

# MIDI Implementation

Model: GT-6B GUITAR EFFECTS PROCESSOR

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Version: 1.00

## 1. RECOGNIZED RECEIVE DATA

### ■ CHANNEL VOICE MESSAGE

#### ● Control Change

Status	Second	Third
BnH	ccH	vvH
n = MIDI Channel No.:	0H - FH (ch.1 - ch.16)	
cc = Controller No.:	01H - 1FH (1 - 31)	
	40H - 5FH (64 - 95)	
vv = Value:	00H - 7FH (0 - 127)	

\* By specifying this as a source for "realtime parameter control" you can use these messages to control a target.

#### ● Program Change

Status	Second
CnH	ppH
n = MIDI Channel No.:	0H - FH (ch.1 - ch.16)
pp = Program No.:	00H - 7FH (No.1 - No.128)

\* Patches will be selected according to the program number that is received.

### ■ SYSTEM REALTIME MESSAGE

#### ● Timing Clock

Status  
F8H

#### ● Active Sensing

Status  
FEH

\* When an Active Sensing message is received, the interval of all subsequent messages will begin to be monitored. If an interval greater than 400 msec. between messages, the display will indicate "MIDI Off Line!"

### ■ SYSTEM EXCLUSIVE MESSAGE

Status	Data Byte	Status
F0H	iiH, ddH ... eeH	F7H
F0H = System Exclusive		
ii = Manufacturer ID:	41H (Roland)	
dd ... ee = Data :	00H - 7FH (0-127)	
F7H = EOX (End of Exclusive/System common)		

For more details, please refer to "Roland Exclusive Message."

## 2. TRANSMITTED DATA

### ■ CHANNEL VOICE MESSAGE

#### ● Control Change

Status	Second	Third
BnH	ccH	vvH
n = MIDI Channel No.:	0H - FH (ch.1 - ch.16)	
cc = Controller Number:	01H - 1FH (1 - 31)	
	21H - 5FH (33 - 95)	
vv = Value:	00H - 7FH (0 - 127)	

\* If you set up a system parameter "MIDI PC OUT" for "On," Bank Select (00H, 20H) is transmitted when switching patch.

\* If you set up a control change number at a system parameter "MIDI EXP Number," control change information is transmitted when operating EXP pedal.

\* If you set up a control change number at a system parameter "MIDI CTL Number," control change information is transmitted when operating CTL pedal.

\* If you set up a control change number at a system parameter "MIDI SUB CTL1 Number," control change information is transmitted when operating CTL 1 pedal (SUB EXP pedal) of an outside connection.

\* If you set up a control change number at a system parameter "MIDI SUB CTL2 Number," control change information is transmitted when operating CTL 2 pedal (SUB EXP pedal) of an outside connection.

#### ● Program Change

Status	Second
CnH	ppH
n = MIDI Channel No.:	0H - FH (ch.1 - ch.16)
pp = Program No.:	00H - 7FH (No.1 - No.128)

\* If you set up a system parameter "MIDI PC OUT" for "On," program change information is transmitted when switching patch.

### ■ SYSTEM REALTIME MESSAGE

#### ● Start

Status  
FAH

#### ● Stop

Status  
FCH

### ■ SYSTEM EXCLUSIVE MESSAGE

Status	Data Byte	Status
F0H	iiH, ddH ... eeH	F7H
F0H = System Exclusive		
ii = Manufacturer ID :	41H (Roland)	
dd ... ee = Data :	00H - 7FH (0 - 127)	
F7H = EOX (End of Exclusive/System common)		

\* For more details, please refer to "Roland Exclusive Message."

## ●MIDI Machine Control (MMC)

Status	Data Byte	Status
F0H	iiH,ddH ... eeH	F7H

F0H = System Exclusive  
 7FH = ID Number (Universal Realtime Message)  
 7FH = Device ID (Broadcast)  
 06H = Sub ID#1 (Machine Control Command)  
 com = Sub ID#2 (MMC Command)  
 F7H = EOX (End of Exclusive/System common)

\* "com" (MMC Command) that I transmit with GT-6B is following.

com  
 01H Stop  
 02H Play

## 3. EXCLUSIVE COMMUNICATION

On the GT-6B, exclusive messages can be used as follows. - Transmit/receive GT-6B system/patch data  
 The model ID for GT-6B exclusive messages is 00H 50H, and you can set up the device ID at 00H --1FH.

### ■ONE WAY COMMUNICATION

#### ●Request Data 1 RQ1 (11H)

Byte	Description
F0H	Exclusive Status
41H	Manufacturer ID (Roland)
Dev	Device ID (Dev=00H-1FH)
00H	Model ID (GT-6B) MSB
50H	Model ID (GT-6B) LSB
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 System Exclusive)

\* This message can only be received, and is not transmitted from the GT-6B.

#### ●Data Set 1DT1(12H)

Byte	Description
F0H	Exclusive Status
41H	Manufacturer ID (Roland)
Dev	Device ID (Dev=00H-1FH)
00H	Model ID (GT-6B) MSB
50H	Model ID (GT-6B) LSB
12H	Command ID (DT1)
aaH	Address MSB
bbH	Address
ccH	Address
ddH	Address LSB
eeH	data
:	:
ffH	Data
sum	Checksum
F7H	EOX (End of System Exclusive)

## 4. PARAMETER ADDRESS MAP

The address and size are displayed under 7-bit hexadecimal notation.

Address	MSB			LSB
Binary	0aaa aaaa	0bbb bbbb	0ccc cccc	0ddd dddd
7-bit Hexadecima	AA	BB	CC	DD

Size	MSB			LSB
Binary	0sss ssss	0ttt tttt	0uuu uuuu	0vvv vvvv
7-bit Hexadecimal	SS	TT	UU	VV

### Address Block Map

Address	Block	Sub Block	Note	
00 00 00 00	UTILITY	TUNER	.....Bulk *Refer to Table TUNER	
02 00 00 00		GLOBAL	.....Bulk *Refer to Table GLOBAL	
02 01 00 00		SYSTEM	.....Bulk *Refer to Table SYSTEM	
02 02 00 00		MIDI	.....Bulk *Refer to Table MIDI	
02 04 00 00		HARMONIST SCALE	.....Bulk *Refer to Table HARMONIST	
02 05 00 00		AUTO SLAP PHRASE	.....Bulk *Refer to Table AUTO SLAP	
02 07 00 00		OVERDRIVE/DISTORTION Customaize	.....Bulk *Refer to Table OD/DS	
02 08 00 00		WAH Customaize	.....Bulk *Refer to Table WAH	
04 00 00 00		Quick Setting	ROM Area	.....Bulk(Read Only) *Refer to Table Quick Fx
05 00 00 00			ROM Area(Name)	.....Bulk(Read Only) *Refer to Table Quick Fx
06 00 00 00	User Patch	Patch Bank U1-1	.....Bulk *Refer to Table Patch	
06 01 00 00		Patch Bank U1-2		
:		:		
06 27 00 00		Patch Bank U0-4		
06 28 00 00		Patch Bank u1-1		
:		:		
06 4F 00 00		Patch Bank u0-4		
08 00 00 00		ROM Patch	Patch Bank P1-1	.....Bulk(Read Only) *Refer to Table Patch
08 01 00 00			Patch Bank P1-2	
:			:	
08 27 00 00	Patch Bank P0-4			
0A 00 00 00	Temporary Buffer		.....Bulk *Refer to Table Patch	
0B 00 00 00	Temporary Buffer	.. Individual(Write Only) *Refer to Table Patch		

- \* The GT-6B can use two methods of communication; Individual Parameter and Bulk Dump.
- \* Bulk data can be received when the Bulk Load Ready function is accessed in Utility mode.
- \* Although individual data can be received at any time, be sure to appropriately describe the value for one parameter in one packet [F0..F7].
- \* When a data request is to be received, use Bulk Load Ready in the utility.
- \* Do not use an address appended with “#” as the first address.
- \* Parameters for which Size is 2 or higher should not be separated; make sure these are sent in the same packet.

Table TUNER &lt;TUNER&gt;

Address(H)	Size(H)	Data(H)	Parameter	Description
00 00 00 00	00 00 00 01	00 - 0A	TUNER Pitch	435Hz - 445Hz

Table GLOBAL &lt;UTILITY : GLOBAL&gt;

Address(H)	Size(H)	Data(H)	Parameter	Description
02 00 00 00	00 00 00 01	00 - 28	NS Threshold	-20dB - +20dB
02 00 00 01	00 00 00 01	00 - 64	Reverb Level	0% - 200% (step 2%)

Table SYSTEM &lt;UTILITY : SYSTEM&gt;

Address(H)	Size(H)	Data(H)	Parameter	Description
02 01 00 00	00 00 00 01	00 - 0F	LCD Contrast	1 - 16
02 01 00 01	00 00 00 01	00 - 1D	BANK Extent	00 : U1(User) : 09 : U0 0A : ul : 13 : u0 14 : P1(Preset) : 1D : P0 00 : BANK/NUMBER 01 : UP/DOWN
02 01 00 02	00 00 00 01	00 - 01	Patch Select Mode	00 : Immediate 01 : Wait for a Number
02 01 00 03	00 00 00 01	00 - 01	Patch Change Mode	00 : Off 01 : On
02 01 00 04	00 00 00 01	00 - 01	EXP Pedal Hold	00 : Patch No.& VALUE 01 : VALUE Only
02 01 00 05	00 00 00 01	00 - 01	Dial Function	00 : Immediate 01 : Current Setting
02 01 00 06	00 00 00 01	00 - 01	Knob Mode	00 : Assignable 01 : MANUAL On/Off
02 01 00 07	00 00 00 01	00 - 04	Sub CTL1 Function	02 : TUNER On/Off 03 : MIDI Start/Stop 04 : MMC Play/Stop
02 01 00 08	00 00 00 01	00 - 04	Sub CTL2 Function	00 : Assignable 01 : MANUAL On/Off 02 : TUNER On/Off 03 : MIDI Start/Stop 04 : MMC Play/Stop
02 01 00 09	00 00 00 01	00 - 64	Digital Out Level	0 - 200 (step 2)

Table MIDI &lt;UTILITY : MIDI&gt;

Address(H)	Size(H)	Data(H)	Parameter	Description
02 02 00 00	00 00 00 01	00 - 0F	MIDI Rx Channel	00 : 1 : 0F : 16
02 02 00 01	00 00 00 01	00 - 01	MIDI Omni Mode	00 : Omni Off 01 : Omni On
02 02 00 02	00 00 00 01	00 - 10	MIDI Tx Channel	00 : 1 : 10 : Rx 0F : 16
02 02 00 03	00 00 00 01	00 - 01	MIDI Sync Clock	00 : Auto 01 : Internal
02 02 00 04	00 00 00 01	00 - 01	MIDI PC OUT	00 : Off 01 : On
02 02 00 05	00 00 00 01	00 - 5E	MIDI EXP OUT	00 : Off 01 : CC# 1 : 1F : CC#31 20 : CC#33 : 5E : CC#95
02 02 00 06	00 00 00 01	00 - 5E	MIDI EXP SW OUT	
02 02 00 07	00 00 00 01	00 - 5E	MIDI CTL OUT	
02 02 00 08	00 00 00 01	00 - 5E	MIDI SubCTL1 OUT	
02 02 00 09	00 00 00 01	00 - 5E	MIDI SubCTL2 OUT	
02 02 00 0A	00 00 00 01	00 - 01	MIDI Map Select	00 : Fix 01 : Prog
02 02 10 00	00 00 00 02	00 00	MIDI Program Map	MIDI Map Select = Prog
02 02 10 01#		- 00 77	PC# 1	00 00 : U1-1(User) : 00 77 : P0-4(Preset)
02 02 10 02	00 00 00 02	00 00	MIDI Program Map	
02 02 10 03#		- 00 77	PC# 2	
02 02 11 7E	00 00 00 02	00 00	MIDI Program Map	
02 02 11 7F#		- 00 77	PC#128	

Table HARMONIST &lt;HARMONIST SCALE&gt;

Address(H)	Size(H)	Data(H)	Parameter	Description
02 04 00 00	00 00 00 01	00 - 30	Scale 1 C	
02 04 00 01	00 00 00 01	00 - 30	Scale 1 Db	
02 04 00 02	00 00 00 01	00 - 30	Scale 1 D	
02 04 00 03	00 00 00 01	00 - 30	Scale 1 Eb	
02 04 00 04	00 00 00 01	00 - 30	Scale 1 E	
02 04 00 05	00 00 00 01	00 - 30	Scale 1 F	
02 04 00 06	00 00 00 01	00 - 30	Scale 1 F#	
02 04 00 07	00 00 00 01	00 - 30	Scale 1 G	
02 04 00 08	00 00 00 01	00 - 30	Scale 1 Ab	
02 04 00 09	00 00 00 01	00 - 30	Scale 1 A	
02 04 00 0A	00 00 00 01	00 - 30	Scale 1 Bb	
02 04 00 0B	00 00 00 01	00 - 30	Scale 1 B	
02 04 01 00	00 00 00 01	00 - 30	Scale 2 C	
02 04 01 0B	00 00 00 01	00 - 30	Scale 2 B	
02 04 02 00	00 00 00 01	00 - 30	Scale 3 C	
02 04 02 0B	00 00 00 01	00 - 30	Scale 3 B	
02 04 03 00	00 00 00 01	00 - 30	Scale 4 C	

