MIDI Implementation

Model: V-Combo VR-09
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Version: 1.01

1. Receive Channel

■ Performance Parts and Transmission Channels

This instrument contains two sound generators: one for accompaniment (GM2) and one for keyboard performance.

Normally, data received at the MIDI IN connector will control only the sound generator for keyboard performance. However by changing the "MIDI IN Mode" setting, you can control the GM2 sound generator from MIDI In.
For instructions on changing the "MIDI IN Mode," refer to the Owner's Manual.

For instructions on controlling each sound generator, refer to the "Received data" section.

❍ MIDI IN Mode

Mode	Explanation
MODE 1	Control the instrument as a GM2 sound generator.
MODE 2	Channels 5 through 10 and Channels 12,14,15 are transmitted to the GM2 sound generator, and all other channels are transmitted to the keyboard sound generator.
KEYBOARD	All channels are sent to the lower part for keyboard performance.

The correspondence between channels and parts in each mode is described below.

ch	MODE1	MODE2	KEYBOARD
1	GM2	PIANO DUAL2*	LOWER
2	GM2	PEDAL	LOWER
3	GM2	LOWER	LOWER
4	GM2	UPPER	LOWER
5-10	GM2	GM2	LOWER
11	GM2	DRUM	LOWER
12	GM2	GM2	LOWER
13	GM2	(Reserve)	LOWER
14-15	GM2	GM2	LOWER
16	GM2	CONTROL	LOWER

* Valid in dual mode if a piano sound is assigned to part 2.

2. Transmit Channel

■ Keyboard and Transmit Channel

You can control external MIDI devices using the VR-09's MIDI OUT connector. Data describing what is played on the upper part, the lower part, and the pedal part is transmitted over MIDI channels for the respective parts.
Messages from the expression pedal and PC Numbers set in the Registrations are transmitted on the Control channel.
The channels used for transmission can be changed individually for each Registration. For instructions on how to change the transmission channels, refer to the Owner's Manual.

Channel	(default)	Content Transmitted
UPPER	(4)	Key information from the upper part is transmitted.
LOWER	(3)	Key information from the lower part is transmitted.
PEDAL	(2)	Performance information from the pedal part is transmitted. (when using a pedalboard)
PIANO DUAL2	(1)	Key information is transmitted if a piano sound is assigned to part 2 in dual mode.
CONTROL	(16)	Expression pedal information and PC Numbers set in the Registrations are transmitted.

* The PC Number is transmitted when Send PC Switch is set to ON.
* For more details regarding the data that is transmitted, refer to "4. Transmit Data" (p. 7).

3. Receive Data

[GM2]	This indicates that the message will be received if the MIDI IN Mode is MODE 1 and the unit is in GM2 mode. Use GM2 System On (p. 5) to select GM2 mode.
[GM1]	This indicates that the message will be received if the MIDI IN Mode is MODE 1 and the unit is in GM1 mode. Use GM1 System On (p. 5) to select GM1 mode.
[VR-09]	This indicates that the message will be received on the keyboard part if the MIDI IN Mode is MODE 2. For details on the keyboard part, refer to "1. Receive Channel" (p. 1).

■ Channel Voice Messages

● Note off [GM2] [GM1] [VR-09]

Status	2nd byte	3rd byte
8nH	kkH	vvH
9nH	kkH	00H

n = MIDI channel number:	0H-FH (ch.1-ch.16)
kk = note number:	00H-7FH (0-127)
vv = note off velocity:	00H-7FH (0-127)

* The velocity values of Note Off messages are ignored.

● Note on [GM2] [GM1] [VR-09]

Status	2nd bytes	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)

● Control Change

* The value specified by a Control Change message will not be reset even by a Program Change, etc.

