8000[Hz]

#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Peaking Gain	(0 - 30)
				-15 - +15 [dB]
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Peaking Q	(0 - 4)
				0.5, 1.0, 2.0, 4.0, 8.0
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	HF Damp	(1 - 32)
				16, 20, 25, 32, 40, 50, 63, 80, 100,
				125, 160, 200, 250, 315, 400, 500,
				630, 800, 1000, 1250, 1600, 2000,
				2500, 3150, 4000, 5000, 6300, 8000,
				10000, 12500, 15000, BYPASS[Hz]
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	LF Damp	(0 - 31)
				BYPASS, 16, 20, 25, 32, 40, 50, 63, 80,
				100, 125, 160, 200, 250, 315, 400, 500,
				630, 800, 1000, 1250, 1600, 2000, 2500,
				3150, 4000, 5000, 6300, 8000, 10000,
				12500, 15000[Hz]
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Character	(0 - 5)
				1 - 6
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	EQ Low Freq	(0 - 1)
				200, 400[Hz]
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	EQ Low Gain	(0 - 30)

			-15 - +15 [dB]
#	00 36	0000 aaaa	
	00 37	0000 bbbb	
	00 38	0000 cccc	
	00 39	0000 dddd	EQ High Freq (0 - 2)
			2000, 4000, 8000[Hz]
#	00 3A	0000 aaaa	
	00 3B	0000 bbbb	
	00 3C	0000 cccc	
	00 3D	0000 dddd	EQ High Gain (0 - 30)
			-15 - +15 [dB]
#	00 3E	0000 aaaa	
	00 3F	0000 bbbb	
	00 40	0000 cccc	
	00 41	0000 dddd	Level (0 - 127)
			0 - 127

MFX Type: SUPER FILTER

Offset	Address	Description	
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Filter Type (0 - 3)
			LPF, BPF, HPF, NOTCH
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Filter Slope (0 - 2)
			-12, -24, -36[dB]
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Filter Cutoff (0 - 127)
			0 - 127
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Filter Resonance (0 - 127)

				0 - 127	
#	00 16	0000 aaaa			
	00 17	0000 bbbb			
	00 18	0000 cccc			
	00 19	0000 dddd	Filter Gain	(0 - 12)	
				0 - +12[dB]	
#	00 1A	0000 aaaa			
	00 1B	0000 bbbb			
	00 1C	0000 cccc			
	00 1D	0000 dddd	Modulation Sw	(0 - 1)	
				OFF, ON	
#	00 1E	0000 aaaa			
	00 1F	0000 bbbb			
	00 20	0000 cccc			
	00 21	0000 dddd	Modulation Wave	(0 - 4)	
				TRI, SQR, SIN, SAW1, SAW2	
#	00 22	0000 aaaa			
	00 23	0000 bbbb			
	00 24	0000 cccc			
	00 25	0000 dddd	Tempo Sync	(0 - 1)	
				OFF, ON	
#	00 26	0000 aaaa			
	00 27	0000 bbbb			
	00 28	0000 cccc			
	00 29	0000 dddd	Rate (Hz)	(1 - 200)	
				0.05 - 10.00 [Hz]	
#	00 2A	0000 aaaa			
	00 2B	0000 bbbb			
	00 2C	0000 cccc			
	00 2D	0000 dddd	Rate (note)	(0 - 21)	
				MUSICAL-NOTES	
#	00 2E	0000 aaaa			
	00 2F	0000 bbbb			
	00 30	0000 cccc			
	00 31	0000 dddd	Depth	(0 - 127)	
				0 - 127	
#	00 32	0000 aaaa			
	00 33	0000 bbbb			
	00 34	0000 cccc			
	00 35	0000 dddd	Attack	(0 - 127)	
				0 - 127	
#	00 36	0000 aaaa			

00 37	0000	bbbb		
00 38	0000	cccc		
00 39	0000	dddd	Level	(0 - 127)
				0 - 127

MFX Type: FILTER+DRIVE

Offset	Address	Description		
# 00 06	0000	aaaa		
00 07	0000	bbbb		
00 08	0000	cccc		
00 09	0000	dddd	Cutoff	(0 - 127)
				0 - 127
# 00 0A	0000	aaaa		
00 0B	0000	bbbb		
00 0C	0000	cccc		
00 0D	0000	dddd	Resonance	(0 - 127)
				0 - 127
# 00 0E	0000	aaaa		
00 0F	0000	bbbb		
00 10	0000	cccc		
00 11	0000	dddd	Drive	(0 - 127)
				0 - 127
# 00 12	0000	aaaa		
00 13	0000	bbbb		
00 14	0000	cccc		
00 15	0000	dddd	Level	(0 - 127)
				0 - 127

MFX Type: AUTO WAH

Offset	Address	Description		
# 00 06	0000	aaaa		
00 07	0000	bbbb		
00 08	0000	cccc		
00 09	0000	dddd	Filter Type	(0 - 1)

			LPF, BPF
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Manual (0 - 127)
			0 - 127
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Peak (0 - 127)
			0 - 127
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Sens (0 - 127)
			0 - 127
#	00 16	0000 aaaa	
	00 17	0000 bbbb	
	00 18	0000 cccc	
	00 19	0000 dddd	Polarity (0 - 1)
			UP, DOWN
#	00 1A	0000 aaaa	
	00 1B	0000 bbbb	
	00 1C	0000 cccc	
	00 1D	0000 dddd	Tempo Sync (0 - 1)
			OFF, ON
#	00 1E	0000 aaaa	
	00 1F	0000 bbbb	
	00 20	0000 cccc	
	00 21	0000 dddd	Rate (Hz) (1 - 200)
			0.05 - 10.00 [Hz]
#	00 22	0000 aaaa	
	00 23	0000 bbbb	
	00 24	0000 cccc	
	00 25	0000 dddd	Rate (note) (0 - 21)
			MUSICAL-NOTES
#	00 26	0000 aaaa	
	00 27	0000 bbbb	
	00 28	0000 cccc	
	00 29	0000 dddd	Depth (0 - 127)
			0 - 127
#	00 2A	0000 aaaa	