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02 04 03 0B 00 00 00 01 00 - 30 Scale 4 B
02 04 04 00 00 00 00 01 00 - 30 Scale 5 C
:
:
:
02 04 04 0B 00 00 00 01 00 - 30 Scale 5 B
02 04 05 00 00 00 00 01 00 - 30 Scale 6 C
:
:
:
02 04 05 0B 00 00 00 01 00 - 30 Scale 6 B
02 04 06 00 00 00 00 01 00 - 30 Scale 7 C
:
:
:
02 04 06 0B 00 00 00 01 00 - 30 Scale 7 B
02 04 07 00 00 00 00 01 00 - 30 Scale 8 C
:
:
:
02 04 07 0B 00 00 00 01 00 - 30 Scale 8 B
02 04 08 00 00 00 00 01 00 - 30 Scale 9 C
:
:
:
02 04 08 0B 00 00 00 01 00 - 30 Scale 9 B
02 04 09 00 00 00 00 01 00 - 30 Scale 10 C
:
:
:
02 04 09 0B 00 00 00 01 00 - 30 Scale 10 B
02 04 0A 00 00 00 00 01 00 - 30 Scale 11 C
:
:
:
02 04 0A 0B 00 00 00 01 00 - 30 Scale 11 B
02 04 0B 00 00 00 00 01 00 - 30 Scale 12 C
:
:
:
02 04 0B 0B 00 00 00 01 00 - 30 Scale 12 B
02 04 0C 00 00 00 00 01 00 - 30 Scale 13 C
:
:
:
02 04 0C 0B 00 00 00 01 00 - 30 Scale 13 B
02 04 0D 00 00 00 00 01 00 - 30 Scale 14 C
:
:
:
02 04 0D 0B 00 00 00 01 00 - 30 Scale 14 B
:
:
:
02 04 0E 00 00 00 00 01 00 - 30 Scale 15 C
:
:
:
02 04 0E 0B 00 00 00 01 00 - 30 Scale 15 B
02 04 0F 00 00 00 00 01 00 - 30 Scale 16 C
:
:
:
02 04 0F 0B 00 00 00 01 00 - 30 Scale 16 B
02 04 10 00 00 00 00 01 00 - 30 Scale 17 C
:
:
:
02 04 10 0B 00 00 00 01 00 - 30 Scale 17 B
02 04 11 00 00 00 00 01 00 - 30 Scale 18 C
:
:
:
02 04 11 0B 00 00 00 01 00 - 30 Scale 18 B
02 04 12 00 00 00 00 01 00 - 30 Scale 19 C
:
:
:
02 04 12 0B 00 00 00 01 00 - 30 Scale 19 B
02 04 13 00 00 00 00 01 00 - 30 Scale 20 C
:
:
:
02 04 13 0B 00 00 00 01 00 - 30 Scale 20 B
02 04 14 00 00 00 00 01 00 - 30 Scale 21 C
:
:
:
02 04 14 0B 00 00 00 01 00 - 30 Scale 21 B
02 04 15 00 00 00 00 01 00 - 30 Scale 22 C
:
:
:
02 04 15 0B 00 00 00 01 00 - 30 Scale 22 B
02 04 16 00 00 00 00 01 00 - 30 Scale 23 C
:
:
:
02 04 16 0B 00 00 00 01 00 - 30 Scale 23 B
02 04 17 00 00 00 00 01 00 - 30 Scale 24 C
:
:
:
02 04 17 0B 00 00 00 01 00 - 30 Scale 24 B
02 04 18 00 00 00 00 01 00 - 30 Scale 25 C
:
:
:
02 04 18 0B 00 00 00 01 00 - 30 Scale 25 B
02 04 19 00 00 00 00 01 00 - 30 Scale 26 C
:
:
:
02 04 19 0B 00 00 00 01 00 - 30 Scale 26 B
02 04 1A 00 00 00 00 01 00 - 30 Scale 27 C
:
:
:
02 04 1A 0B 00 00 00 01 00 - 30 Scale 27 B
02 04 1B 00 00 00 00 01 00 - 30 Scale 28 C
:
:
:
02 04 1B 0B 00 00 00 01 00 - 30 Scale 28 B
02 04 1C 00 00 00 00 01 00 - 30 Scale 29 C
:
:
:
02 04 1C 0B 00 00 00 01 00 - 30 Scale 29 B

```

Below is an explanation of the Description value when DIR (Direct) is C. Replace each of the values when DIR is something other than C.

```

00 : Pitch = -C ↓↓
01 : Pitch = -Db ↓
02 : Pitch = -D ↓
03 : Pitch = -Eb ↓
04 : Pitch = -E ↓
05 : Pitch = -F ↓
06 : Pitch = -F# ↓
07 : Pitch = -G ↓
08 : Pitch = -Ab ↓
09 : Pitch = -A ↓
0A : Pitch = -Bb ↓
0B : Pitch = -B ↓
0C : Pitch = -C ↓
0D : Pitch = -Db ↓
0E : Pitch = -D ↓
0F : Pitch = -Eb ↓
10 : Pitch = -E ↓
11 : Pitch = -F ↓
12 : Pitch = -F# ↓
13 : Pitch = -G ↓
14 : Pitch = -Ab ↓
15 : Pitch = -A ↓
16 : Pitch = -Bb ↓
17 : Pitch = -B ↓
18 : Pitch = C ↓
19 : Pitch = +Db ↓
1A : Pitch = +D ↓
1B : Pitch = +Eb ↓
1C : Pitch = +E ↓
1D : Pitch = +F ↓
1E : Pitch = +F# ↓
1F : Pitch = +G ↓
20 : Pitch = +Ab ↓
21 : Pitch = +A ↓
22 : Pitch = +Bb ↓
23 : Pitch = +B ↓
24 : Pitch = +C ↑
25 : Pitch = +Db ↑

```

26 : Pitch = +D ↑  
 27 : Pitch = +Eb↑  
 28 : Pitch = +E ↑  
 29 : Pitch = +F ↑  
 2A : Pitch = +F#↑  
 2B : Pitch = +G ↑  
 2C : Pitch = +Ab↑  
 2D : Pitch = +A ↑  
 2E : Pitch = +Bb↑  
 2F : Pitch = +B ↑  
 30 : Pitch = +C ↑↑

Table AUTO SLAP <AUTO SLAP PHRASE>

Address(H)	Size(H)	Data(H)	Parameter	Description
02 05 00 00	00 00 00 01	00 - 30	User 1 Step1 Pitch	-24 - +24
02 05 00 01	00 00 00 01	00 - 06	User 1 Step1 Length	00:HARF 01:QTR 02:HALF_3 03:EIGHTH 04:TRI 05:SIXTEEN 06:EIGHT_3
02 05 00 02	00 00 00 01	00 - 02	User 1 Step1 Sound	00:Mute 01:Stacc 02:Full 00:Less 01:Thumb 02:Pluck
02 05 00 03	00 00 00 01	00 - 02	User 1 Step1 Attack	
02 05 00 04	00 00 00 01	00 - 30	User 1 Step2 Pitch	
02 05 00 01	00 00 00 01	00 - 07	User 1 Step2 Length	00:HARF 01:QTR 02:HALF_3 03:EIGHTH 04:TRI 05:SIXTEEN 06:EIGHT_3 07:AS_END
02 05 00 02	00 00 00 01	00 - 02	User 1 Step2 Sound	
02 05 00 03	00 00 00 01	00 - 02	User 1 Step2 Attack	
02 05 00 04	00 00 00 01	00 - 30	User 1 Step3 Pitch	
:	:	:	:	:
02 05 00 63	00 00 00 01	00 - 02	User 1 Step24 Attack	
02 05 02 00	00 00 00 01	00 - 30	User 2 Step1 Pitch	
:	:	:	:	:
02 05 02 63	00 00 00 01	00 - 02	User 2 Step24 Attack	
02 05 04 00	00 00 00 01		User 3 Step1 Pitch	
:	:	:	:	:
02 05 04 63	00 00 00 01	00 - 02	User 3 Step24 Attack	
02 05 06 00	00 00 00 01	00 - 30	User 4 Step1 Pitch	
:	:	:	:	:
02 05 06 63	00 00 00 01	00 - 02	User 4 Step24 Attack	
02 05 08 00	00 00 00 01	00 - 30	User 5 Step1 Pitch	
:	:	:	:	:
02 05 08 63	00 00 00 01	00 - 02	User 5 Step24 Attack	
02 05 0A 00	00 00 00 01	00 - 30	User 6 Step1 Pitch	
:	:	:	:	:
02 05 0A 63	00 00 00 01	00 - 02	User 6 Step24 Attack	
02 05 0C 00	00 00 00 01	00 - 30	User 7 Step1 Pitch	
:	:	:	:	:
02 05 0C 63	00 00 00 01	00 - 02	User 7 Step24 Attack	
02 05 0E 00	00 00 00 01	00 - 30	User 8 Step1 Pitch	
:	:	:	:	:
02 05 0E 63	00 00 00 01	00 - 02	User 8 Step24 Attack	
02 05 10 00	00 00 00 01	00 - 30	User 9 Step1 Pitch	
:	:	:	:	:
02 05 10 63	00 00 00 01	00 - 02	User 9 Step24 Attack	
02 05 12 00	00 00 00 01	00 - 30	User 10 Step1 Pitch	
:	:	:	:	:
02 05 12 63	00 00 00 01	00 - 02	User 10 Step24 Attack	

Table OVERDRIVE/DISTORTION <OVERDRIVE/DISTORTION Customaize>

Address(H)	Size(H)	Data(H)	Parameter	Description
02 07 00 00	00 00 00 01	00 - 05	Custom1 Type	00 : OD-2 01 : BD-2 02 : ODB-3 03 : DS-1 04 : MT-2 05 : FUZZ
02 07 00 01	00 00 00 01	00 - 0A	Custom1 Bottom	-50 - +50 (step 10)
02 07 00 02	00 00 00 01	00 - 0A	Custom1 Top	-50 - +50 (step 10)
02 07 00 03	00 00 00 01	00 - 0A	Custom1 Low	-50 - +50 (step 10)
02 07 00 04	00 00 00 01	00 - 0A	Custom1 High	-50 - +50 (step 10)
02 07 01 00	00 00 00 01	00 - 05	Custom2 Type	
02 07 01 01	00 00 00 01	00 - 0A	Custom2 Bottom	
02 07 01 02	00 00 00 01	00 - 0A	Custom2 Top	
02 07 01 03	00 00 00 01	00 - 0A	Custom2 Low	
02 07 01 04	00 00 00 01	00 - 0A	Custom2 High	

Table WAH <WAH Customaize>

Address(H)	Size(H)	Data(H)	Parameter	Description
02 08 00 00	00 00 00 01	00 - 02	Custom1 Type	00 : CRY WAH 01 : VO WAH 02 : Bass WAH
02 08 00 01	00 00 00 01	00 - 0A	Custom1 Q	-50 - +50 (step 10)
02 08 00 02	00 00 00 01	00 - 0A	Custom1 Range Low	-50 - +50 (step 10)
02 08 00 03	00 00 00 01	00 - 0A	Custom1 Range High	-50 - +50 (step 10)
02 08 00 04	00 00 00 01	00 - 0A	Custom1 Presence	-50 - +50 (step 10)
02 08 01 00	00 00 00 01	00 - 04	Custom2 Type	
02 08 01 01	00 00 00 01	00 - 0A	Custom2 Q	
02 08 01 02	00 00 00 01	00 - 0A	Custom2 Range Low	
02 08 01 03	00 00 00 01	00 - 0A	Custom2 Range High	
02 08 00 04	00 00 00 01	00 - 0A	Custom2 Presence	
02 08 02 00	00 00 00 01	00 - 04	Custom3 Type	
02 08 02 01	00 00 00 01	00 - 0A	Custom3 Q	
02 08 02 02	00 00 00 01	00 - 0A	Custom3 Range Low	
02 08 02 03	00 00 00 01	00 - 0A	Custom3 Range High	
02 08 00 04	00 00 00 01	00 - 0A	Custom3 Presence	

Address Block Map (Quick Setting)

Address	Block	Sub Block	Note
* ** 00 00	COMPRESSOR		
* ** 01 00	FX1		
* ** 02 00	WAH		
* ** 03 00	OVERDRIVE/DISTORTION		
* ** 04 00	PREAMP/SP SIM		
* ** 05 00	SPEAKER		
* ** 06 00	PARAMETRIC EQUALIZER		
* ** 07 00	FX2		
* ** 08 00	CHORUS		
* ** 09 00	REVERB/DELAY/SOUND ON SOUND		
* ** 0A 00	EXP PEDAL SW		
* ** 0B 00	CTR PEDAL		
* ** 0C 00	ASSIGN		

Table Quick Fx <Quick Setting>

Address(H)	Size(H)	Data(H)	Parameter	Description
04 00				Quick Setting 1 (Read Only)
04 01				Quick Setting 2 (Read Only)
04 02				Quick Setting 3 (Read Only)
04 03				Quick Setting 4 (Read Only)
* **				Quick Setting **

↑↑ Separate the upper four and lower four bits, assigning them to different bytes, and process them in sequence, beginning with the upper bits.  
 ↑↑ ↓↓ Example) Processing 64H  
 ↑↑ ↓↓ 06H: Odd address  
 ↑↑ ↓↓ 04H: Even address

--- COMPRESSOR ---

* ** 00 00	00 00 00 02	00 - 02	CL :Type
* ** 00 02#	00 00 00 02	00 - 64	CL :Attack
* ** 00 04#	00 00 00 02	00 - 64	CL :Threshold
* ** 00 06#	00 00 00 02	00 - 64	CL :Sustain
* ** 00 08#	00 00 00 02	00 - 05	CL :Rack 160D Ratio
* ** 00 0A#	00 00 00 02	00 - 03	CL :Vtg Rack U Ratio
* ** 00 0C#	00 00 00 02	00 - 64	CL :Release
* ** 00 0E#	00 00 00 02	00 - 64	CL :Tone
* ** 00 10#	00 00 00 02	00 - 64	CL :Level

--- FX 1 (Octave) ---

* ** 01 00	00 00 00 02	00 - 04	FX1:FX Select
* ** 01 02#	00 00 00 02	00 - 64	OCT:Effect Level
* ** 01 04#	00 00 00 02	00 - 64	OCT:Direct Level
* ** 01 06#	00 00 00 02	00	
* ** 01 08#	00 00 00 02	00	

--- FX 1 (Enhancer) ---

* ** 01 00	00 00 00 02	00 - 04	FX1:FX Select
* ** 01 02#	00 00 00 02	00 - 64	EHR:Sensitivity
* ** 01 04#	00 00 00 02	00 - 07	EHR:Frequency
* ** 01 06#	00 00 00 02	00 - 64	EHR:Mix Level
* ** 01 08#	00 00 00 02	00	

--- FX 1 (Slow Gear) ---

* ** 01 00	00 00 00 02	00 - 04	FX1:FX Select
* ** 01 02#	00 00 00 02	00 - 64	SG :Sensitivity
* ** 01 04#	00 00 00 02	00 - 64	SG :Rise Time
* ** 01 06#	00 00 00 02	00	
* ** 01 08#	00 00 00 02	00	

--- FX 1 (Defretter) ---

* ** 01 00	00 00 00 02	00 - 04	FX1:FX Select
* ** 01 02#	00 00 00 02	00 - 64	DEF:Sensitivity
* ** 01 04#	00 00 00 02	00 - 64	DEF:Attack
* ** 01 06#	00 00 00 02	00 - 64	DEF:Depth
* ** 01 08#	00 00 00 02	00 - 64	DEF:Effect Level

--- FX 1 (Ring Mod) ---

* ** 01 00	00 00 00 02	00 - 04	FX1:FX Select
* ** 01 02#	00 00 00 02	00 - 01	R.M:Mode
* ** 01 04#	00 00 00 02	00 - 64	R.M:Frequency
* ** 01 06#	00 00 00 02	00 - 64	R.M:Effect Level
* ** 01 08#	00 00 00 02	00 - 64	R.M:Direct Level

## --- WAH (Pedal Wah) ---