❍ Bank Select (Controller number 0, 32) [GM2]

Status	2nd bytes	3rd byte
BnH	00H	mmH
BnH	20H	llH

n = MIDI channel number:	0H-FH (ch.1-ch.16)
mm, ll = Bank number:	00 00H-7F 7FH (bank.1-bank.16384), Initial Value = 00 00H (bank.1)

* After receiving "GM1 System On," Bank Select messages will be ignored. After receiving "GM2 System On," Bank Select messages will be recognized.
* Bank Select processing will be suspended until a Program Change message is received.
* Not Received in keyboard part. Specification of the tones used by keyboard parts is accomplished using System Exclusive messages (p. 11).

❍ Modulation (Controller number 1) [GM2] [GM1] [VR-09]

Status	2nd bytes	3rd byte
BnH	01H	vvH

n = MIDI channel number:	0H-FH (ch.1-ch.16)
vv = Modulation depth:	00H-7FH (0-127)

❍ Portamento Time (Controller number 5) [GM2] [VR-09]

Status	2nd bytes	3rd byte
BnH	05H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Portamento Time: 00H-7FH (0-127), Initial value = 00H (0)

* This adjusts the rate of pitch change when Portamento is ON or when using the Portamento Control. A value of 0 results in the fastest change.

❍ Data Entry (Controller number 6, 38) [GM2] [GM1] [VR-09]

Status	2nd bytes	3rd byte
BnH	06H	mmH
BnH	26H	llH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
mm, ll = the value of the parameter specified by RPN/NRPN
mm = MSB, ll = LSB

❍ Volume (Controller number 7) [GM2] [GM1] [VR-09]

Status	2nd bytes	3rd byte
BnH	07H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Volume: 00H-7FH (0-127), Initial Value = 64H (100)

* Volume messages are used to adjust the volume balance of each Part.
* Volume messages cannot independently control the layered parts of the keyboard part. If you need to independently control the parts that are layered on the keyboard part, you must use system exclusive messages for the keyboard part (p. 11) [VR-09].

❍ Panpot (Controller number 10) [GM2] [GM1] [VR-09]

Status	2nd bytes	3rd byte
BnH	0AH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = pan: 00H-40H-7FH (Left-Center-Right), Initial Value = 40H (Center)

* This does not affect effects such as reverb or rotary sound.

❍ Expression (Controller number 11) [GM2] [GM1] [VR-09]

Status	2nd bytes	3rd byte
BnH	0BH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Expression: 00H-7FH (0-127), Initial Value = 7FH (127)

* This adjusts the volume of a part. It can be used independently from Volume messages. Expression messages are used for musical expression within a performance; e.g., expression pedal movements, crescendo and decrescendo.
* If received on the Control Channel while MIDI IN Mode 2 is in effect, this changes the VR-09's overall volume in the same manner as the expression pedal. The volume of individual keyboard parts cannot be controlled independently [VR-09].

❍ Hold 1 (Controller number 64) [GM2] [GM1] [VR-09]

Status	2nd bytes	3rd byte
BnH	40H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127)

❍ Portamento (Controller number 65) [GM2] [VR-09]

Status	2nd bytes	3rd byte
BnH	41H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127) 0-63 = OFF, 64-127 = ON

❍ Sostenuto (Controller number 66) [GM2] [VR-09]

Status	2nd bytes	3rd byte
BnH	42H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127) 0-63 = OFF, 64-127 = ON

❍ Soft (Controller number 67) [GM2] [VR-09]

Status	2nd bytes	3rd byte
BnH	43H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127) 0-63 = OFF, 64-127 = ON

* Effects may vary depending on the tone used.

❍ Resonance (Controller number 71) [GM2] [VR-09]

Status	2nd bytes	3rd byte
BnH	47H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-40H-7FH (-64-0-+63)

* With certain tones, there may be no effect at all.

❍ Release Time (Controller number 72) [GM2] [VR-09]

Status	2nd bytes	3rd byte
BnH	48H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-40H-7FH (-64-0-+63)

* With certain tones, there may be no effect at all.

❍ Attack Time (Controller number 73) [GM2] [VR-09]

Status	2nd bytes	3rd byte
BnH	49H	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-40H-7FH (-64-0-+63)

* With certain tones, there may be no effect at all.