	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Phase	(0 - 90)
				0 - 180 [deg]
#	00 2E	0000 aaaa		
	00 2F	0000 bbbb		
	00 30	0000 cccc		
	00 31	0000 dddd	Low Gain	(0 - 30)
				-15 - +15 [dB]
#	00 32	0000 aaaa		
	00 33	0000 bbbb		
	00 34	0000 cccc		
	00 35	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: OD/DS -> TWAH

Offset	Address	Description
#	00 06	0000 aaaa
	00 07	0000 bbbb
	00 08	0000 cccc
	00 09	0000 dddd Drive Switch
		(0 - 1)
		OFF, ON
#	00 0A	0000 aaaa
	00 0B	0000 bbbb
	00 0C	0000 cccc
	00 0D	0000 dddd Drive Type
		(0 - 1)
		OVERDRIVE, DISTORTION
#	00 0E	0000 aaaa
	00 0F	0000 bbbb
	00 10	0000 cccc
	00 11	0000 dddd Drive
		(0 - 127)
		0 - 127
#	00 12	0000 aaaa

	00 13	0000	bbbb			
	00 14	0000	cccc			
	00 15	0000	dddd	Tone	(0 - 127)	
					0 - 127	
#	00 16	0000	aaaa			
	00 17	0000	bbbb			
	00 18	0000	cccc			
	00 19	0000	dddd	Amp Switch	(0 - 1)	
					OFF, ON	
#	00 1A	0000	aaaa			
	00 1B	0000	bbbb			
	00 1C	0000	cccc			
	00 1D	0000	dddd	Amp Type	(0 - 3)	
					SMALL, BUILT-IN, 2-STACK, 3-STACK	
#	00 1E	0000	aaaa			
	00 1F	0000	bbbb			
	00 20	0000	cccc			
	00 21	0000	dddd	Touch Wah Switch	(0 - 1)	
					OFF, ON	
#	00 22	0000	aaaa			
	00 23	0000	bbbb			
	00 24	0000	cccc			
	00 25	0000	dddd	Touch Wah Mode	(0 - 1)	
					LPF, BPF	
#	00 26	0000	aaaa			
	00 27	0000	bbbb			
	00 28	0000	cccc			
	00 29	0000	dddd	Touch Wah Polarity	(0 - 1)	
					DOWN, UP	
#	00 2A	0000	aaaa			
	00 2B	0000	bbbb			
	00 2C	0000	cccc			
	00 2D	0000	dddd	Touch Wah Sens	(0 - 127)	
					0 - 127	
#	00 2E	0000	aaaa			
	00 2F	0000	bbbb			
	00 30	0000	cccc			
	00 31	0000	dddd	Touch Wah Manual	(0 - 127)	
					0 - 127	
#	00 32	0000	aaaa			
	00 33	0000	bbbb			
	00 34	0000	cccc			

	00 35	0000 dddd	Touch Wah Peak	(0 - 127)
				0 - 127
#	00 36	0000 aaaa		
	00 37	0000 bbbb		
	00 38	0000 cccc		
	00 39	0000 dddd	Touch Wah Balance	(0 - 100)
				D100:0W - D0:100W
#	00 3A	0000 aaaa		
	00 3B	0000 bbbb		
	00 3C	0000 cccc		
	00 3D	0000 dddd	Low Gain	(0 - 30)
				-15 - +15 [dB]
#	00 3E	0000 aaaa		
	00 3F	0000 bbbb		
	00 40	0000 cccc		
	00 41	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]
#	00 42	0000 aaaa		
	00 43	0000 bbbb		
	00 44	0000 cccc		
	00 45	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: LOFI COMPRESS

Offset	Address	Description	
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Pre Filter Type
			1, 2, 3, 4, 5, 6
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	LoFi Type
			1, 2, 3, 4, 5, 6, 7, 8, 9
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	

	00 11	0000 dddd	Post Filter Type	(0 - 2)
				OFF, LPF, HPF
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Post Filter Cutoff	(0 - 16)
			200, 250, 315, 400, 500, 630, 800,	
			1000, 1250, 1600, 2000, 2500, 3150,	
			4000, 5000, 6300, 8000[Hz]	
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Low Gain	(0 - 30)
				-15 - +15 [dB]
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	dummy (ignored)	
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type : DISTORTION

Offset	Address	Description	
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Drive
			(0 - 127)
			0 - 127
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	

	00 0C	0000 cccc		
	00 0D	0000 dddd	Tone	(0 - 127)
				0 - 127
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Amp Sw	(0 - 1)
				OFF, ON
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Amp Type	(0 - 3)
				SMALL, BUILT-IN, 2-STACK, 3-STACK
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Low Gain	(0 - 30)
				-15 - +15 [dB]
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Pan	(0 - 127)
				L64 - R63
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: OVERDRIVE

	Offset			
	Address		Description	

#	00 06	0000 aaaa		
	00 07	0000 bbbb		

	00 08	0000 cccc		
	00 09	0000 dddd	Drive	(0 - 127)
				0 - 127
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		
	00 0C	0000 cccc		
	00 0D	0000 dddd	Tone	(0 - 127)
				0 - 127
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Amp Sw	(0 - 1)
				OFF, ON
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Amp Type	(0 - 3)
			SMALL, BUILT-IN, 2-STACK, 3-STACK	
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	Low Gain	(0 - 30)
				-15 - +15 [dB]
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Pan	(0 - 127)
				L64 - R63
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: SATURATOR