```

* ** 02 00      00 00 00 02      00 - 02 WAH:FX Select
* ** 02 02#    00 00 00 02      00 - 05 WH :Type
* ** 02 04#    00 00 00 02      00 - 64 WH :Pedal Position
* ** 02 06#    00 00 00 02      00 - 64 WH :Level
* ** 02 08#    00 00 00 02      00
:              :
* ** 02 10#    00 00 00 02      00

```

## --- WAH (Touch Wah) ---

```

* ** 02 00      00 00 00 02      00 - 02 WAH:FX Select
* ** 02 02#    00 00 00 02      00 - 02 TW :Mode
* ** 02 04#    00 00 00 02      00 - 01 TW :Polarity
* ** 02 06#    00 00 00 02      00 - 64 TW :Sensitivity
* ** 02 08#    00 00 00 02      00 - 64 TW :Frequency
* ** 02 0A#    00 00 00 02      00 - 64 TW :Peak
* ** 02 0C#    00 00 00 02      00 - 64 TW :Depth
* ** 02 0E#    00 00 00 02      00 - 64 TW :Level
* ** 02 10#    00 00 00 02      00

```

## --- WAH (Auto Wah) ---

```

* ** 02 00      00 00 00 02      00 - 02 WAH:FX Select
* ** 02 02#    00 00 00 02      00 - 02 AW :Mode
* ** 02 04#    00 00 00 02      00 - 71 AW :Rate
* ** 02 06#    00 00 00 02      00 - 64 AW :Depth
* ** 02 08#    00 00 00 02      00 - 64 AW :Frequency
* ** 02 0A#    00 00 00 02      00 - 64 AW :Peak
* ** 02 0C#    00 00 00 02      00 - 01 AW :Polarity
* ** 02 0E#    00 00 00 02      00 - 64 AW :Sensitivity
* ** 02 10#    00 00 00 02      00 - 64 AW :Level

```

## --- OVERDRIVE/DISTORTION ---

```

* ** 03 00      00 00 00 02      00 - 11 OD/DIST:Type
* ** 03 02#    00 00 00 02      00 - 64 OD/DIST:Drive
* ** 03 04#    00 00 00 02      00 - 64 OD/DIST:Bass
* ** 03 06#    00 00 00 02      00 - 64 OD/DIST:Treble
* ** 03 08#    00 00 00 02      00 - 64 OD/DIST:Level
* ** 03 0A#    00 00 00 02      00 - 64 OD/DIST:Direct Level

```

## --- PREAMP/SP SIM ---

```

* ** 04 00      00 00 00 02      00 - 05 PRE:Type
* ** 04 02#    00 00 00 02      00 - 01 PRE:Bright
* ** 04 04#    00 00 00 02      00 - 01 PRE:Deep
* ** 04 06#    00 00 00 02      00 - 01 PRE:Responce
* ** 04 08#    00 00 00 02      00 - 64 PRE:Enhancer
* ** 04 0A#    00 00 00 02      00 - 02 PRE:Pre Shape
* ** 04 0C#    00 00 00 02      00 - 64 PRE:Gain
* ** 04 0E#    00 00 00 02      00 - 64 PRE:Treble
* ** 04 10#    00 00 00 02      00 - 01 PRE:Ultra Hi
* ** 04 12#    00 00 00 02      00 - 64 PRE:Mid
* ** 04 14#    00 00 00 02      00 - 02 PRE:Mid Freq
* ** 04 16#    00 00 00 02      00 - 64 PRE:Bass
* ** 04 18#    00 00 00 02      00 - 02 PRE:Ultra Lo
* ** 04 1A#    00 00 00 02      00 - 64 PRE:Level

```

## --- SPEAKER ---

```

* ** 05 00      00 00 00 02      00 - 05 SPK:Type
* ** 05 02#    00 00 00 02      00 - 0A SPK:Mic Setting
* ** 05 04#    00 00 00 02      00 - 64 SPK:Mic Level
* ** 05 06#    00 00 00 02      00 - 64 SPK:Direct Level
* ** 05 08#    00 00 00 02      00 - 01 SPK:Link Preamp

```

## --- PARAMETRIC EQUALIZER ---

```

* ** 06 00      00 00 00 02      00 - 05 EQ :Low Q
* ** 06 02#    00 00 00 02      00 - 14 EQ :Low Freq
* ** 06 04#    00 00 00 02      00 - 28 EQ :Low Gain
* ** 06 06#    00 00 00 02      00 - 05 EQ :Mid Q
* ** 06 08#    00 00 00 02      00 - 14 EQ :Mid Freq
* ** 06 0A#    00 00 00 02      00 - 28 EQ :Mid Gain
* ** 06 0C#    00 00 00 02      00 - 05 EQ :Hi Q
* ** 06 0E#    00 00 00 02      00 - 14 EQ :Hi Freq
* ** 06 10#    00 00 00 02      00 - 28 EQ :Hi Gain
* ** 06 12#    00 00 00 02      00 - 28 EQ :Level

```

## --- FX 2 (Phaser) ---

```

* ** 07 00      00 00 00 02      00 - 0B FX2:FX Select
* ** 07 02#    00 00 00 02      00 - 03 PH :Type
* ** 07 04#    00 00 00 02      00 - 71 PH :Rate
* ** 07 06#    00 00 00 02      00 - 64 PH :Depth
* ** 07 08#    00 00 00 02      00 - 64 PH :Manual
* ** 07 0A#    00 00 00 02      00 - 64 PH :Resonance
* ** 07 0C#    00 00 00 02      00 - 01 PH :Step
* ** 07 0E#    00 00 00 02      00 - 71 PH :Step Rate
* ** 07 10#    00 00 00 02      00 - 64 PH :Level
* ** 07 12#    00 00 00 02      00
:              :
* ** 07 24#    00 00 00 02      00

```

## --- FX 2 (Flanger) ---

```

* ** 07 00      00 00 00 02      00 - 0B FX2:FX Select
* ** 07 02#    00 00 00 02      00 - 71 FL :Rate
* ** 07 04#    00 00 00 02      00 - 64 FL :Depth
* ** 07 06#    00 00 00 02      00 - 64 FL :Manual
* ** 07 08#    00 00 00 02      00 - 64 FL :Resonance
* ** 07 0A#    00 00 00 02      00 - 64 FL :Separation
* ** 07 0C#    00 00 00 02      00 - 64 FL :Effect Level
* ** 07 0E#    00 00 00 02      00 - 64 FL :Direct Level
* ** 07 10#    00 00 00 02      00
:              :
* ** 07 24#    00 00 00 02      00

```

## --- FX 2 (Harmonist) ---

```

* ** 07 00      00 00 00 02      00 - 0B FX2:FX Select
* ** 07 02#    00 00 00 02      00 - 02 HRM:Voice
* ** 07 04#    00 00 00 02      00 - 39 HRM:HR1 Harmony
* ** 07 06#    00 00 00 04      00 00 - HRM:HR1 Pre Delay
* ** 07 08#    00 00 00 02      - 02 33
* ** 07 0A#    00 00 00 02      00 - 64 HRM:HR1 Feedback

```



```

* ** 07 0C# 00 00 00 02 00 - 64 HRM:HR1 Level
* ** 07 0E# 00 00 00 02 00 - 39 HRM:HR2 Harmony
* ** 07 10# 00 00 00 04 00 00 - HRM:HR2 Pre Delay
* ** 07 12# - 02 33
* ** 07 14# 00 00 00 02 00 - 64 HRM:HR2 Level
* ** 07 16# 00 00 00 02 00 - 0B HRM:Key
* ** 07 18# 00 00 00 02 00 - 64 HRM:Direct Level
* ** 07 1A# 00 00 00 02 00
: :
* ** 07 24# 00 00 00 02 00

```

## --- FX 2 (Pitch Shifter) ---

```

* ** 07 00 00 00 00 02 00 - 0B FX2:FX Select
* ** 07 02# 00 00 00 02 00 - 02 P.S:Voice
* ** 07 04# 00 00 00 02 00 - 03 P.S:PS1 Mode
* ** 07 06# 00 00 00 02 00 - 30 P.S:PS1 Pitch
* ** 07 08# 00 00 00 02 00 - 64 P.S:PS1 Fine
* ** 07 0A# 00 00 00 04 00 00 - P.S:PS1 Pre Delay
* ** 07 0C# - 02 33
* ** 07 0E# 00 00 00 02 00 - 64 P.S:PS1 Feedback
* ** 07 10# 00 00 00 02 00 - 64 P.S:PS1 Level
* ** 07 12# 00 00 00 02 00 - 03 P.S:PS2 Mode
* ** 07 14# 00 00 00 02 00 - 30 P.S:PS2 Pitch
* ** 07 16# 00 00 00 02 00 - 64 P.S:PS2 Fine
* ** 07 18# 00 00 00 04 00 00 - P.S:PS2 Pre Delay
* ** 07 1A# - 02 33
* ** 07 1C# 00 00 00 02 00 - 64 P.S:PS2 Level
* ** 07 1E# 00 00 00 02 00 - 64 P.S:Direct Level
* ** 07 20# 00 00 00 02 00
* ** 07 22# 00 00 00 02 00
* ** 07 24# 00 00 00 02 00

```

## --- FX 2 (Pedal Bend) ---

```

* ** 07 00 00 00 00 02 00 - 0B FX2:FX Select
* ** 07 02# 00 00 00 02 00 - 30 PB :Pitch Min
* ** 07 04# 00 00 00 02 00 - 30 PB :Pitch Max
* ** 07 06# 00 00 00 02 00 - 64 PB :Pdl Position
* ** 07 08# 00 00 00 02 00 - 64 PB :Effect Level
* ** 07 0A# 00 00 00 02 00 - 64 PB :Direct Level
* ** 07 0C# 00 00 00 02 00
: :
* ** 07 24# 00 00 00 02 00

```

## --- FX 2 (2x2 Chorus) ---

```

* ** 07 00 00 00 00 02 00 - 0B FX2:FX Select
* ** 07 02# 00 00 00 02 00 - 10 2CE:Xover Frequency
* ** 07 04# 00 00 00 02 00 - 71 2CE:Low Rate
* ** 07 06# 00 00 00 02 00 - 64 2CE:Low Depth
* ** 07 08# 00 00 00 02 00 - 50 2CE:Low Pre Delay
* ** 07 0A# 00 00 00 02 00 - 64 2CE:Low Level
* ** 07 0C# 00 00 00 02 00 - 71 2CE:High Rate
* ** 07 0E# 00 00 00 02 00 - 64 2CE:High Depth
* ** 07 10# 00 00 00 02 00 - 50 2CE:High Pre Delay
* ** 07 12# 00 00 00 02 00 - 64 2CE:High Level
* ** 07 14# 00 00 00 02 00
: :
* ** 07 24# 00 00 00 02 00

```

## --- FX 2 (Auto Slap) ---

```

* ** 07 00 00 00 00 02 00 - 0B FX2:FX Select
* ** 07 02# 00 00 00 02 00 - 1D ASL:Phrase
* ** 07 04# 00 00 00 02 00 - 01 ASL:Loop
* ** 07 06# 00 00 00 02 00 - 71 ASL:Tempo
* ** 07 08# 00 00 00 02 00 - 64 ASL:Sensitivity
* ** 07 0A# 00 00 00 02 00 - 64 ASL:Attack
* ** 07 0C# 00 00 00 02 00 ASL:Reserved
* ** 07 0E# 00 00 00 02 00 - 64 ASL:Effect Level
* ** 07 10# 00 00 00 02 00 - 64 ASL:Direct Level
* ** 07 12# 00 00 00 02 00
: :
* ** 07 24# 00 00 00 02 00

```

## --- FX 2 (Short Delay) ---

```

* ** 07 00 00 00 00 02 00 - 0B FX2:FX Select
* ** 07 02# 00 00 00 04 00 00 - SDD:Delay Time
* ** 07 04# - 03 17
* ** 07 06# 00 00 00 02 00 - 64 SDD:Feedback
* ** 07 08# 00 00 00 02 00 - 78 SDD:Effect Level
* ** 07 0A# 00 00 00 02 00
: :
* ** 07 24# 00 00 00 02 00

```

## --- FX 2 (Vibrato) ---

```

* ** 07 00 00 00 00 02 00 - 0B FX2:FX Select
* ** 07 02# 00 00 00 02 00 - 71 VIB:Rate
* ** 07 04# 00 00 00 02 00 - 64 VIB:Depth
* ** 07 06# 00 00 00 02 00 - 01 VIB:Trigger
* ** 07 08# 00 00 00 02 00 - 64 VIB:Rise Time
* ** 07 0A# 00 00 00 02 00
: :
* ** 07 24# 00 00 00 02 00

```

## --- FX 2 (Humanizer) ---