❍ Effect 3 (Chorus Send Level) (Controller number 93) [GM2]

Status	2nd bytes	3rd byte
BnH	5DH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127), Initial Value = 00H (0)

* This message adjusts the Chorus Send Level of each Part.

❍ RPN MSB/LSB (Controller number 100, 101)

Status	2nd bytes	3rd byte
BnH	65H	mmH
BnH	64H	llH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
mm = upper byte of parameter number specified by RPN (MSB)
ll = lower byte of parameter number specified by RPN (LSB)

* Not received when Rx.RPN = OFF. (Initial value is ON)
* The value specified by RPN will not be reset even by messages such as Program Change or Reset All Controller.

RPN
The RPN (Registered Parameter Number) messages are expanded control changes, and each function of an RPN is described by the MIDI Standard.
To use these messages, you must first use RPN MSB and RPN LSB messages to specify the parameter to be controlled, and then use Data Entry messages to specify the value of the specified parameter. Once an RPN parameter has been specified, all Data Entry messages received on that channel will modify the value of that parameter. To prevent accidents, it is recommended that you set RPN Null (RPN Number = 7FH/7FH) when you have finished setting the value of the desired parameter.Refer to Section 6. "Examples of actual MIDI messages" <Example 4> (p. 14).
On the VR-09, RPN can be used to modify the following parameters.

RPN MSB LSB	Data entry MSB LSB	Explanation
00H 00H	mmH ---	Pitch Bend Sensitivity [GM2] [GM1] [VR-09] mm: 00H-18H (0-24 semitones), Initial Value = 02H (2 semitones) ll: ignored (processed as 00H) specify up to 2 octaves in semitone steps
00H 01H	mmH llH	Master Fine Tuning [GM2] [GM1] [VR-09] mm, ll: 20 00H - 40 00H - 60 00H (-50 - 0 - +50 cents), Initial Value = 40 00H (0 cent) ll: ignored (processed as 00h) Refer to 6. Supplementary material, "About tuning" (p. 15)
00H 02H	mmH ---	Master Coarse Tuning [GM2] [GM1] [VR-09] mm: 10H - 40H - 70H (-48 - 0 - +48 semitones), Initial Value = 40H (0 cent) ll: ignored (processed as 00h)
00H 05H	mmH llH	Modulation Depth Range [GM2] mm, ll: 00 00H - 06 00H (0 - 16384 * 600 / 16384 cent)
7FH 7FH	--- ---	RPN null Set condition where RPN and NRPN are unspecified. The data entry messages after set RPN null will be ignored. (No Data entry messages are required after RPN null). Settings already made will not change. mm, ll: ignored

● Program Change [GM2] [GM1]

Status	2nd bytes
CnH	ppH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
pp = Program number: 00H-7FH (prog.1-prog.128)

* After a Program Change message is received, the sound will change beginning with the next Note-on. Voices already sounding when the Program Change message was received will not be affected.
* Not Received in keyboard part.
* Specification of the tones used by keyboard parts is accomplished using System Exclusive messages (p. 11).

● Channel Pressure [GM2] [GM1]

Status	2nd bytes
DnH	vvH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Channel Pressure: 00H-7FH (0-127)

● Pitch Bend Change [GM2] [GM1] [VR-09]

Status	2nd byte	3rd bytes
EnH	llH	mmH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
mm, ll = Pitch Bend value: 00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)

■ Channel Mode Messages

● All Sounds Off (Controller number 120) [GM2] [VR-09]

Status	2nd byte	3rd bytes
BnH	78H	00H

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

* When this message is received, all notes currently sounding on the corresponding channel will be turned off.

● Reset All Controllers (Controller number 121) [GM2]

Status	2nd byte	3rd byte
BnH	79H	00H

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

* When this message is received, the following controllers will be set to their reset values.

Controller	Reset value
Pitch Bend Change	±0 (center)
Polyphonic Key Pressure	0 (off)
Channel Pressure	0 (off)
Modulation	0 (off)
Expression	127 (max) However, the controller will be at minimum.
Hold 1	0 (off)
Sostenuto	0 (off)
Soft	0 (off)
RPN	unset; previously set data will not change
NRPN	unset; previously set data will not change

● All Notes Off (Controller number 123) [GM2] [GM1] [VR-09]

Status	2nd byte	3rd bytes
BnH	7BH	00H

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

* When All Notes Off is received, all notes on the corresponding channel will be turned off. However if Hold 1 or Sostenuto is ON, the sound will be continued until these are turned off.