Offset	Address	Description
#	00 06 0000 aaaa	
	00 07 0000 bbbb	
	00 08 0000 cccc	
	00 09 0000 dddd Saturator Gain	(0 - 127)
		0 - 127
#	00 0A 0000 aaaa	
	00 0B 0000 bbbb	
	00 0C 0000 cccc	
	00 0D 0000 dddd Saturator Drive	(0 - 127)
		0 - 127
#	00 0E 0000 aaaa	
	00 0F 0000 bbbb	
	00 10 0000 cccc	
	00 11 0000 dddd Saturator Level	(0 - 127)
		0 - 127
#	00 12 0000 aaaa	
	00 13 0000 bbbb	
	00 14 0000 cccc	
	00 15 0000 dddd Comp Depth	(0 - 127)
		0 - 127
#	00 16 0000 aaaa	
	00 17 0000 bbbb	
	00 18 0000 cccc	
	00 19 0000 dddd Comp Level	(0 - 127)
		0 - 127
#	00 1A 0000 aaaa	
	00 1B 0000 bbbb	
	00 1C 0000 cccc	
	00 1D 0000 dddd Hi Gain	(3 - 21)
		-12 - +6 [dB]
#	00 1E 0000 aaaa	
	00 1F 0000 bbbb	
	00 20 0000 cccc	
	00 21 0000 dddd Level	(0 - 127)
		0 - 127

MFX Type: T-SCREAM

Offset	Address	Description
# 00 06	0000 aaaa	
00 07	0000 bbbb	
00 08	0000 cccc	
00 09	0000 dddd	Distortion (0 - 127)
		0 - 127
# 00 0A	0000 aaaa	
00 0B	0000 bbbb	
00 0C	0000 cccc	
00 0D	0000 dddd	Tone (0 - 127)
		0 - 127
# 00 0E	0000 aaaa	
00 0F	0000 bbbb	
00 10	0000 cccc	
00 11	0000 dddd	Level (0 - 127)
		0 - 127

MFX Type: BIT CRUSHER

Offset	Address	Description
# 00 06	0000 aaaa	
00 07	0000 bbbb	
00 08	0000 cccc	
00 09	0000 dddd	Sample Rate (0 - 127)
		0 - 127
# 00 0A	0000 aaaa	
00 0B	0000 bbbb	
00 0C	0000 cccc	
00 0D	0000 dddd	Bit Down (0 - 18)
		0 - 18
# 00 0E	0000 aaaa	
00 0F	0000 bbbb	
00 10	0000 cccc	
00 11	0000 dddd	Filter (0 - 127)
		0 - 127
# 00 12	0000 aaaa	
00 13	0000 bbbb	

	00 14	0000 cccc		
	00 15	0000 dddd	Low Gain	(0 - 30)
				-15 - +15 [dB]
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: ISOLATOR

Offset	Address	Description	
#	00 06	0000 aaaa	
	00 07	0000 bbbb	
	00 08	0000 cccc	
	00 09	0000 dddd	Boost/Cut Low
			(0 - 64)
			-60 - +4 [dB]
#	00 0A	0000 aaaa	
	00 0B	0000 bbbb	
	00 0C	0000 cccc	
	00 0D	0000 dddd	Boost/Cut Mid
			(0 - 64)
			-60 - +4 [dB]
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	
	00 10	0000 cccc	
	00 11	0000 dddd	Boost/Cut High
			(0 - 64)
			-60 - +4 [dB]
#	00 12	0000 aaaa	
	00 13	0000 bbbb	
	00 14	0000 cccc	
	00 15	0000 dddd	Anti Phase Low Sw
			(0 - 1)
			OFF, ON
#	00 16	0000 aaaa	
	00 17	0000 bbbb	

	00 18	0000 cccc		
	00 19	0000 dddd	Anti Phase Low Level	(0 - 127)
				0 - 127
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	Anti Phase Mid Sw	(0 - 1)
				OFF, ON
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Anti Phase Mid Level	(0 - 127)
				0 - 127
#	00 22	0000 aaaa		
	00 23	0000 bbbb		
	00 24	0000 cccc		
	00 25	0000 dddd	Low Boost Sw	(0 - 1)
				OFF, ON
#	00 26	0000 aaaa		
	00 27	0000 bbbb		
	00 28	0000 cccc		
	00 29	0000 dddd	Low Boost Level	(0 - 127)
				0 - 127
#	00 2A	0000 aaaa		
	00 2B	0000 bbbb		
	00 2C	0000 cccc		
	00 2D	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type : RING MODULATOR

Offset	Address	Description		
#	00 06	0000 aaaa		
	00 07	0000 bbbb		
	00 08	0000 cccc		
	00 09	0000 dddd	Frequency	(0 - 127)
				0 - 127
#	00 0A	0000 aaaa		
	00 0B	0000 bbbb		

	00 0C	0000 cccc		
	00 0D	0000 dddd	Sens	(0 - 127)
				0 - 127
#	00 0E	0000 aaaa		
	00 0F	0000 bbbb		
	00 10	0000 cccc		
	00 11	0000 dddd	Polarity	(0 - 1)
				UP, DOWN
#	00 12	0000 aaaa		
	00 13	0000 bbbb		
	00 14	0000 cccc		
	00 15	0000 dddd	Low Gain	(0 - 30)
				-15 - +15 [dB]
#	00 16	0000 aaaa		
	00 17	0000 bbbb		
	00 18	0000 cccc		
	00 19	0000 dddd	High Gain	(0 - 30)
				-15 - +15 [dB]
#	00 1A	0000 aaaa		
	00 1B	0000 bbbb		
	00 1C	0000 cccc		
	00 1D	0000 dddd	dummy (ignored)	
#	00 1E	0000 aaaa		
	00 1F	0000 bbbb		
	00 20	0000 cccc		
	00 21	0000 dddd	Level	(0 - 127)
				0 - 127