```

* ** 07 00 00 00 00 02 00 - 0B FX2:FX Select
* ** 07 02# 00 00 00 02 00 - 02 HMN:Mode
* ** 07 04# 00 00 00 02 00 - 04 HMN:Vowel 1
* ** 07 06# 00 00 00 02 00 - 04 HMN:Vowel 2
* ** 07 08# 00 00 00 02 00 - 01 HMN:Trigger
* ** 07 0A# 00 00 00 02 00 - 64 HMN:Sensitivity
* ** 07 0C# 00 00 00 02 00 - 71 HMN:Rate
* ** 07 0E# 00 00 00 02 00 - 64 HMN:Depth
* ** 07 10# 00 00 00 02 00 - 64 HMN:Manual
* ** 07 12# 00 00 00 02 00 - 64 HMN:Level
* ** 07 14# 00 00 00 02 00
: :
* ** 07 24# 00 00 00 02 00

```

## --- FX 2 (Tremolo/Pan) ---

```

* ** 07 00      00 00 00 02      00 - 0B FX2:FX Select
* ** 07 02#     00 00 00 02      00 - 01 T/P:Mode
* ** 07 04#     00 00 00 02      00 - 64 T/P:Wave Shape
* ** 07 06#     00 00 00 02      00 - 71 T/P:Rate
* ** 07 08#     00 00 00 02      00 - 64 T/P:Depth
* ** 07 0A#     00 00 00 02      00
:                :
* ** 07 24#     00 00 00 02      00

```

## --- FX 2 (Synth) ---

```

* ** 07 00      00 00 00 02      00 - 0B FX2:FX Select
* ** 07 02#     00 00 00 02      00 - 03 SYN:Wave
* ** 07 04#     00 00 00 02      00 - 01 SYN:Octave Shift
* ** 07 06#     00 00 00 02      00 - 64 SYN:PWM Rate
* ** 07 08#     00 00 00 02      00 - 64 SYN:PWM Depth
* ** 07 0A#     00 00 00 02      00 - 64 SYN:Noise Level
* ** 07 0C#     00 00 00 02      00 - 64 SYN:Sensitivity
* ** 07 0E#     00 00 00 02      00 - 01 SYN:Hold
* ** 07 10#     00 00 00 02      00 - 01 SYN:Attack Trigger
* ** 07 12#     00 00 00 02      00 - 64 SYN:Resonance
* ** 07 14#     00 00 00 02      00 - 64 SYN:Cutoff Frequency
* ** 07 16#     00 00 00 02      00 - 64 SYN:Depth
* ** 07 18#     00 00 00 02      00 - 64 SYN:Decay
* ** 07 1A#     00 00 00 02      00 - 64 SYN:Synth Level
* ** 07 1C#     00 00 00 02      00 - 64 SYN:Direct Level
* ** 07 1E#     00 00 00 02      00 - 01 SYN:Bend
* ** 07 20#     00 00 00 02      00 - 30 SYN:Pitch Min
* ** 07 22#     00 00 00 02      00 - 30 SYN:Pitch Max
* ** 07 24#     00 00 00 02      00 - 64 SYN:Pedal Position

```

## --- CHORUS ---

```

* ** 08 00      00 00 00 02      00 - 01 CE :Mode
* ** 08 02#     00 00 00 02      00 - 71 CE :Rate
* ** 08 04#     00 00 00 02      00 - 64 CE :Depth
* ** 08 06#     00 00 00 02      00 - 50 CE :Pre Delay
* ** 08 08#     00 00 00 02      00 - 09 CE :High Cut Filter
* ** 08 0A#     00 00 00 02      00 - 64 CE :Effect Level

```

## --- REVERB/DELAY ---

```

* ** 09 00      00 00 00 02      00 - 03 REV/DLY/SOS:FX Select
* ** 09 02#     00 00 00 02      00 - 04 REV:Type
* ** 09 04#     00 00 00 02      00 - 63 REV:Reverb Time
* ** 09 06#     00 00 00 02      00 - 64 REV:Pre Delay
* ** 09 08#     00 00 00 02      00 - 0A REV:Low Cut Filter
* ** 09 0A#     00 00 00 02      00 - 09 REV:High Cut Filter
* ** 09 0C#     00 00 00 02      00 - 0A REV:Density
* ** 09 0E#     00 00 00 02      00 - 64 REV:Effect Level
* ** 09 10#     00 00 00 02      00 REV:Reserved
* ** 09 12#     00 00 00 02      00 - 01 DLY:Type
* ** 09 14#     00 00 00 02      00 - 53 DLY:Delay Time
* ** 09 16#     00 00 00 02      00 - 14 DLY:Delay Time Fine
* ** 09 18#     00 00 00 02      00 - 64 DLY:TAP Time
* ** 09 1A#     00 00 00 02      00 - 64 DLY:Feedback
* ** 09 1C#     00 00 00 02      00 - 09 DLY:High Cut Filter
* ** 09 1E#     00 00 00 02      00 - 78 DLY:Effect Level
* ** 09 20#     00 00 00 02      00 DLY:Reserved

```

## --- EXP PEDAL SW ---

```

* ** 0A 00      00 00 00 04      00 00 - PEDAL:Target          *Refer to Table QuickFx:Target
* ** 0A 02#     00 00 00 04      - 01 5A
* ** 0A 04#     00 00 00 04      00 00 - PEDAL:Target Min *2
* ** 0A 06#     00 00 00 04      - $$ $$
* ** 0A 08#     00 00 00 04      00 00 - PEDAL:Target Max *2
* ** 0A 0A#     00 00 00 04      - $$ $$
* ** 0A 0C#     00 00 00 02      00 - 01 PEDAL:Target Mode

```

## --- CTL PEDAL ---

```

* ** 0B 00      00 00 00 04      00 00 - PEDAL:Target          *Refer to Table QuickFx:Target
* ** 0B 02#     00 00 00 04      - 01 5A
* ** 0B 04#     00 00 00 04      00 00 - PEDAL:Target Min *2
* ** 0B 06#     00 00 00 04      - $$ $$
* ** 0B 08#     00 00 00 04      00 00 - PEDAL:Target Max *2
* ** 0B 0A#     00 00 00 04      - $$ $$
* ** 0B 0C#     00 00 00 02      00 - 01 PEDAL:Target Mode

```

## --- ASSIGN ---

```

* ** 0C 00      00 00 00 04      00 00 - Assign:Target          *Refer to Table QuickFx:Target
* ** 0C 02#     00 00 00 04      - 01 5A
* ** 0C 04#     00 00 00 04      00 00 - Assign:Target Min *2
* ** 0C 06#     00 00 00 04      - $$ $$
* ** 0C 08#     00 00 00 04      00 00 - Assign:Target Max *2
* ** 0C 0A#     00 00 00 04      - $$ $$
* ** 0C 0C#     00 00 00 02      00 - 45 Assign:Source
* ** 0C 0E#     00 00 00 02      00 - 01 Assign:Source Mode
* ** 0C 10#     00 00 00 02      00 - 7F Assign:Source Act.Range Low
* ** 0C 12#     00 00 00 02      00 - 7F Assign:Source Act.Range High

```

Address Block Map (Patch)

Address	Block	Sub Block	Note
* ** 00 00	COMPRESSOR		
* ** 01 00	FX1		
* ** 02 00	WAH		
* ** 03 00	OVERDRIVE/DISTORTION		
* ** 04 00	PREAMP/SPEAKER		
* ** 05 00	PARAMETRIC EQUALIZER		
* ** 06 00	FX2		
* ** 07 00	CHORUS		
* ** 08 00	REVERB/DELAY/SOUND ON SOUND		
* ** 09 00	MASTER		
* ** 0A 00	EFFECT CHAIN		
* ** 0B 00	NAME		
* ** 0C 00	EXP PEDAL		
* ** 0D 00	EXP PEDAL SW		
* ** 0E 00	CTR PEDAL		
* ** 0F 00	MANUAL		
* ** 10 00	ASSIGN 1		
* ** 11 00	ASSIGN 2		
* ** 12 00	ASSIGN 3		
* ** 13 00	ASSIGN 4		
* ** 14 00	ASSIGN 5		
* ** 15 00	ASSIGN 6		
* ** 16 00	ASSIGN 7		
* ** 17 00	ASSIGN 8		

Table Patch <Patch>

Address(H)	Size(H)	Data(H)	Parameter	Description
06 00 - 06 27	( Patch Memory U1-1 - U0-4 )			
06 28 - 06 4F	( Patch Memory u1-1 - u0-4 )			
08 00 - 08 27	( Patch Memory P1-1 - P0-4 )			
0A 00	( Temporary Buffer Area(Bulk) )			
0B 00	( Temporary Buffer Area(Individual) )			

↑↑  
↑↑

--- COMPRESSOR ---

* ** 00 00	00 00 00 01	00 - 01 CL	:On/Off	00 : Off 01 : On
* ** 00 01	00 00 00 01	00 - 06 CL	:Quick Setting *1	00 : -- 01 : NORMAL COMP 02 : DEEP COMP 03 : LIGHT COMP 04 : MILD COMP 05 : BRIGHT COMP 06 : ATTACK COMP
* ** 00 02	00 00 00 01	00 - 03 CL	:Type	00 : BOSS Comp 01 : D-Comp 02 : Rack 160D 03 : Vtg Rack U
* ** 00 03	00 00 00 01	00 - 64 CL	:Attack	Type = BOSS Comp, Vtg Rack U 0 - 100
* ** 00 04	00 00 00 01	00 - 64 CL	:Threshold CL :Thres(Input)	Type = Rack 160D Type = Vtg Rack U 0 - 100
* ** 00 05	00 00 00 01	00 - 64 CL	:Sustain	Type = BOSS Comp, D-Comp 0 - 100
* ** 00 06	00 00 00 01	00 - 10 CL	:Rack 160D Ratio	Type = Rack 160D 00 : 1:1

```

01 : 1.2:1
02 : 1.4:1
03 : 1.6:1
04 : 1.8:1
05 : 2:1
06 : 2.3:1
07 : 2.6:1
08 : 3:1
09 : 3.5:1
0A : 4:1
0B : 5:1
0C : 6:1
0D : 8:1
0E : 10:1
0F : 20:1
10 : ∞:1
* ** 00 07      00 00 00 01      00 - 03 CL :Vtg Rack U Ratio      Type = Vtg Rack U
00 : 4:1
01 : 8:1
02 : 12:1
03 : 20:1
* ** 00 08      00 00 00 01      00 - 64 CL :Release                Type = Vtg Rack U
0 - 100
* ** 00 09      00 00 00 01      00 - 64 CL :Tone                  Type = BOSS Comp
-50 - +50
* ** 00 0A      00 00 00 01      00 - 64 CL :Level                 0 - 100

--- FX1 ---
* ** 01 00      00 00 00 01      00 - 01 FX1:On/Off                00 : Off
01 : On
00 : --
* ** 01 01      00 00 00 01      00 - 12 FX1:Quick Setting *1      01 : OCT:OCTAVE 1
02 : OCT:OCTAVE 2
03 : OCT:OCTAVE 3
04 : EHR:ENHANCE 1
05 : EHR:ENHANCE 2
06 : EHR:ENHANCE 3
07 : EHR:ENHANCE 4
08 : EHR:ENHANCE 5
09 : SG :SLOW GEAR 1
0A : SG :SLOW GEAR 2
0B : SG :SLOW GEAR 3
0C : DEF:FRETLESS Gt
0D : DEF:FRETLESS Bs
0E : DEF:SITAR
0F : DEF:BOWING
10 : R.M:RING MOD 1
11 : R.M:RING MOD 2
12 : R.M:RING -loct
00 : OCT (Octave)
01 : EHR (Enhancer)
02 : SG (Slow Gear)
03 : DEF (Defretter)
04 : R.M (Ring Mod)
0 - 100
* ** 01 02      00 00 00 01      00 - 04 FX1:FX Select              0 - 100
* ** 01 03      00 00 00 01      00 - 64 OCT:Effect Level           0 - 100
* ** 01 04      00 00 00 01      00 - 64 OCT:Direct Level           0 - 100
* ** 01 05      00 00 00 01      00 OCT:Reserved
* ** 01 06      00 00 00 01      00 OCT:Reserved
* ** 01 07      00 00 00 01      00 - 64 EHR:Sensitivity             0 - 100
* ** 01 08      00 00 00 01      00 - 07 EHR:Frequency              00 : 800Hz
01 : 1.00kHz
02 : 1.25kHz
03 : 1.60kHz
04 : 2.00kHz
05 : 2.50kHz
06 : 3.15kHz
07 : 4.00kHz
0 - 100
* ** 01 09      00 00 00 01      00 - 64 EHR:Mix Level              0 - 100
* ** 01 0A      00 00 00 01      00 EHR:Reserved
* ** 01 0B      00 00 00 01      00 EHR:Reserved
* ** 01 0C      00 00 00 01      00 - 64 SG :Sensitivity              0 - 100
* ** 01 0D      00 00 00 01      00 - 64 SG :Rise Time                0 - 100
* ** 01 0E      00 00 00 01      00 - 64 DEF:Sensitivity              0 - 100
* ** 01 0F      00 00 00 01      00 - 64 DEF:Attack                  0 - 100
* ** 01 10      00 00 00 01      00 - 64 DEF:Depth                   0 - 100
* ** 01 11      00 00 00 01      00 - 64 DEF:Level                   0 - 100
* ** 01 12      00 00 00 01      00 - 01 R.M:Mode                    00 : Normal
01 : Intelligent
0 - 100
* ** 01 13      00 00 00 01      00 - 64 R.M:Frequency               0 - 100
* ** 01 14      00 00 00 01      00 - 64 R.M:Effect Level            0 - 100
* ** 01 15      00 00 00 01      00 - 64 R.M:Direct Level            0 - 100