● OMNI OFF (Controller number 124) [GM2] [VR-09]

Status	2nd byte	3rd bytes
BnH	7CH	00H

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

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

● OMNI ON (Controller number 125) [GM2] [VR-09]

Status	2nd byte	3rd bytes
BnH	7DH	00H

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

* OMNI ON is only recognized as "All notes off"; the Mode doesn't change (OMNI OFF remains).

● MONO (Controller number 126) [GM2] [VR-09]

Status	2nd byte	3rd bytes
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 and All Notes Off is received, and the corresponding channel will be set to Mode 4 (M = 1) regardless of the value of "mono number."

● POLY (Controller number 127) [GM2] [VR-09]

Status	2nd byte	3rd bytes
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 and All Notes Off is received, and the corresponding channel will be set to Mode 3.

● Active Sensing

Status
FEH

* Once an Active Sensing message is received, the unit will begin monitoring the interval between all subsequent messages. If there is an interval of 420 ms or longer between messages while monitoring is active, the same processing as when All Sound Off, All Notes Off, and Reset All Controllers messages are received will be carried out. The unit will then stop monitoring the message interval.

■ System Exclusive Messages

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

F0H: System Exclusive Message status
ii = ID number: 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 the VR-09 are; messages related to mode settings, Universal Realtime System Exclusive messages, Universal Non-realtime System Exclusive messages and Data Set (DT1).

● System exclusive messages related to mode settings

These messages are used to initialize a device to General MIDI mode or change the operating mode.
When creating performance data, a "GM2 System On" or "GM1 System On" message should be inserted at the beginning of a General MIDI score. Each song should contain only one mode message as appropriate for the type of data. (Do not insert two or more mode setting messages in a single song.)

❍ GM1 System On

Status	Data byte	Status
F0H	7EH, 7FH, 09H, 01H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (General MIDI Message)
01H	Sub ID#2 (General MIDI 1 On)
F7H	EOX (End of Exclusive)

* When this messages is received, this instrument will turn to the GM mode.
* Not received in keyboard part.

❍ GM2 System On

Status	Data byte	Status
F0H	7EH, 7FH, 09H, 03H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (General MIDI Message)
03H	Sub ID#2 (General MIDI 2 On)
F7H	EOX (End of Exclusive)

* When this messages is received, this instrument will turn to the GM mode.
* Not received in keyboard part.

❍ GM System Off

Status	Data byte	Status
F0H	7EH, 7F, 09H, 02H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (General MIDI Message)
02H	Sub ID#2 (General MIDI Off)
F7H	EOX (End of Exclusive)

* Not Received in keyboard part.
* This message has no meaning for this unit.

● Universal Non-realtime System Exclusive Messages

❍ Identity Reply 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, 7FH)
06H	Sub ID#1 (General Information)
01H	Sub ID#2 (Identity Request)
F7H	EOX (End of Exclusive)

* When this message is received, this unit will transmit the appropriate Identity Reply message (p. 8).

● Universal Realtime System Exclusive Messages

❍ Master volume [GM2]

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 01H, llH, mmH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control messages)
01H	Sub ID#2 (Master Volume)
llH	Master volume lower byte
mmH	Master volume upper byte
F7H	EOX (End of Exclusive)

* The lower byte (llH) of Master Volume will be handled as 00H.