MFX Type: PITCH SHIFTER

Offset	Address	Description
#	00 06	0000 aaaa
	00 07	0000 bbbb
	00 08	0000 cccc
	00 09	0000 dddd
		Coarse
		(0 - 36)
		-24 - +12 [semi]
#	00 0A	0000 aaaa
	00 0B	0000 bbbb
	00 0C	0000 cccc

	00 0D	0000 dddd	Fine	(0 - 100)	
				-100 - +100 [cent]	
#	00 0E	0000 aaaa			
	00 0F	0000 bbbb			
	00 10	0000 cccc			
	00 11	0000 dddd	Tempo Sync	(0 - 1)	
				OFF, ON	
#	00 12	0000 aaaa			
	00 13	0000 bbbb			
	00 14	0000 cccc			
	00 15	0000 dddd	Delay Time (msec)	(1 - 1300)	
				1 - 1300 [msec]	
#	00 16	0000 aaaa			
	00 17	0000 bbbb			
	00 18	0000 cccc			
	00 19	0000 dddd	Delay Time (note)	(0 - 21)	
				MUSICAL-NOTES	
#	00 1A	0000 aaaa			
	00 1B	0000 bbbb			
	00 1C	0000 cccc			
	00 1D	0000 dddd	Feedback	(0 - 98)	
				-98 - +98 [%]	
#	00 1E	0000 aaaa			
	00 1F	0000 bbbb			
	00 20	0000 cccc			
	00 21	0000 dddd	Low Gain	(0 - 30)	
				-15 - +15 [dB]	
#	00 22	0000 aaaa			
	00 23	0000 bbbb			
	00 24	0000 cccc			
	00 25	0000 dddd	High Gain	(0 - 30)	
				-15 - +15 [dB]	
#	00 26	0000 aaaa			
	00 27	0000 bbbb			
	00 28	0000 cccc			
	00 29	0000 dddd	dummy (ignored)		
#	00 2A	0000 aaaa			
	00 2B	0000 bbbb			
	00 2C	0000 cccc			
	00 2D	0000 dddd	Level	(0 - 127)	
				0 - 127	

MFX Type: AUTO PAN

Offset	Address	Description
# 00 06	0000 aaaa	
00 07	0000 bbbb	
00 08	0000 cccc	
00 09	0000 dddd	Mod Wave (0 - 5)
		TRI, SQR, SIN, SAW1, SAW2, TRP
# 00 0A	0000 aaaa	
00 0B	0000 bbbb	
00 0C	0000 cccc	
00 0D	0000 dddd	Tempo Sync (0 - 1)
		OFF, ON
# 00 0E	0000 aaaa	
00 0F	0000 bbbb	
00 10	0000 cccc	
00 11	0000 dddd	Rate (Hz) (1 - 200)
		0.05 - 10.00 [Hz]
# 00 12	0000 aaaa	
00 13	0000 bbbb	
00 14	0000 cccc	
00 15	0000 dddd	Rate (note) (0 - 21)
		MUSICAL-NOTES
# 00 16	0000 aaaa	
00 17	0000 bbbb	
00 18	0000 cccc	
00 19	0000 dddd	Depth (0 - 127)
		0 - 127
# 00 1A	0000 aaaa	
00 1B	0000 bbbb	
00 1C	0000 cccc	
00 1D	0000 dddd	Low Gain (0 - 30)
		-15 - +15 [dB]
# 00 1E	0000 aaaa	
00 1F	0000 bbbb	
00 20	0000 cccc	
00 21	0000 dddd	High Gain (0 - 30)
		-15 - +15 [dB]
# 00 22	0000 aaaa	

00 23	0000 bbbb		
00 24	0000 cccc		
00 25	0000 dddd	Level	(0 - 127)
			0 - 127

* [KitPadVEdit]

Offset	Address	Description	
	00 00	0000 0000	(reserve)
#	00 01	0000 aaaa	
	00 02	0000 bbbb	V-Edit Parameter 1 (*4)
#	00 03	0000 aaaa	
	00 04	0000 bbbb	V-Edit Parameter 2 (*4)
#	00 05	0000 aaaa	
	00 06	0000 bbbb	V-Edit Parameter 3 (*4)
#	00 07	0000 aaaa	
	00 08	0000 bbbb	V-Edit Parameter 4 (*4)
#	00 09	0000 aaaa	
	00 0A	0000 bbbb	V-Edit Parameter 5 (*4)
#	00 0B	0000 aaaa	
	00 0C	0000 bbbb	V-Edit Parameter 6 (*4)
#	00 0D	0000 aaaa	
	00 0E	0000 bbbb	V-Edit Parameter 7 (*4)
#	00 0F	0000 aaaa	
	00 10	0000 bbbb	V-Edit Parameter 8 (*4)
#	00 11	0000 aaaa	
	00 12	0000 bbbb	V-Edit Parameter 9 (*4)
#	00 13	0000 aaaa	
	00 14	0000 bbbb	V-Edit Parameter 10 (*4)
#	00 15	0000 aaaa	
	00 16	0000 bbbb	V-Edit Parameter 11 (*4)
#	00 17	0000 aaaa	
	00 18	0000 bbbb	V-Edit Parameter 12 (*4)
#	00 19	0000 aaaa	
	00 1A	0000 bbbb	V-Edit Parameter 13 (*4)
#	00 1B	0000 aaaa	
	00 1C	0000 bbbb	V-Edit Parameter 14 (*4)
#	00 1D	0000 aaaa	
	00 1E	0000 bbbb	V-Edit Parameter 15 (*4)

#	00 1F	0000 aaaa	
	00 20	0000 bbbb	V-Edit Parameter 16 (*4)

	00 00 00 21	Total Size	

(*4) This area is assigned as follows according to the instrument that is assigned. Addresses for which the instrument has no assignment are ignored.