--- WAH ---
* ** 02 00      00 00 00 01      00 - 01 WAH:On/Off                00 : Off
01 : On
00 : --
* ** 02 01      00 00 00 01      00 - 0F WAH:Quick Setting *1      01 : WAH:VINTAGE CRY
02 : WAH:VINTAGE VO
03 : WAH:MODERN FAT
04 : WAH:LIGHT
05 : WAH:7STRING
06 : TW :TOUCH 1
07 : TW :TOUCH 2
08 : TW :TOUCH 3
09 : TW :TOUCH 4
0A : TW :TOUCH 5
0B : AW :T.WAH UP
0C : AW :T.WAH DOWN
0D : AW :AUTO WAH
0E : AW :MOD WAH
0F : MID BOOST
00 : WH (Pedal Wah)
01 : TW (Touch Wah)
02 : AW (Auto Wah)
* ** 02 02      00 00 00 01      00 - 02 WAH:FX Select              00 : CRY WAH
01 : VO WAH
02 : BASS WAH
03 : Custom1
04 : Custom2
05 : Custom3
0 - 100
* ** 02 03      00 00 00 01      00 - 05 WH :Type                    0 - 100
* ** 02 04      00 00 00 01      00 - 64 WH :Pedal Position          00 : LFP
01 : BPF
02 : HPF
* ** 02 05      00 00 00 01      00 - 64 WH :Level                    00 : Down
* ** 02 06      00 00 00 01      00 - 02 TW :Mode
* ** 02 07      00 00 00 01      00 - 01 TW :Polarity

```

```

* ** 02 08    00 00 00 01    00 - 64 TW :Sensitivity    01 : Up
* ** 02 09    00 00 00 01    00 - 64 TW :Frequency    0 - 100
* ** 02 0A    00 00 00 01    00 - 64 TW :Peak        0 - 100
* ** 02 0B    00 00 00 01    00 - 64 TW :Depth      0 - 100
* ** 02 0C    00 00 00 01    00 - 64 TW :Level      0 - 100
* ** 02 0D    00 00 00 01    00 - 02 AW :Mode        00 : LPF
* ** 02 0E    00 00 00 01    00 - 71 AW :Rate        01 : BPF
* ** 02 0F    00 00 00 01    00 - 64 AW :Depth      02 : HPF
* ** 02 10    00 00 00 01    00 - 64 AW :Frequency  *Refer to Table Rate
* ** 02 11    00 00 00 01    00 - 64 AW :Peak        0 - 100
* ** 02 12    00 00 00 01    00 - 01 AW :Polarity    0 - 100
* ** 02 13    00 00 00 01    00 - 64 AW :Sensitivity 00 : Down
* ** 02 14    00 00 00 01    00 - 64 AW :Level      01 : Up
* ** 02 14    00 00 00 01    00 - 64 AW :Level      0 - 100

--- OVERDRIVE/DISTORTION ---
* ** 03 00    00 00 00 01    00 - 01 OD/DIST:On/Off  00 : Off
* ** 03 01    00 00 00 01    00 - 0A OD/DIST:Quick Setting *1 01 : On
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    00 : --
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    01 : FAT BOOSTER
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    02 : VINTAGE OD-1
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    03 : BLUES CRUNCH
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    04 : HI GAIN OD
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    05 : POWER DIST
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    06 : FAT DIST
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    07 : CLASSIC DS
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    08 : VINTAGE FUZZ
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    09 : POWER METAL
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    0A : METAL LEAD
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    00 : Blues OD
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    01 : Turbo OD
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    02 : Bass OD
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    03 : Distortion
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    04 : GUV DS
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    05 : Metal Zone
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    06 : '60s FUZZ
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    07 : Oct FUZZ
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    08 : MUFF FUZZ
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    09 : Custom1
* ** 03 02    00 00 00 01    00 - 0A OD/DIST:Type    0A : Custom2
* ** 03 03    00 00 00 01    00 - 64 OD/DIST:Drive    0 - 100
* ** 03 04    00 00 00 01    00 - 64 OD/DIST:Bass     -50 - +50
* ** 03 05    00 00 00 01    00 - 64 OD/DIST:Treble   -50 - +50
* ** 03 06    00 00 00 01    00 - 64 OD/DIST:Effect Level 0 - 100
* ** 03 07    00 00 00 01    00 - 64 OD/DIST:Direct Level 0 - 100

--- PREAMP/SPEAKER ---
* ** 04 00    00 00 00 01    00 - 01 PRE:On/Off      00 : Off
* ** 04 01    00 00 00 01    00 - 03 PRE:Quick Setting *1 01 : On
* ** 04 02    00 00 00 01    00 - 05 PRE:Type        00 : --
* ** 04 02    00 00 00 01    00 - 05 PRE:Type        01 : BRIGHT JC
* ** 04 02    00 00 00 01    00 - 05 PRE:Type        02 : JAZZ TONE
* ** 04 02    00 00 00 01    00 - 05 PRE:Type        03 : BLACK PANEL
* ** 04 02    00 00 00 01    00 - 05 PRE:Type        00 : FLIP TOP
* ** 04 02    00 00 00 01    00 - 05 PRE:Type        01 : B MAN
* ** 04 02    00 00 00 01    00 - 05 PRE:Type        02 : BASS 360
* ** 04 02    00 00 00 01    00 - 05 PRE:Type        03 : T.E.
* ** 04 02    00 00 00 01    00 - 05 PRE:Type        04 : SESSION
* ** 04 02    00 00 00 01    00 - 05 PRE:Type        05 : CONCERT 810
* ** 04 03    00 00 00 01    00 - 01 PRE:Bright      Type = FLIP TOP, CONCERT 810
* ** 04 03    00 00 00 01    00 - 01 PRE:Bright      00 : Off
* ** 04 03    00 00 00 01    00 - 01 PRE:Bright      01 : On
* ** 04 04    00 00 00 01    00 - 01 PRE:Deep        Type = B MAN
* ** 04 04    00 00 00 01    00 - 01 PRE:Deep        00 : Off
* ** 04 04    00 00 00 01    00 - 01 PRE:Deep        01 : On
* ** 04 05    00 00 00 01    00 - 01 PRE:Responce    Type = FLIP TOP
* ** 04 05    00 00 00 01    00 - 01 PRE:Responce    00 : BASS
* ** 04 05    00 00 00 01    00 - 01 PRE:Responce    01 : FRAT
* ** 04 06    00 00 00 01    00 - 64 PRE:Enhancer    Type = SESSION
* ** 04 06    00 00 00 01    00 - 64 PRE:Enhancer    0 - 100
* ** 04 07    00 00 00 01    00 - 02 PRE:Pre Shape   Type = T.E.
* ** 04 07    00 00 00 01    00 - 02 PRE:Pre Shape   00 : Off
* ** 04 07    00 00 00 01    00 - 02 PRE:Pre Shape   01 : 1
* ** 04 07    00 00 00 01    00 - 02 PRE:Pre Shape   02 : 2
* ** 04 07    00 00 00 01    00 - 02 PRE:Pre Shape   0 - 100
* ** 04 08    00 00 00 01    00 - 64 PRE:Gain        -50 - +50
* ** 04 09    00 00 00 01    00 - 64 PRE:Treble      Type = CONCERT 810
* ** 04 0A    00 00 00 01    00 - 01 PRE:Ultra Hi    00 : Off
* ** 04 0A    00 00 00 01    00 - 01 PRE:Ultra Hi    01 : On
* ** 04 0B    00 00 00 01    00 - 64 PRE:Mid        -50 - +50
* ** 04 0C    00 00 00 01    00 - 02 PRE:Mid Freq    Type = FLIP TOP, B MAN, T.E., SESSION, CONCERT 810
* ** 04 0C    00 00 00 01    00 - 02 PRE:Mid Freq    00 : 220Hz
* ** 04 0C    00 00 00 01    00 - 02 PRE:Mid Freq    01 : 800Hz
* ** 04 0C    00 00 00 01    00 - 02 PRE:Mid Freq    02 : 3.0kHz
* ** 04 0C    00 00 00 01    00 - 02 PRE:Mid Freq    -50 - +50
* ** 04 0D    00 00 00 01    00 - 64 PRE:Bass        Type = CONCERT 810
* ** 04 0E    00 00 00 01    00 - 02 PRE:Ultra Lo    00 : -
* ** 04 0E    00 00 00 01    00 - 02 PRE:Ultra Lo    01 : 0
* ** 04 0E    00 00 00 01    00 - 02 PRE:Ultra Lo    02 : +
* ** 04 0E    00 00 00 01    00 - 02 PRE:Ultra Lo    0 - 100
* ** 04 0F    00 00 00 01    00 - 64 PRE:Level      00 : Off
* ** 04 10    00 00 00 01    00 - 01 SPK:On/Off      01 : On
* ** 04 11    00 00 00 01    00 - 06 SPK:Quick Setting *1 00 : --
* ** 04 11    00 00 00 01    00 - 06 SPK:Quick Setting *1 01 : SPEAKER 1
* ** 04 11    00 00 00 01    00 - 06 SPK:Quick Setting *1 02 : SPEAKER 2
* ** 04 11    00 00 00 01    00 - 06 SPK:Quick Setting *1 03 : SPEAKER 3
* ** 04 11    00 00 00 01    00 - 06 SPK:Quick Setting *1 04 : SPEAKER 4
* ** 04 11    00 00 00 01    00 - 06 SPK:Quick Setting *1 05 : SPEAKER 5
* ** 04 11    00 00 00 01    00 - 06 SPK:Quick Setting *1 06 : SPEAKER 6
* ** 04 12    00 00 00 01    00 - 05 SPK:Type        00 : 1*15"
* ** 04 12    00 00 00 01    00 - 05 SPK:Type        01 : 1*18"
* ** 04 12    00 00 00 01    00 - 05 SPK:Type        02 : 2*15"
* ** 04 12    00 00 00 01    00 - 05 SPK:Type        03 : 4*10"
* ** 04 12    00 00 00 01    00 - 05 SPK:Type        04 : 8*10"
* ** 04 12    00 00 00 01    00 - 05 SPK:Type        05 : ORIGINAL
* ** 04 13    00 00 00 01    00 - 0A SPK:Mic Setting  00 : Center
* ** 04 13    00 00 00 01    00 - 0A SPK:Mic Setting  01 : 1cm
* ** 04 13    00 00 00 01    00 - 0A SPK:Mic Setting  :
* ** 04 13    00 00 00 01    00 - 0A SPK:Mic Setting  0A : 10cm
* ** 04 14    00 00 00 01    00 - 64 SPK:Mic Level    0 - 100
* ** 04 15    00 00 00 01    00 - 64 SPK:Direct Level 0 - 100
* ** 04 16    00 00 00 01    00 - 01 SPK:Link Preamp 00 : OFF
* ** 04 16    00 00 00 01    00 - 01 SPK:Link Preamp 01 : ON

```

```

--- PARAMETRIC EQUALIZER ---
* ** 05 00      00 00 00 01      00 - 01 EQ :On/Off          00 : Off
* ** 05 01      00 00 00 01      00 - 0B EQ :Quick Setting *1    01 : On
* ** 05 02      00 00 00 01      00 - 05 EQ :Low Q          02 : --
* ** 05 03      00 00 00 01      00 - 14 EQ :Low Freq       03 : FAT LEAD
* ** 05 04      00 00 00 01      00 - 28 EQ :Low Gain       04 : CUTTING 1
* ** 05 05      00 00 00 01      00 - 05 EQ :Mid Q          05 : MID BOOST 1
* ** 05 06      00 00 00 01      00 - 14 EQ :Mid Freq       06 : MILD TONE
* ** 05 07      00 00 00 01      00 - 28 EQ :Mid Gain       07 : BRIGHT TONE
* ** 05 08      00 00 00 01      00 - 05 EQ :Hi Q           08 : POWER METAL
* ** 05 09      00 00 00 01      00 - 14 EQ :Hi Freq       09 : CUTTING 2
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       10 : MID BOOST 2
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         11 : TIGHT LOW
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       12 : HOLLOW BODY
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         13 : FLAT
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       *Refer to Table EQ_Q
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         00 : 31Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       01 : 35Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         02 : 41Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       03 : 47Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         04 : 54Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       05 : 63Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         06 : 71Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       07 : 82Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         08 : 95Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       09 : 108Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         10A : 125Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       10B : 143Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         10C : 164Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       10D : 190Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         10E : 217Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       10F : 250Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         11 : 287Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       12 : 330Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         13 : 380Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       14 : 435Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         14 : 500Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       -20dB - +20dB
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         *Refer to Table EQ_Q
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       00 : 164Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         01 : 190Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       02 : 217Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         03 : 250Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       04 : 287Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         05 : 330Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       06 : 380Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         07 : 435Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       08 : 500Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         09 : 575Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       10A : 660Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         10B : 760Hz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       10C : 870Hz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         10D : 1.0kHz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       10E : 1.1kHz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         10F : 1.3kHz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       11 : 1.5kHz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         12 : 1.8kHz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       13 : 2.0kHz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         14 : 2.3kHz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       14 : 2.6kHz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         -20dB - +20dB
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       *Refer to Table EQ_Q
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         00 : 1.0kHz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       01 : 1.1kHz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         02 : 1.3kHz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       03 : 1.5kHz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         04 : 1.8kHz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       05 : 2.0kHz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         06 : 2.3kHz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       07 : 2.6kHz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         08 : 3.0kHz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       09 : 3.5kHz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         10A : 4.0kHz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       10B : 4.6kHz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         10C : 5.3kHz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       10D : 6.1kHz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         10E : 7.0kHz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       10F : 8.0kHz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         11 : 9.2kHz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       12 : 11kHz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         13 : 12kHz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       14 : 14kHz
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         14 : 16kHz
* ** 05 0A      00 00 00 01      00 - 28 EQ :Hi Gain       -20dB - +20dB
* ** 05 0B      00 00 00 01      00 - 28 EQ :Level         -20dB - +20dB

--- FX 2 ---
* ** 06 00      00 00 00 01      00 - 01 FX2:On/Off          00 : Off
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  01 : On
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  02 : PH :VINTAGE PH
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  03 : PH :LIGHT PHASE
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  04 : PH :SUPER PHASE
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  05 : PH :Bi-PHASE
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  06 : FL :FLANGER
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  07 : FL :Hi BAND FL
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  08 : FL :LIGHT FL
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  09 : FL :FAST FLANGE
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  10A : FL :STEREO FL
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  10B : HRM:TWIN LEAD C
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  10C : HRM:-1 OCTAVE
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  10D : HRM:+1 OCTAVE
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  10E : HRM:-3rd + -5th
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  10F : HRM:-1oct+ -5th
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  11 : P.S:DETUNE MONO
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  12 : P.S:DETUNE ST
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  13 : P.S:+1 OCTAVE
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  14 : P.S:-1 OCTAVE
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  15 : P.S:-1oct+DETUNE
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  16 : PB :+1 OCTAVE
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  17 : PB :-1 OCTAVE
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  18 : PB :+2 OCTAVE
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  19 : PB :2nd UP
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  20 : PB :2nd DOWN
* ** 06 01      00 00 00 01      00 - 3D FX2:Quick Setting *1  21 : 2CE:2x2 CHORUS

```

				1B : 2CE:TIGHT CE
				1C : 2CE:BRIGHT CE
				1D : 2CE:MILD CHORUS
				1E : ASL:PHRASE1
				1F : ASL:PHRASE2
				20 : ASL:PHRASE3
				21 : ASL:PHRASE4
				22 : ASL:PHRASE5
				23 : SDD:400m DELAY
				24 : SDD:300m DELAY
				25 : SDD:200m DELAY
				26 : SDD:DOUBLING
				27 : SDD:COMB FILTER
				28 : VIB:FAST VIBRATO
				29 : VIB:SLOW VIBRATO
				2A : VIB:LightVIBRATO
				2B : HMN:AUTO a-i
				2C : HMN:AUTO o-i
				2D : HMN:PICKING a-e
				2E : HMN:RANDOM HU
				2F : T/P:FAST PAN
				30 : T/P:SLOW PAN
				31 : T/P:STEREO GATE
				32 : T/P:RHODES PAN
				33 : T/P:LIGHT PAN
				34 : SYN:SQUARE LEAD
				35 : SYN:PWM LEAD
				36 : SAW LEAD
				37 : Gt. BRASS
				38 : SYNTH BASS1
				39 : SYNTH BASS1
				3A : RESO LEAD
				3B : SYNTH PAD
				3C : Gt.BOW
				3D : SLOW ATTACK
				00 : PH (Phaser)
				01 : FL (Flanger)
				02 : HRM (Harmonist)
				03 : P.S (Pitch Shift)
				04 : PB (Pedal Bend)
				05 : 2CE (2x2 Chorus)
				06 : ASL (Auto Slap)
				07 : SDD (Short Delay)
				08 : VIB (Vibrato)
				09 : HMN (Humanizer)
				0A : T/P (Tremolo/Pan)
				0B : SYN (Bass Synth)
				00 : 4 Stage
				01 : 8 Stage
				02 : 12 Stage
				03 : Bi-Phase
				*Refer to Table Rate
				0 - 100
				0 - 100
				0 - 100
				00 : Off
				01 : On
				Step = On
				*Refer to Table Rate
				0 - 100
				*Refer to Table Rate
				0 - 100
				0 - 100
				0 - 100
				0 - 100
				0 - 100
				0 - 100
				0 - 100
				0 - 100
				00 : 1-Voice
				01 : 2-Mono
				02 : 2-Stereo
				*Refer to Table HR_Harm
				*Refer to Table PreDly
				0 - 100
				0 - 100
				Voice = 2-Mono, 2-Stereo
				*Refer to Table HR_Harm
				Voice = 2-Mono, 2-Stereo
				*Refer to Table PreDly
				Voice = 2-Mono, 2-Stereo
				0 - 100
				C(Am) - B(G#m)
				0 - 100
				00 : 1-Voice
				01 : 2-Mono
				02 : 2-Stereo
				00 : Fast
				01 : Medium
				02 : Slow
				03 : Mono
				-24 - +24
				-50 - +50
				*Refer to Table PreDly
				0 - 100
				0 - 100
				Voice = 2-Mono, 2-Stereo
				00 : Fast
				01 : Medium
				02 : Slow
				03 : Mono
				Voice = 2-Mono, 2-Stereo
				-24 - +24
				Voice = 2-Mono, 2-Stereo
				-50 - +50
				Voice = 2-Mono, 2-Stereo
				*Refer to Table PreDly
				Voice = 2-Mono, 2-Stereo
				0 - 100
				0 - 100
				-24 - +24
				-24 - +24
				0 - 100
				0 - 100
				0 - 100
				0 - 100
				00 : 100Hz
				01 : 125Hz
				02 : 160Hz
				03 : 200Hz

```

04 : 250Hz
05 : 315Hz
06 : 400Hz
07 : 500Hz
08 : 630Hz
09 : 800Hz
0A : 1.00kHz
0B : 1.25kHz
0C : 1.60kHz
0D : 2.00kHz
0E : 2.50kHz
0F : 3.15kHz
10 : 4.00kHz
*Refer to Table Rate
0 - 100
0.0ms - 40.0ms (0.5ms step)
0 - 100
*Refer to Table Rate
0 - 100
0.0ms - 40.0ms (0.5ms step)
0 - 100
00 : Preset1
:
13 : Preset20
14 : User1
:
1D : User10
00 : Off
01 : On
*Refer to Table Rate
0 - 100
0 - 100
0 - 100
00 00 : 0ms
00 01 : 1ms
:
:
00 7F : 127ms
01 00 : 128ms
:
:
01 7F : 255ms
02 00 : 256ms
:
:
02 7F : 383ms
03 00 : 384ms
:
:
03 10 : 400ms
03 11 : 4.0*BPM
03 12 : 3.0*BPM
03 13 : 8/3*BPM
03 14 : 2.0*BPM
03 15 : 1.5*BPM
03 16 : 4/3*BPM
03 17 : 1.0*BPM
0 - 100
0 - 120
*Refer to Table Rate
0 - 100
00 : Off
01 : On
0 - 100
00 : 1 Shot
01 : Auto
02 : Random
Mode = 1 Shot, Auto
00 : 'a'
01 : 'e'
02 : 'i'
03 : 'o'
04 : 'u'
Mode = 1 Shot, Auto
00 : 'a'
01 : 'e'
02 : 'i'
03 : 'o'
04 : 'u'
Mode = Auto, Random
00 : Off
01 : On
Mode = 1 Shot, Trigger = On
0 - 100
*Refer to Table Rate
0 - 100
Mode = Auto
0 - 100
0 - 100
00 : Tremolo
01 : Pan
0 - 100
*Refer to Table Rate
0 - 100
00 : Square
01 : Saw
02 : Brass
03 : Bow
Wave = Square, Saw
00 : 0
01 : -1
Wave = Square
0 - 100
Wave = Square
0 - 100
0 - 100
0 - 100
Wave = Square, Saw
00 : Off
01 : On
Wave = Brass, Bow
00 : Off
01 : On
0 - 100
0 - 100
-100 - +100 (step 2)
Wave = Square, Saw
0 - 100
0 - 100
00 00 00 01 00 - 71 2CE:Low Rate
* ** 06 32 00 00 00 01 00 - 64 2CE:Low Depth
* ** 06 33 00 00 00 01 00 - 50 2CE:Low Pre Delay
* ** 06 34 00 00 00 01 00 - 64 2CE:Low Level
* ** 06 35 00 00 00 01 00 - 71 2CE:High Rate
* ** 06 36 00 00 00 01 00 - 64 2CE:High Depth
* ** 06 37 00 00 00 01 00 - 50 2CE:High Pre Delay
* ** 06 38 00 00 00 01 00 - 64 2CE:High Level
* ** 06 39 00 00 00 01 00 - 1D ASL:Phrase
* ** 06 3A 00 00 00 01
00 - 01 ASL:Loop
* ** 06 3B 00 00 00 01
00 - 71 ASL:Tempo
* ** 06 3C 00 00 00 01 00 - 64 ASL:Sensitivity
* ** 06 3D 00 00 00 01 00 ASL:Reserved
* ** 06 3E 00 00 00 01 00 - 64 ASL:Effect Level
* ** 06 3F 00 00 00 01 00 - 64 ASL:Direct Level
* ** 06 40 00 00 00 01 00 ASL:Reserved
* ** 06 41 00 00 00 01 00 ASL:Reserved
* ** 06 42 00 00 00 01 00 00 - SDD:Delay Time
* ** 06 43 00 00 00 02 - 03 17
00 - 64 SDD:Feedback
* ** 06 45 00 00 00 01 00 - 78 SDD:Effect Level
* ** 06 46 00 00 00 01 00 - 71 VIB:Rate
* ** 06 47 00 00 00 01 00 - 64 VIB:Depth
* ** 06 48 00 00 00 01 00 - 01 VIB:Trigger
* ** 06 49 00 00 00 01 00 - 64 VIB:Rise Time
* ** 06 4A 00 00 00 01 00 - 02 HMN:Mode
* ** 06 4B 00 00 00 01
00 - 04 HMN:Vowel 1
* ** 06 4C 00 00 00 01
00 - 04 HMN:Vowel 2
* ** 06 4D 00 00 00 01
00 - 01 HMN:Trigger
* ** 06 4E 00 00 00 01
00 - 64 HMN:Sensitivity
* ** 06 4F 00 00 00 01
00 - 71 HMN:Rate
* ** 06 50 00 00 00 01 00 - 64 HMN:Depth
* ** 06 51 00 00 00 01 00 - 64 HMN:Manual
* ** 06 52 00 00 00 01 00 - 64 HMN:Level
* ** 06 53 00 00 00 01 00 - 01 T/P:Mode
* ** 06 54 00 00 00 01 00 - 64 T/P:Wave Shape
* ** 06 55 00 00 00 01 00 - 71 T/P:Rate
* ** 06 56 00 00 00 01 00 - 64 T/P:Depth
* ** 06 57 00 00 00 01 00 - 03 SYN:Wave
* ** 06 58 00 00 00 01
00 - 01 SYN:Octave Shift
* ** 06 59 00 00 00 01
00 - 64 SYN:PWM Rate
* ** 06 5A 00 00 00 01 00 - 64 SYN:PWM Depth
* ** 06 5B 00 00 00 01 00 - 64 SYN:Noise Level
* ** 06 5C 00 00 00 01 00 - 64 SYN:Sensitivity
* ** 06 5D 00 00 00 01 00 - 01 SYN:Hold
* ** 06 5E 00 00 00 01
00 - 01 SYN:Attack Trigger
* ** 06 5F 00 00 00 01
00 - 64 SYN:Resonance
* ** 06 60 00 00 00 01 00 - 64 SYN:Cutoff Frequency
* ** 06 61 00 00 00 01 00 - 64 SYN:Depth
* ** 06 62 00 00 00 01 00 - 64 SYN:Decay
* ** 06 63 00 00 00 01 00 - 64 SYN:Synth Level
* ** 06 64 00 00 00 01

```



```

* ** 06 65    00 00 00 01    00 - 64 SYN:Direct Level          0 - 100
* ** 06 66    00 00 00 01    00 - 01 SYN:Bend                    Wave = Square, Saw
                                                00 : Off
                                                01 : On
* ** 06 67    00 00 00 01    00 - 30 SYN:Pitch Min                Wave = Square, Saw
                                                -24 - +24
* ** 06 68    00 00 00 01    00 - 30 SYN:Pitch Max                Wave = Square, Saw
                                                -24 - +24
* ** 06 69    00 00 00 01    00 - 64 SYN:Pedal Position            Wave = Square, Saw
                                                0 - 100
* ** 06 6A    00 00 00 01    00      SYN:Reserved
* ** 06 6B    00 00 00 01    00      SYN:Reserved
* ** 06 6C    00 00 00 01    00      SYN:Reserved
* ** 06 6D    00 00 00 01    00      SYN:Reserved
* ** 06 6E    00 00 00 01    00 - 0A FL :Low Cut Filter          *Refer to Table Low_Cut

--- CHORUS ---
* ** 07 00    00 00 00 01    00 - 01 CE :On/Off                    00 : Off
                                                01 : On
* ** 07 01    00 00 00 01    00 - 0A CE :Quick Setting *1          00 : --
                                                01 : MONO CHORUS
                                                02 : STEREO CE
                                                03 : ANALOG CE
                                                04 : DIMENSION
                                                05 : LIGHT CE
                                                06 : SLOW CHORUS
                                                07 : PRE DLY CE
                                                08 : FAST CHORUS
                                                09 : DEEP CHORUS
                                                0A : DOUBLING CE
                                                00 : Mono
                                                01 : Stereo
* ** 07 02    00 00 00 01    00 - 01 CE :Mode
* ** 07 03    00 00 00 01    00 - 71 CE :Rate                      *Refer to Table Rate
* ** 07 04    00 00 00 01    00 - 64 CE :Depth                      0 - 100
* ** 07 05    00 00 00 01    00 - 50 CE :Pre Delay                  0.0ms - 40.0ms (step 0.5ms)
* ** 07 06    00 00 00 01    00 - 0A CE :Low Cut Filter          *Refer to Table Low_Cut
* ** 07 07    00 00 00 01    00 - 64 CE :Effect Level              0 - 100