INSTRUMENT GROUP: KICK

Offset	Address	Description
	00 00	0000 0000 (reserve)
#	00 01	0000 aaaa
	00 02	0000 bbbb Shell Depth (0 - 58) 1.0 - 30.0
#	00 03	0000 aaaa
	00 04	0000 bbbb Head Type (0 - 2) CLEAR, COATED, PINSTRIPE
#	00 05	0000 aaaa
	00 06	0000 bbbb Tuning (-100 - 100) -100 - 100
#	00 07	0000 aaaa
	00 08	0000 bbbb Muffling (0 - 9) OFF, TAPE1, TAPE2, TAPE3, TAPE4, BLANKET1, BLANKET2, BLANKET3, WEIGHT1, WEIGHT2
#	00 09	0000 aaaa
	00 0A	0000 bbbb Beater Type (0 - 4) FELT1, FELT2, WOOD, PLASTIC1, PLASTIC2
#	00 0B	0000 aaaa
	00 0C	0000 bbbb Snare Buzz (0 - 8) OFF, 1 - 8
#	00 0D	0000 aaaa
	00 0E	0000 bbbb Low Level (*5) (0 - 10) -5 - -1, NORMAL, +1 - +5
#	00 0F	0000 aaaa
	00 10	0000 bbbb Low Decay (*5) (0 - 4) -2, -1, NORMAL, +1, +2
#	00 11	0000 aaaa
	00 12	0000 bbbb Kit Resonance (0 - 8) OFF, 1 - 8

(*5) For some instruments, this cannot be set.

* PINSTRIPE is registered trademark of REMO Inc. U. S. A.

INSTRUMENT GROUP: SNARE

Offset	Address	Description
	00 00 0000 0000	(reserve)
#	00 01 0000 aaaa	
	00 02 0000 bbbb	Shell Depth (0 - 58) 1.0 - 30.0
#	00 03 0000 aaaa	
	00 04 0000 bbbb	Head Type (0 - 2) CLEAR, COATED, PINSTRIPE
#	00 05 0000 aaaa	
	00 06 0000 bbbb	Tuning (-100 - 100) -100 - 100
#	00 07 0000 aaaa	
	00 08 0000 bbbb	Muffling (0 - 9) OFF, TAPE1, TAPE2, TAPE3, TAPE4, TAPE5, TAPE6, TAPE7, DONUT1, DONUT2
#	00 09 0000 aaaa	
	00 0A 0000 bbbb	Overtone (*6) (-5 - 5) -5 - +5
#	00 0B 0000 aaaa	
	00 0C 0000 bbbb	Strainer Adjust (0 - 8) LOOSE1 - 3, MEDIUM1 - 3, TIGHT1 - 3
#	00 0D 0000 aaaa	
	00 0E 0000 bbbb	Wire Level (1 - 10) -4 - -1, NORMAL, +1 - +5

(*6) For some instruments, this cannot be set.

INSTRUMENT GROUP: CROSS STICK

Offset	Address	Description
	00 00 0000 0000	(reserve)
#	00 01 0000 aaaa	

	00 02	0000 bbbb	dummy (ignored)	
#	00 03	0000 aaaa		
	00 04	0000 bbbb	dummy (ignored)	
#	00 05	0000 aaaa		
	00 06	0000 bbbb	Tuning	(-100 - 100)
				-100 - 100
#	00 07	0000 aaaa		
	00 08	0000 bbbb	Muffling	(0 - 9)
			OFF, TAPE1, TAPE2, TAPE3, TAPE4,	
			TAPE5, TAPE6, TAPE7, DONUT1, DONUT2	
#	00 09	0000 aaaa		
	00 0A	0000 bbbb	dummy (ignored)	
#	00 0B	0000 aaaa		
	00 0C	0000 bbbb	Strainer Adjust	(0 - 8)
			LOOSE1 - 3, MEDIUM1 - 3, TIGHT1 - 3	
#	00 0D	0000 aaaa		
	00 0E	0000 bbbb	Wire Level	(1 - 10)
			-4 - -1, NORMAL, +1 - +5	

INSTRUMENT GROUP: TOM

Offset	Address	Description
	00 00	0000 0000 (reserve)
#	00 01	0000 aaaa
	00 02	0000 bbbb Shell Depth
		(0 - 58)
		1.0 - 30.0
#	00 03	0000 aaaa
	00 04	0000 bbbb Head Type
		(0 - 2)
		CLEAR, COATED, PINSTRIPE
#	00 05	0000 aaaa
	00 06	0000 bbbb Tuning
		(-100 - 100)
		-100 - 100
#	00 07	0000 aaaa
	00 08	0000 bbbb Muffling
		(0 - 9)
		OFF, TAPE1, TAPE2, TAPE3, TAPE4,
		TAPE5, FELT1, FELT2, FELT3, FELT4

#	00 09	0000	aaaa	
	00 0A	0000	bbbb	Snare Buzz (0 - 8)
				OFF, 1 - 8

INSTRUMENT GROUP: HI-HAT, HI-HAT PROC, HI-HAT ELEC

Offset	Address	Description
	00 00	0000 0000 (reserve)
#	00 01	0000 aaaa
	00 02	0000 bbbb Size (0 - 78)
		1.0 - 40.0
#	00 03	0000 aaaa
	00 04	0000 bbbb Fixed (0 - 4)
		NORMAL, PRESS, CLOSE, HALF, OPEN
#	00 05	0000 aaaa
	00 06	0000 bbbb Thickness (-5 - 5)
		THIN-5 - -1, STANDARD, THICK+1 - +5