--- REVERB/DELAY/SOUND ON SOUND ---
* ** 08 00    00 00 00 01    00 - 01 REV/DLY/SOS:On/Off            00 : Off
                                                01 : On
* ** 08 01    00 00 00 01    00 - 1E REV/DLY/SOS:Quick Setting *1    00 : --
                                                01 : REV:NORMAL PLATE
                                                02 : REV:BRIGHT ROOM
                                                03 : REV:DARK ROOM
                                                04 : REV:BRIGHT HALL
                                                05 : REV:DARK HALL
                                                06 : REV:RICH PLATE
                                                07 : REV:LIVE HOUSE
                                                08 : REV:AMBIENCE
                                                09 : REV:LARGE HALL
                                                0A : REV:SMALL ROOM
                                                0B : DLY:DELAY 1
                                                0C : DLY:DELAY 2
                                                0D : DLY:DELAY 3
                                                0E : DLY:DELAY 4
                                                0F : DLY:DELAY 5
                                                10 : DLY:DELAY 6
                                                11 : DLY:DELAY 7
                                                12 : DLY:DELAY 8
                                                13 : DLY:DELAY 9
                                                14 : DLY:DELAY 10
                                                15 : R&D:REV&DLY 1
                                                16 : R&D:REV&DLY 2
                                                17 : R&D:REV&DLY 3
                                                18 : R&D:REV&DLY 4
                                                19 : R&D:REV&DLY 5
                                                1A : R&D:REV&DLY 6
                                                1B : R&D:REV&DLY 7
                                                1C : R&D:REV&DLY 8
                                                1D : R&D:REV&DLY 9
                                                1E : R&D:REV&DLY 10
* ** 08 02    00 00 00 01    00 - 03 REV/DLY/SOS:FX Select          00 : REV (Reverb)
                                                01 : DLY (Delay)
                                                02 : R&D (Reverb&Delay)
                                                03 : SOS (Sound On Sound)
* ** 08 03    00 00 00 01    00 - 04 REV:Type
                                                00 : Room 1
                                                01 : Room 2
                                                02 : Hall 1
                                                03 : Hall 2
                                                04 : Plate
* ** 08 04    00 00 00 01    00 - 63 REV:Reverb Time                0.1s - 10.0s (0.1s step)
* ** 08 05    00 00 00 01    00 - 64 REV:Pre Delay                  0ms - 100ms (1ms step)
* ** 08 06    00 00 00 01    00 - 0A REV:Low Cut Filter          *Refer to Table Low_Cut
* ** 08 07    00 00 00 01    00 - 09 REV:High Cut Filter         *Refer to Table High_Cut
* ** 08 08    00 00 00 01    00 - 0A REV:Density                    0 - 10
* ** 08 09    00 00 00 01    00 - 64 REV:Effect Level              0 - 100
* ** 08 0A    00 00 00 01    00      REV:Reserved
* ** 08 0B    00 00 00 01    00 - 01 DLY:Type
                                                00 : Single
                                                01 : Pan
* ** 08 0C    00 00 00 01    00 - 53 DLY:Delay Time
                                                00 : 0ms
                                                01 : 20ms
                                                :
                                                46 : 1400ms
                                                47 : 4.0*BPM
                                                48 : 3.0*BPM
                                                49 : 8/3*BPM
                                                4A : 2.0*BPM
                                                4B : 1.5*BPM
                                                4C : 4/3*BPM
                                                4D : 1.0*BPM
                                                4E : 3/4*BPM
                                                4F : 2/3*BPM
                                                50 : 1/2*BPM
                                                51 : 3/8*BPM
                                                52 : 1/3*BPM
                                                53 : 1/4*BPM
* ** 08 0D    00 00 00 01    00 - 14 DLY:Delay Time Fine          0 - 20
* ** 08 0E    00 00 00 01    00 - 64 DLY:TAP Time                    Type = Pan
                                                0% - 100%
* ** 08 0F    00 00 00 01    00 - 64 DLY:Feedback                  0 - 100
* ** 08 10    00 00 00 01    00 - 09 DLY:High Cut Filter         *Refer to Table High_Cut
* ** 08 11    00 00 00 01    00 - 78 DLY:Effect Level              0 - 120
* ** 08 12    00 00 00 01    00      DLY:Reserved
* ** 08 13    00 00 00 01    00 - 01 SOS:Mode
                                                00 : HiQuality
                                                01 : LongTime

```



```

--- MANUAL ---
* ** 0F 00 00 00 00 01 00 - 01 Pedal 1 00 : COMP
* ** 0F 01 00 00 00 01 02 - 03 Pedal 2 01 : WAH
* ** 0F 02 00 00 00 01 04 - 05 Pedal 3 02 : OD/DIST
* ** 0F 03 00 00 00 01 06 - 06 Pedal 4 03 : FX1
04 : CHORUS
05 : FX-2
06 : REV/DLY/SOS

--- Assign 1 ---
* ** 10 00 00 00 00 01 00 - 01 Assign 1:On/Off 00 : Off
* ** 10 01 00 00 00 01 00 - 09 Assign 1:Quick Setting *1 01 : On
02 : --
03 : PATCH LEVEL
04 : PREAMP GAIN
05 : OD/DIST DRIVE
06 : DELAY LEVEL
07 : CHORUS LEVEL
08 : REVERB LEVEL
09 : MASTER BPM
00 : SUB EXP FV
01 : SUB EXP PS
* ** 10 02 00 00 00 02 00 00 - Assign 1:Target *Refer to Table Patch:Assign Target
* ** 10 03# - 01 5A
* ** 10 04 00 00 00 02 00 00 - Assign 1:Target Min *2
* ** 10 05# - $$ $$
* ** 10 06 00 00 00 02 00 00 - Assign 1:Target Max *2
* ** 10 07# - $$ $$
* ** 10 08 00 00 00 01 00 - 44 Assign 1:Source
00 : EXP PEDAL
01 : EXP PEDAL SW
02 : CTL PEDAL
03 : SUB EXP PEDAL
04 : SUB CTL 1
05 : SUB CTL 2
06 : MIDI CTL# 1
:
24 : MIDI CTL# 31
25 : MIDI CTL# 64
:
44 : MIDI CTL# 95
00 : Normal
01 : Toggle
* ** 10 09 00 00 00 01 00 - 01 Assign 1:Source Mode
* ** 10 0A 00 00 00 01 00 - 7F Assign 1:Source Act.Range Low 0 - 127
* ** 10 0B 00 00 00 01 00 - 7F Assign 1:Source Act.Range High 0 - 127

--- Assign 2 ---
* ** 11 00 00 00 00 01 00 - 01 Assign 2:On/Off 00 : Off
: : 01 : On
* ** 11 0B 00 00 00 01 00 - 7F Assign 2:Source Act.Range High 0 - 127

--- Assign 3 ---
* ** 12 00 00 00 00 01 00 - 01 Assign 3:On/Off 00 : Off
: : 01 : On
* ** 12 0B 00 00 00 01 00 - 7F Assign 3:Source Act.Range High 0 - 127

--- Assign 4 ---
* ** 13 00 00 00 00 01 00 - 01 Assign 4:On/Off 00 : Off
: : 01 : On
* ** 13 0B 00 00 00 01 00 - 7F Assign 4:Source Act.Range High 0 - 127

--- Assign 5 ---
* ** 14 00 00 00 00 01 00 - 01 Assign 5:On/Off 00 : Off
: : 01 : On
* ** 14 0B 00 00 00 01 00 - 7F Assign 5:Source Act.Range High 0 - 127

--- Assign 6 ---
* ** 15 00 00 00 00 01 00 - 01 Assign 6:On/Off 00 : Off
: : 01 : On
* ** 15 0B 00 00 00 01 00 - 7F Assign 6:Source Act.Range High 0 - 127

--- Assign 7 ---
* ** 16 00 00 00 00 01 00 - 01 Assign 7:On/Off 00 : Off
: : 01 : On
* ** 16 0B 00 00 00 01 00 - 7F Assign 7:Source Act.Range High 0 - 127