INSTRUMENT GROUP: CRASH, CHINA, SPLASH, STACKED CYMBAL

Offset	Address	Description
	00 00	0000 0000 (reserve)
#	00 01	0000 aaaa
	00 02	0000 bbbb Size (0 - 78)
		1.0 - 40.0
#	00 03	0000 aaaa
	00 04	0000 bbbb Thickness (-5 - 5)
		THIN-5 - -1, STANDARD, THICK+1 - +5
#	00 05	0000 aaaa
	00 06	0000 bbbb Muffling (0 - 19)
		OFF, TAPE1 - 19
#	00 07	0000 aaaa
	00 08	0000 bbbb Sizzle Type (0 - 3)
		OFF, RIVET, CHAIN, BEADS
#	00 09	0000 aaaa
	00 0A	0000 bbbb Sizzle Amount (-3 - +3)

INSTRUMENT GROUP: RIDE

Offset	Address	Description
	00 00	0000 0000 (reserve)
#	00 01	0000 aaaa
	00 02	0000 bbbb Size (0 - 78) 1.0 - 40.0
#	00 03	0000 aaaa
	00 04	0000 bbbb Thickness (-5 - 5) THIN-5 - -1, STANDARD, THICK+1 - +5
#	00 05	0000 aaaa
	00 06	0000 bbbb Muffling (0 - 19) OFF, TAPE1 - 19
#	00 07	0000 aaaa
	00 08	0000 bbbb Sizzle Type (0 - 3) OFF, RIVET, CHAIN, BEADS
#	00 09	0000 aaaa
	00 0A	0000 bbbb Sizzle Amount (-3 - +3) -3 - +3
#	00 0B	0000 aaaa
	00 0C	0000 bbbb Ping Color (*7) (0 - 4) LIGHT2, LIGHT1, STANDARD, HEAVY1, HEAVY2
#	00 0D	0000 aaaa
	00 0E	0000 bbbb Ping Level (*7) (1 - 10) -4 - -1, NORMAL, +1 - +5

(*7) For some instruments, this cannot be set.

INSTRUMENT GROUP: SNARE BRUSH

Offset	Address	Description
	00 00	0000 0000 (reserve)
#	00 01	0000 aaaa
	00 02	0000 bbbb Shell Depth (0 - 58) 1.0 - 30.0

#	00 03	0000 aaaa		
	00 04	0000 bbbb	Head Type	(0 - 2)
			CLEAR, COATED, PINSTRIPE	
#	00 05	0000 aaaa		
	00 06	0000 bbbb	Tuning	(-100 - 100)
				-100 - 100
#	00 07	0000 aaaa		
	00 08	0000 bbbb	Muffling	(0 - 9)
			OFF, TAPE1, TAPE2, TAPE3, TAPE4,	
			TAPE5, TAPE6, TAPE7, DONUT1, DONUT2	

INSTRUMENT GROUP : TOM BRUSH

Offset	Address	Description
	00 00	0000 0000 (reserve)
#	00 01	0000 aaaa
	00 02	0000 bbbb Shell Depth
		(0 - 58)
		1.0 - 30.0
#	00 03	0000 aaaa
	00 04	0000 bbbb Head Type
		(0 - 2)
		CLEAR, COATED, PINSTRIPE
#	00 05	0000 aaaa
	00 06	0000 bbbb Tuning
		(-100 - 100)
		-100 - 100
#	00 07	0000 aaaa
	00 08	0000 bbbb Muffling
		(0 - 9)
		OFF, TAPE1, TAPE2, TAPE3, TAPE4,
		TAPE5, FELT1, FELT2, FELT3, FELT4
#	00 09	0000 aaaa
	00 0A	0000 bbbb Snare Buzz
		(0 - 8)
		OFF, 1 - 8

INSTRUMENT GROUP : OTHERS

Offset	Address	Description
	00 00	0000 0000 (reserve)

#	00 01	0000 aaaa		
	00 02	0000 bbbb	Pitch	(-100 - 100)
				-100 - 100
#	00 03	0000 aaaa		
	00 04	0000 bbbb	Decay	(1 - 100)
				1 - 100

* [TrigDigital]

This area is valid for a pad that is connected to the DIGITAL TRIGGER IN jack.

Normally you should edit these parameters from within the TD-27 itself.

Offset	Address	Description		
	00 00	00aa aaaa	(reserve)	
	00 01	00aa aaaa	Sensitivity	(0 - 62)
				1.0 - 32.0
	00 02	00aa aaaa	Rim Gain	(0 - 32)
				0 - 3.2
	00 03	000a aaaa	Threshold	(0 - 31)
				0 - 31
	00 04	0000 0aaa	Curve	(0 - 7)
				LINEAR, EXP1, EXP2, LOG1,
				LOG2, SPLINE, LOUD1, LOUD2
	00 05	0000 0aaa	ExtNoiseCancel	(0 - 5)
				OFF, 1 - 5
	00 06	0aaa aaaa	Head/Rim Adjust	(0 - 80)
				0 - 80
	00 07	00aa aaaa	Scan Time	(0 - 40)
				0 - 4.0
	00 08	0aaa aaaa	Mask Time	(0 - 64)
				0 - 64
	00 09	0000 aaaa	Retrigger Cancel	(0 - 15)
				1 - 16
	00 0A	0000 000a	Position Detect Head	(0 - 1)
				OFF, ON
	00 0B	0000 000a	Position Detect Rim	(0 - 1)
				OFF, ON
#	00 0C	0000 aaaa		
	00 0D	0000 bbbb	Digital Trigger Advanced Parameter 1 (*8)	
#	00 0E	0000 aaaa		

#	00 1A	0000 aaaa	
	00 1B	0000 bbbb	dummy (ignored)

Digital Pad: CY-18DR

Offset	Address	Description	
#	00 0C	0000 aaaa	
	00 0D	0000 bbbb	Position Adjust (0 - 9)
			1 - 10
#	00 0E	0000 aaaa	
	00 0F	0000 bbbb	Choke Sens (0 - 5)
			OFF, 1 - 5
#	00 10	0000 aaaa	
	00 11	0000 bbbb	Bell Gain (0 - 32)
			0 - 3.2
#	00 12	0000 aaaa	
	00 13	0000 bbbb	dummy (ignored)
#	00 14	0000 aaaa	
	00 15	0000 bbbb	dummy (ignored)
#	00 16	0000 aaaa	
	00 17	0000 bbbb	dummy (ignored)
#	00 18	0000 aaaa	
	00 19	0000 bbbb	dummy (ignored)
#	00 1A	0000 aaaa	
	00 1B	0000 bbbb	dummy (ignored)

4. Supplementary Material

■Decimal and Hexadecimal Table

(An "H" is appended to the end of numbers in hexadecimal notation.)

In MIDI documentation, data values and addresses/sizes of exclusive messages etc. are expressed as hexadecimal values for each 7 bits.

The following table shows how these correspond to decimal numbers. (in the case of hexadecimal values for each 7 bits, or positive hexadecimal values for each 4 bits.)

D	H	D	H	D	H	D	H
0	00H	32	20H	64	40H	96	60H
1	01H	33	21H	65	41H	97	61H
2	02H	34	22H	66	42H	98	62H
3	03H	35	23H	67	43H	99	63H
4	04H	36	24H	68	44H	100	64H
5	05H	37	25H	69	45H	101	65H
6	06H	38	26H	70	46H	102	66H
7	07H	39	27H	71	47H	103	67H
8	08H	40	28H	72	48H	104	68H
9	09H	41	29H	73	49H	105	69H
10	0AH	42	2AH	74	4AH	106	6AH
11	0BH	43	2BH	75	4BH	107	6BH
12	0CH	44	2CH	76	4CH	108	6CH
13	0DH	45	2DH	77	4DH	109	6DH
14	0EH	46	2EH	78	4EH	110	6EH
15	0FH	47	2FH	79	4FH	111	6FH
16	10H	48	30H	80	50H	112	70H
17	11H	49	31H	81	51H	113	71H
18	12H	50	32H	82	52H	114	72H
19	13H	51	33H	83	53H	115	73H
20	14H	52	34H	84	54H	116	74H
21	15H	53	35H	85	55H	117	75H
22	16H	54	36H	86	56H	118	76H
23	17H	55	37H	87	57H	119	77H
24	18H	56	38H	88	58H	120	78H
25	19H	57	39H	89	59H	121	79H
26	1AH	58	3AH	90	5AH	122	7AH
27	1BH	59	3BH	91	5BH	123	7BH
28	1CH	60	3CH	92	5CH	124	7CH
29	1DH	61	3DH	93	5DH	125	7DH
30	1EH	62	3EH	94	5EH	126	7EH
31	1FH	63	3FH	95	5FH	127	7FH

D: decimal

H: hexadecimal

* Decimal values such as MIDI channel, bank select, and program change are listed as one greater than the values given in the above table.

* A 7-bit byte in hexadecimals can express data in the range of 128 steps. For data where greater precision is required, we must use two or more bytes. For example, two hexadecimal numbers aa bbH expressing two 7-bit bytes would indicate a value of

$aa \times 128 + bb$.

* In the case of data to which multiple addresses are assigned, a hexadecimal value is used for each four bits. A value $0a0bH$ expressed as two-byte nibbles will be $a \times 16 + b$.

* For values with a \pm sign, $00H = -64$, $40H = \pm 0$, and $7FH = +63$. When expressing these values as decimal expressions, we use values that are 64 less than the values in the decimal table above. In the case of a two-byte value, $0000H = -8192$, $4000H = \pm 0$, and $7F7FH = +8191$. For example, $aa\ bbH$ expressed in decimal would be $aa\ bbH - 40\ 00H = aa \times 128 + bb - 64 \times 128$.

<Example 1> What is the decimal expression of $5AH$?

From the preceding table, $5AH = 90$

<Example 2> What is the decimal expression of the value $12\ 34H$ given as hexadecimal for each 7 bits?

From the preceding table, since they are $12H = 18$ and $34H = 52$,

$18 \times 128 + 52 = 2356$

■ Examples of Actual MIDI Messages

<Example 1> $92\ 3E\ 5F$

$9n$ is the Note-on status, and n is the MIDI channel number. Since $2H = 2$, $3EH = 62$, and $5FH = 95$, this is a Note-on message with MIDI CH = 3, note number 62 (note name is D4), and velocity 95.

<Example 2> $C9\ 20$

CnH is the Program Change status, and n is the MIDI channel number. Since $9H = 9$ and $20H = 32$, this is a Program Change message with MIDI CH = 10, program number 33.

<Example 3> $B9\ 04\ 5A\ 99\ 2C\ 7F\ B9\ 04\ 2D$

$9n$ is the Note-on status, and n is the MIDI channel number. BnH is the Control Change status, and n is the MIDI channel number. Thus, the above messages have the following meaning.

$B9\ 04\ 5A$ MIDI ch. 10, foot controller: $5AH$

$99\ 2C\ 7F$ MIDI ch. 10, Note On message

$B9\ 04\ 2D$ MIDI ch. 10, foot controller: $2DH$

In other words, with these messages a Note On message with a note number of 44 (G#2) and velocity of 127 is transmitted on MIDI Channel 10, and then the foot controller value is set from 90 to 45.

According to the settings made at the factory, the drum part is assigned to MIDI Channel 10, Note Number 44 is assigned to the pedal hi-hat, and the foot controller is set to Pedal CC; in this case, the TD-27 plays a foot splash when the message is received.

■Examples of Exclusive Messages and Checksum Calculation

When transmitting Roland exclusive messages (DT1), a checksum is added following the data (before F7) so that the receiving device can check whether the message was received correctly.