--- Assign 8 ---
* ** 17 00 00 00 00 01 00 - 01 Assign 8:On/Off 00 : Off
: : 01 : On
* ** 17 0B 00 00 00 01 00 - 7F Assign 8:Source Act.Range High 0 - 127

```

\*1 Quick Settings can only be received individually.

\*2 \$\$ is determined by the maximum value of the data for the parameter selected with Assign Target.

\*3 Rules for exchanging effect positions

The same effect cannot be used more than once.

Table Rate <Rate>		10	+3rd
Data(H)	Description	11	+4th
00	0	12	+5th
:	:	13	+6th
64	100	14	+7th
65	1/4*BPM	15	+1oct
66	1/3*BPM	16	+9th
67	3/8*BPM	17	+10th
68	1/2*BPM	18	+11th
69	2/3*BPM	19	+12th
6A	3/4*BPM	1A	+13th
6B	1.0*BPM	1B	+14th
6C	4/3*BPM	1C	+2oct
6D	1.5*BPM	1D	Scale 1
6E	2.0*BPM	1E	Scale 2
6F	8/3*BPM	1F	Scale 3
70	3.0*BPM	20	Scale 4
71	4.0*BPM	21	Scale 5
		22	Scale 6
		23	Scale 7
Table EQ_Q <EQ :Q>		24	Scale 8
Data(H)	Description	25	Scale 9
00	0.5	26	Scale 10
01	1	27	Scale 11
02	2	28	Scale 12
03	4	29	Scale 13
04	8	2A	Scale 14
05	16	2B	Scale 15
		2C	Scale 16
		2D	Scale 17
Table HR_Harm <Harmony Scale>		2E <th>Scale 18</th>	Scale 18
Data(H)	Description	2F <th>Scale 19</th>	Scale 19
00	-2oct	30	Scale 20
01	-14th	31	Scale 21
02	-13th	32	Scale 22
03	-12th	33	Scale 23
04	-11th	34	Scale 24
05	-10th	35	Scale 25
06	-9th	36	Scale 26
07	-1oct	37	Scale 27
08	-7th	38	Scale 28
09	-6th	39	Scale 29
0A	-5th		
0B	-4th		
0C	-3rd		
0D	-2nd		
0E	Unison		
0F	+2nd		

\* Refer to HR\_Scale for detailed information about each scale.

Table HR_Scale <Harmony Scale>		C	C#	D	D#	E	F	F#	G	G#	A	A#	B
Preset	User	Harmony note(Default)											
-2oct	Scale 1	-C↓	-C#↓	-D↓	-D#↓	-E↓	-F↓	-F#↓	-G↓	-G#↓	-A↓	-A#↓	-B↓
-14th	Scale 2	-D↓	-D#↓	-E↓	-F↓	-F#↓	-G↓	-G#↓	-A↓	-A#↓	-B↓	-C↓	-C#↓
-13th	Scale 3	-E↓	-F↓	-F#↓	-G↓	-G#↓	-A↓	-A#↓	-B↓	-C↓	-C#↓	-D↓	-D#↓
-12th	Scale 4	-F↓	-F#↓	-G↓	-G#↓	-A↓	-B↓	-C↓	-C#↓	-D↓	-D#↓	-E↓	-F↓
-11th	Scale 5	-G↓	-G#↓	-A↓	-A#↓	-B↓	-C↓	-C#↓	-D↓	-D#↓	-E↓	-F↓	-F#↓
-10th	Scale 6	-A↓	-A#↓	-B↓	-C↓	-C#↓	-D↓	-D#↓	-E↓	-F↓	-F#↓	-G↓	-G#↓
-9th	Scale 7	-B↓	-C↓	-C#↓	-D↓	-D#↓	-E↓	-F↓	-F#↓	-G↓	-G#↓	-A↓	-A#↓
-1oct	Scale 8	-C↓	-C#↓	-D↓	-D#↓	-E↓	-F↓	-F#↓	-G↓	-G#↓	-A↓	-A#↓	-B↓
-7th	Scale 9	-D	-D#	-E	-F	-F#	-G	-G#	-A	-A#	-B	-C	-C#
-6th	Scale 10	-E	-F	-F#	-G	-G#	-A	-A#	-B	-C	-C#	-D	-D#
-5th	Scale 11	-F	-F#	-G	-G#	-A	-B	-C	-C#	-D	-D#	-E	-F
-4th	Scale 12	-G	-G#	-A	-A#	-B	-C	-C#	-D	-D#	-E	-F	-F#
-3rd	Scale 13	-A	-A#	-B	-C	-C#	-D	-D#	-E	-F	-F#	-G	-G#
-2nd	Scale 14	-B	-C	-C#	-D	-D#	-E	-F	-F#	-G	-G#	-A	-A#
Unison	Scale 15	C	C#	D	D#	E	F	F#	G	G#	A	A#	B
+2nd	Scale 16	+D	+D#	+E	+F	+F#	+G	+G#	+A	+A#	+B	+C	+C#
+3rd	Scale 17	+E	+F	+F#	+G	+G#	+A	+A#	+B	+C	+C#	+D	+D#
+4th	Scale 18	+F	+F#	+G	+G#	+A	+B	+C	+C#	+D	+D#	+E	+F
+5th	Scale 19	+G	+G#	+A	+A#	+B	+C	+C#	+D	+D#	+E	+F	+F#
+6th	Scale 20	+A	+A#	+B	+C	+C#	+D	+D#	+E	+F	+F#	+G	+G#
+7th	Scale 21	+B	+C	+C#	+D	+D#	+E	+F	+F#	+G	+G#	+A	+A#
+1oct	Scale 22	+C↑	+C#↑	+D↑	+D#↑	+E↑	+F↑	+F#↑	+G↑	+G#↑	+A↑	+A#↑	+B↑
+9th	Scale 23	+D↑	+D#↑	+E↑	+F↑	+F#↑	+G↑	+G#↑	+A↑	+A#↑	+B↑	+C↑	+C#↑
+10th	Scale 24	+E↑	+F↑	+F#↑	+G↑	+G#↑	+A↑	+A#↑	+B↑	+C↑	+C#↑	+D↑	+D#↑
+11th	Scale 25	+F↑	+F#↑	+G↑	+G#↑	+A↑	+B↑	+C↑	+C#↑	+D↑	+D#↑	+E↑	+F↑
+12th	Scale 26	+G↑	+G#↑	+A↑	+A#↑	+B↑	+C↑	+C#↑	+D↑	+D#↑	+E↑	+F↑	+F#↑
+13th	Scale 27	+A↑	+A#↑	+B↑	+C↑	+C#↑	+D↑	+D#↑	+E↑	+F↑	+F#↑	+G↑	+G#↑
+14th	Scale 28	+B↑	+C↑	+C#↑	+D↑	+D#↑	+E↑	+F↑	+F#↑	+G↑	+G#↑	+A↑	+A#↑
+2oct	Scale 29	+C↑↑	+C#↑↑	+D↑↑	+D#↑↑	+E↑↑	+F↑↑	+F#↑↑	+G↑↑	+G#↑↑	+A↑↑	+A#↑↑	+B↑↑

\* This is harmony output, in case that it is as Key=C(Am).

\* User Scale values are those set at the factory.

Table PreDly <PreDly>

Data(H)	Description
00 00	0ms
00 01	1ms
:	:
00 7F	127ms
01 00	128ms
:	:
01 7F	255ms
02 00	256ms
:	:
02 2C	300ms
02 2D	4.0*BPM
02 2E	3.0*BPM
02 2F	8/3*BPM
02 30	2.0*BPM
02 31	1.5*BPM
02 32	4/3*BPM
02 33	1.0*BPM

Table High\_Cut <High Cut>

Data(H)	Description
00	700Hz
01	1.00kHz
02	1.40kHz
03	2.00kHz
04	3.00kHz
05	4.00kHz
06	6.00kHz
07	8.00kHz
08	11.0kHz
09	Flat

Table Low\_Cut <Low Cut>

Data(H)	Description
00	FLAT
01	55.0Hz
02	110Hz
03	165Hz
04	200Hz
05	280Hz
06	340Hz
07	400Hz
08	500Hz
09	630Hz
0A	800Hz

Table Name <Name Edit>

Data(H)	Description
20	
21	!
22	"
23	#
24	\$
25	%
26	&
27	'
28	(
29	)
2A	*
2B	+
2C	,
2D	-
2E	.
2F	/
30	0
31	1
32	2
33	3
34	4
35	5
36	6
37	7
38	8
39	9
3A	:
3B	;
3C	<
3D	=

3E	>
3F	?
40	@
41	A
42	B
43	C
44	D
45	E
46	F
47	G
48	H
49	I
4A	J
4B	K
4C	L
4D	M
4E	N
4F	O
50	P
51	Q
52	R
53	S
54	T
55	U
56	V
57	W
58	X
59	Y
5A	Z
5B	[
5C	\
5D	]
5E	
5F	_
60	`
61	a
62	b
63	c
64	d
65	e
66	f
67	g
68	h
69	i
6A	j
6B	k
6C	l
6D	m
6E	n
6F	o
70	p
71	q
72	r
73	s
74	t
75	u
76	v
77	w
78	x
79	y
7A	z
7B	
7C	
7D	
7E	->
7F	<-

Table Target <Patch:Assign Target>

Data(H)	Description
00 00	CL :On/Off
00 01	CL :Type
00 02	CL :Attack
00 03	CL :Threshold
00 04	CL :Sustain
00 05	CL :Rack 160D Ratio
00 06	CL :Vtg Rack U Ratio
00 07	CL :Release
00 08	CL :Tone
00 09	CL :Level

00 0A	FX1:On/Off	00 59	PH :Step
00 0B	FX1:FX Select	00 5A	PH :Step Rate
00 0C	OCT:Effect Level	00 5B	PH :Level
00 0D	OCT:Direct Level	00 5C	FL :Rate
00 0E	EHR:Sensitivity	00 5D	FL :Depth
00 0F	EHR:Frequency	00 5E	FL :Manual
00 10	EHR:Mix Level	00 5F	FL :Resonance
00 11	SG :Sensitivity	00 60	FL :Separation
00 12	SG :Rise Time	00 61	FL :Low Cut
00 13	DEF:Sensitivity	00 62	FL :Level
00 14	DEF:Attack	00 63	HRM:Voice
00 15	DEF:Depth	00 64	HRM:HR1 Harmony
00 16	DEF:Level	00 65	HRM:HR1 Pre Delay
00 17	R.M:Mode	00 66	HRM:HR1 Feedback
00 18	R.M:Frequency	00 67	HRM:HR1 Level
00 19	R.M:Effect Level	00 68	HRM:HR2 Harmony
00 1A	R.M:Direct Level	00 69	HRM:HR2 Pre Delay
00 1B	WAH:On/Off	00 6A	HRM:HR2 Level
00 1C	WAH:FX Select	00 6B	HRM:Key
00 1D	TW :Mode	00 6C	HRM:Direct Level
00 1E	TW :Polarity	00 6D	P.S:Voice
00 1F	TW :Sensitivity	00 6E	P.S:PS1 Mode
00 20	TW :Frequency	00 6F	P.S:PS1 Pitch
00 21	TW :Peak	00 70	P.S:PS1 Fine
00 22	TW :Depth	00 71	P.S:PS1 Pre Delay
00 23	TW :Level	00 72	P.S:PS1 Feedback
00 24	AW :Mode	00 73	P.S:PS1 Level
00 25	AW :Rate	00 74	P.S:PS2 Mode
00 26	AW :Depth	00 75	P.S:PS2 Pitch
00 27	AW :Frequency	00 76	P.S:PS2 Fine
00 28	AW :Peak	00 77	P.S:PS2 Pre Delay
00 29	AW :Polarity	00 78	P.S:PS2 Level
00 2A	AW :Sensitivity	00 79	P.S:Direct Level
00 2B	AW :Level	00 7A	2CE:Xover Frequency
00 2C	OD /DIST:On/Off	00 7B	2CE:Low Rate
00 2D	OD /DIST:Type	00 7C	2CE:Low Depth
00 2E	OD /DIST:Drive	00 7D	2CE:Low Pre Delay
00 2F	OD /DIST:Bass	00 7E	2CE:Low Level
00 30	OD /DIST:Treble	00 7F	2CE:High Rate
00 31	OD /DIST:Effect Level	01 00	2CE:High Depth
00 32	OD /DIST:Direct Level	01 01	2CE:High Pre Delay
00 33	PRE:On/Off	01 02	2CE:High Level
00 34	PRE:Type	01 03	ASL:Phrase
00 35	PRE:Bright	01 04	ASL:Loop
00 36	PRE:Deep	01 05	ASL:Tempo
00 37	PRE:Responce	01 06	ASL:Sensitivity
00 38	PRE:Enhancer	01 07	ASL:Attack
00 39	PRE:Pre Shape	01 08	ASL:Effect Level
00 3A	PRE:Gain	01 09	ASL:Direct Level
00 3B	PRE:Treble	01 0A	SDD:Delay Time
00 3C	PRE:Ultra Hi	01 0B	SDD:Feedback
00 3D	PRE:Mid	01 0C	SDD:Effect Level
00 3E	PRE:Mid Freq	01 0D	VIB:Rate
00 3F	PRE:Bass	01 0E	VIB:Depth
00 40	PRE:Ultra Lo	01 0F	VIB:Trigger
00 41	PRE:Level	01 10	VIB:Rise Time
00 42	SPK:On/Off	01 11	HMN:Mode
00 43	SPK:Type	01 12	HMN:Vowel 1
00 44	SPK:Mic Setting	01 13	HMN:Vowel 2
00 45	SPK:Mic Level	01 14	HMN:Trigger
00 46	SPK:Direct Level	01 15	HMN:Sensitivity
00 47	EQ :On/Off	01 16	HMN:Rate
00 48	EQ :Low Q	01 17	HMN:Depth
00 49	EQ :Low Freq	01 18	HMN:Manual
00 4A	EQ :Low Gain	01 19	HMN:Level
00 4B	EQ :Mid Q	01 1A	T/P:Mode
00 4C	EQ :Mid Freq	01 1B	T/P:Wave Shape
00 4D	EQ :Mid Gain	01 1C	T/P:Rate
00 4E	EQ :Hi Q	01 1D	T/P:Depth
00 4F	EQ :Hi Freq	01 1E	SYN:Wave
00 50	EQ :Hi Gain	01 1F	SYN:Octave Shift
00 51	EQ :Level	01 20	SYN:PWM Rate
00 52	FX2:On/Off	01 21	SYN:PWM Depth
00 53	FX2:FX Select	01 22	SYN:Noise Level
00 54	PH :Type	01 23	SYN:Sensitivity
00 55	PH :Rate	01 24	SYN:Hold
00 56	PH :Depth	01 25	SYN:Attack Trigger
00 57	PH :Manual	01 26	SYN:Resonance
00 58	PH :Resonance	01 27	SYN:Cutoff Frequency

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01 28	SYN:Depth
01 29	SYN:Decay
01 2A	SYN:Synth Level
01 2B	SYN:Direct Level
01 2C	SYN:Bend
01 2D	SYN:Pitch Min
01 2E	SYN:Pitch Max
01 2F	SYN:Pedal Position
01 30	CE :On/Off
01 31	CE :Mode
01 32	CE :Rate
01 33	CE :Depth
01 34	CE :Pre Delay
01 35	CE :Low Cut Filter
01 36	CE :Effect Level
01 37	REV/DLY/SOS:On/Off
01 38	REV/DLY/SOS:FX Select
01 39	REV:Type
01 3A	REV:Reverb Time
01 3B	REV:Pre Delay
01 3C	REV:Low Cut Filter
01 3D	REV:High Cut Filter
01 3E	REV:Density
01 3F	REV:Effect Level
01 40	DLY:Type
01 41	DLY:DlyTime
01 42	DLY:DlyTime Fine
01 43	DLY:Tap Time
01 44	DLY:Feedback
01 45	DLY:High Cut Filter
01 46	DLY:Effect Level
01 47	SOS:Mode
01 48	SOS:Quantize
01 49	SOS:Tempo
01 4A	SOS:Playback Level
01 4B	NS :On/Off
01 4C	NS :Threshold
01 4D	NS :Release
01 4E	MST:Effect Level
01 4F	MST:Master BPM
01 50	FV :Level
01 51	BYPASS On/Off
01 52	Patch Select
01 53	Master BPM(Tap)
01 54	Delay Time(Tap)
01 55	MIDI Start/Stop
01 56	MMC Play/Stop
01 57	Effect Level Inc1
01 58	Effect Level Inc2
01 59	Effect Level Dec1
01 5A	Effect Level Dec2

# Roland Exclusive Messages

## 1. Data Format for Exclusive Messages

Roland's MIDI implementation uses the following data format for all Exclusive messages (type IV):

Byte	Description
F0H	Exclusive Status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
CMD	Command ID
[BODY]	Main data
F7H	End of exclusive

### •MIDI status: F0H, F7H

An Exclusive message must be flanked by a pair of status codes, starting with a Manufacturer ID immediately after F0H (MIDI version 1.0).

### •Manufacturer ID: 41H

The Manufacturer ID identifies the manufacturer of a MIDI instrument that sends an Exclusive message. Value 41H represents Roland's Manufacturer ID.

### •Device ID: DEV

The Device ID contains a unique value that identifies individual devices in the implementation of several MIDI instruments. It is usually set to 00H-0FH, a value smaller by one than that of a basic channel, but value 00H-1FH may be used for a device with several basic channels.

### •Model ID: MDL

The Model ID contains a value that identifies one model from another. Different models, however, may share an identical Model ID if they handle similar data.

The Model ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Model IDs, each representing a unique model:

- 01H
- 02H
- 03H
- 00H, 01H
- 00H, 02H
- 00H, 00H, 01H

### •Command ID: CMD

The Command ID indicates the function of an Exclusive message. The Command ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Command IDs, each representing a unique function:

- 01H
- 02H
- 03H
- 00H, 01H
- 00H, 02H
- 00H, 00H, 01H

### •Main data: BODY

This field contains a message to be exchanged across an interface. The exact data size and content will vary with the Model ID and Command ID.

## 2. Address-mapped Data Transfer

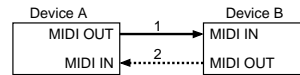
Address mapping is a technique for transferring messages conforming to the data format given in Section 1. It assigns a series of memory-resident records—waveform and tone data, switch status, and parameters, for example, to specific locations in a machine-dependent address space, thereby allowing access to data residing at the address a message specifies.

Address-mapped data transfer is therefore independent of models and data categories. This technique allows use of two different transfer procedures: one-way transfer and handshake transfer.

### •One-way transfer procedure (See Section 3 for details.)

This procedure is suited to the transfer of a small amount of data. It sends out an Exclusive message completely independent of the receiving device's status.

#### Connection Diagram

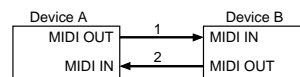


Connection at point 2 is essential for "Request data" procedures. (See Section 3.)

### •Handshake-transfer procedure (This device does not use this procedure)

This procedure initiates a predetermined transfer sequence (handshaking) across the interface before data transfer takes place. Handshaking ensures that reliability and transfer speed are high enough to handle a large amount of data.

#### Connection Diagram



Connection at points 1 and 2 is essential.

## Notes on the above procedures

- \* There are separate Command IDs for different transfer procedures.
- \* Devices A and B cannot exchange data unless they use the same transfer procedure, share identical Device ID and Model ID, and are ready for communication.

## 3. One-way Transfer Procedure

This procedure sends out data until it has all been sent and is used when the messages are so short that answerbacks need not be checked.

For longer messages, however, the receiving device must acquire each message in time with the transfer sequence, which inserts 20 milliseconds intervals.

#### Types of Messages

Message	Command ID
Request data 1	RQ1 (11H)
Data set 1	DT1 (12H)

### •Request data #1: RQ1 (11H)

This message is sent out when there is a need to acquire data from a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of data required.

On receiving an RQ1 message, the remote device checks its memory for the data address and size that satisfy the request.

If it finds them and is ready for communication, the device will transmit a "Data set 1 (DT1)" message, which contains the requested data. Otherwise, the device won't send out anything.

Byte	Description
F0H	Exclusive Status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
11H	Command ID
aaH	Address MSB
	LSB
ssH	Size MSB
	LSB
sum	Check sum
F7H	End of exclusive



- \* The size of the requested data does not indicate the number of bytes that will make up a DT1 message, but represents the address fields where the requested data resides.
- \* Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
- \* The same number of bytes comprises address and size data, which, however, vary with the Model ID.
- \* The error-checking process uses a checksum that provides a bit pattern where the last 7 bits are zero when values for an address, size, and that checksum are summed.

**• Data set 1: DT1 (12H)**

This message corresponds to the actual data transfer process. Because every byte in the data is assigned a unique address, a DT1 message can convey the starting address of one or more bits of data as well as a series of data formatted in an address-dependent order.

The MIDI standards inhibit non real-time messages from interrupting an Exclusive one. This fact is inconvenient for devices that support a “soft-thru” function. To maintain compatibility with such devices, Roland has limited the DT1 to 256 bytes so that an excessively long message is sent out in separate ‘segments’.

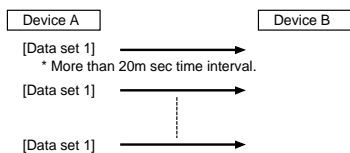
Byte	Description
F0H	Exclusive Status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
12H	Command ID
aaH	Address MSB
	LSB
ddH	Data MSB
	LSB
sum	Check sum
F7H	End of exclusive

- \* A DT1 message is capable of providing only the valid data among those specified by an RQ1 message.
- \* Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
- \* The number of bytes comprising address data varies from one Model ID to another.
- \* The error-checking process uses a checksum that provides a bit pattern where the last 7 bits are zero when values for an address, size, and that checksum are summed.

**• Example of Message Transactions**

**• Device A sending data to Device B**

Transfer of a DT1 message is all that takes place.



**• Device B requesting data from Device A**

Device B sends an RQ1 message to Device A. Checking the message, Device A sends a DT1 message back to Device B.