The checksum value is determined by the address and data of the exclusive message that is transmitted.

●How to calculate the checksum

(An "H" is appended to the end of numbers in hexadecimal notation.)

The checksum is a value derived by adding the address, data and checksum itself and inverting the lower 7 bits.

Here's an example of how the checksum is calculated. We will assume that in the exclusive message we are transmitting, the address is aa bb cc ddH and the data is ee ff gg hhH.

$$aa + bb + cc + dd + ee + ff + gg + hh = \text{sum}$$

$$\text{sum} / 128 = \text{quotient} \dots \text{remainder}$$

$$128 - \text{remainder} = \text{checksum}$$

(However, the checksum will be 0 if the remainder is 0.)

<Example 1>

Specifying 3.5 as the shell depth of the instrument assigned to the snare head of drum kit number 1

"Parameter address map" indicates that the start address of drum kit 1 is 04 00 00 00H, the offset address of the VEdit parameters of the instrument assigned to the snare head is 01 01 00H, and the offset address of the shell depth (V-Edit Parameter 1) is 00 01H; therefore, the address is

```

04 00 00 00H
   01 01 00H
+)   00 01H
-----
04 01 01 01H
    
```

Since 3.5 is the parameter value 00 05H

F0	41	10	00 00 00 63	12	04 01 01 01	00 05	??	F7
(1)	(2)	(3)	(4)	(5)	address data	checksum	(6)	

- (1) Exclusive Status (2) ID (Roland)
- (3) Device ID (17) (4) Model ID (TD-27)
- (5) Command ID (DT1) (6) EOX

Then calculate the checksum.

$$04H + 01H + 01H + 01H + 00H + 05H = 4 + 1 + 1 + 1 + 0 + 5 = 12(\text{sum})$$

$$12(\text{sum}) \div 128 = 0(\text{quotient}) \dots 12(\text{remainder}) \text{checksum} = 128 - 12(\text{remainder}) = 116 = 74H$$

This means that F0 41 10 00 00 00 63 12 04 01 01 01 00 05 74 F7 is the message should be sent.

<Example 2>

Requesting transmission of the pad compressor switch for the snare of drum kit number 1

“Parameter address map” indicates that the start address of drum kit 1 is 04 00 00 00H, the offset address of the snare pad parameters is 01 41 00H, and the offset address of the pad compressor switch is 00 01H; therefore, the address is

```

    04 00 00 00H
      01 41 00H
+)      00 01H
-----
    04 01 41 01H
  
```

Since the size is 00 00 00 01H

```

F0      41      10      00 00 00 63      11      04 01 41 01      00 00 00 01      ??      F7
(1)      (2)      (3)      (4)              (5)      address data      checksum (6)
  
```

- (1) Exclusive Status (2) ID (Roland)
- (3) Device ID (17) (4) Model ID (TD-27)
- (5) Command ID (RQ1) (6) EOX

Then calculate the checksum.

$$04H + 01H + 41H + 01H + 00H + 00H + 00H + 01H = 4 + 1 + 65 + 1 + 0 + 0 + 0 + 1 = 72(\text{sum})$$

$$72(\text{sum}) \div 128 = 0(\text{quotient}) \dots 72(\text{remainder}) \text{ checksum} = 128 - 72(\text{remainder}) = 56 = 38H$$

This means that F0 41 10 00 00 00 63 11 04 01 41 01 00 00 00 01 38 F7 is the message should be sent.

5. MIDI Implementation Chart

Date : Jan 1, 2020

Model TD-27		MIDI Implementation Chart			Version : 1.00
Function...		Transmitted	Recognized	Remarks	
Basic	Default	1-16, OFF	1-16, OFF	Memorized	
Channel	Changed	1-16, OFF	1-16, OFF		
	Default	Mode 3	Mode 3		
Mode	Messages	x	x		
	Altered	*****	x		
Note		0-127	0-127	Memorized	

Number	:True Voice	*****	0-127	
Velocity	Note On	o 9nH, v = 1-127	o	
	Note Off	o 8nH, v = 64	x	
After	Key's	o	o	
Touch	Channel's	x	x	
Pitch Bend		x	x	
Control		1 o (Pad, Pedal) *1 *2	o *1 *2	Modulation
Change		2 o (Pad, Pedal) *1 *2	o *1 *2	Breath Controller
		4 o (Pad, Pedal) *1 *2	o *1 *2	Foot Controller
		11 o (Pad, Pedal) *1 *2	o *1 *2	Expression
		16 - 19 o (Pad, Pedal) *1 *2	o *1 *2	General Purpose Controller 1-4
		88 o v=0 - 64 *3	o v=0 - 64 *3	High Resolution Velocity Prefix
Program		o 0-99 *3	o 0-99 *3	Program No. 1-100
Change	:True Number	*****	0-99	
System Exclusive		o *6	o *3	
System	:Song Position	x	x	
Common	:Song Select	x	x	
	:Tune Request	x	x	
System	:Clock	x	o *4	
Real Time	:Commands	x	x	
	:All Sound Off	o	o (120, 123-127)	
	:Reset All Controllers	x	o	
Aux	:Local On/Off	x	x	
Messages	:All Notes Off	x	o *5	
	:Active Sensing	o	o	
	:System Reset	x	x	
Notes		*1 One is selected as the strike position.		
		*2 One is selected as the hi-hat control pedal.		
		*3 O x is selectable.		
		*4 Receives when Sync Mode setting is "EXTERNAL."		
		*5 The same result as All Sound Off.		

| *6 Transmitted if Transmit Edit Data is on, or when RQ1 is received. |

Mode 1 : OMNI ON, POLY

Mode 2 : OMNI ON, MONO

o :

Yes

Mode 3 : OMNI OFF, POLY

Mode 4 : OMNI OFF, MONO

x :

No