❍ Master Fine Tuning [GM2]

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 03H, llH, mmH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control)
03H	Sub ID#2 (Master Fine Tuning)
llH	Master Fine Tuning LSB
mmH	Master Fine Tuning MSB
F7H	EOX (End of Exclusive)

mm, ll: 00 00H - 40 00H - 7F 7FH (-100 - 0 - +99.9 [cents])

❍ Master Coarse Tuning [GM2]

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 04H, llH, mmH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control messages)
04H	Sub ID#2 (Master Coarse Tuning)
llH	Master Coarse Tuning LSB
mmH	Master Coarse Tuning MSB
F7H	EOX (End of Exclusive)

llH: ignored (processed as 00H)
mmH: 28H - 40H - 58H (-24 - 0 - +24 [semitones])

● Global Parameter Control

❍ Channel Pressure [GM2]

Status	Data byte	Status
F0H	7FH, 7FH, 09H, 01H, 0nH, ppH, rrH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (Controller Destination Setting)
01H	Sub ID#2 (Channel Pressure)
0nH	MIDI Channel (00 - 0F)
ppH	Controlled parameter
rrH	Controlled range
	pp=0 (Pitch Control)
	rr = 28H - 58H (-24 - +24 [semitones])
	pp=1 (Filter Cutoff Control)
	rr = 00H - 7FH (-9600 - +9450 [cents])
	pp=2 (Amplitude Control)
	rr = 00H - 7FH (0 - 200%)
	pp=3 (LFO Pitch Depth)
	rr = 00H - 7FH (0 - 600 [cents])
	pp=4 (LFO Filter Depth)
	rr = 00H - 7FH (0 - 2400 [cents])
	pp=5 (LFO Amplitude Depth)
	rr = 00H - 7FH (0 - 100%)
F7H	EOX (End of Exclusive)

❍ Controller [GM2]

Status	Data byte	Status
F0H	7FH, 7FH, 09H, 03H, 0nH, ccH, ppH, rrH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (Controller Destination Setting)
03H	Sub ID#2 (Control Change)
0nH	MIDI Channel (00 - 0F)
ccH	Controller number (01 - 1F, 40 - 5F)
ppH	Controlled parameter
rrH	Controlled range
	pp=0 (Pitch Control)
	rr = 28H - 58H (-24 - +24 [semitones])
	pp=1 (Filter Cutoff Control)
	rr = 00H - 7FH (-9600 - +9450 [cents])
	pp=2 (Amplitude Control)
	rr = 00H - 7FH (0 - 200%)
	pp=3 (LFO Pitch Depth)
	rr = 00H - 7FH (0 - 600 [cents])
	pp=4 (LFO Filter Depth)
	rr = 00H - 7FH (0 - 2400 [cents])
	pp=5 (LFO Amplitude Depth)
	rr = 00H - 7FH (0 - 100%)
F7H	EOX (End of Exclusive)

❍ Scale/Octave Tuning Adjust [GM2]

Status	Data byte	Status
F0H	7EH, 7FH, 08H, 08H, ffH, ggH, hhH, ssH...	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
7FH	Device ID (Broadcast)
08H	Sub ID#1 (MIDI Tuning Standard)
08H	Sub ID#2 (scale/octave tuning 1-byte form)
ffH	Channel/Option byte 1
	bits 0 to 1 = channel 15 to 16
	bit 2 to 6 = Undefined
ggH	Channel byte 2
	bits 0 to 6 = channel 8 to 14
hhH	Channel byte 3
	bits 0 to 6 = channel 1 to 7
ssH	12 byte tuning offset of 12 semitones from C to B
	00H = -64 [cents]
	40H = 0 [cents] (equal temperament)
	7FH = +63 [cents]
F7H	EOX (End of Exclusive)

❍ Key-based Instrument Controllers [GM2]

Status	Data byte	Status
F0H	7FH, 7FH, 0AH, 01H, 0nH, kkH, nnH, vvH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
0AH	Sub ID#1 (Key-Based Instrument Control)
01H	Sub ID#2 (Controller)
0nH	MIDI Channel (00 - 0F)
kkH	Key Number
nnH	Control Number
vvH	Value
	nn=07H (Level)
	vv = 00H - 7FH (0 - 200% (Relative))
	nn=0AH (Pan)
	vv = 00H - 7FH (Left - Right (Absolute))
	nn=5BH (Reverb Send)
	vv = 00H - 7FH (0 - 127 (Absolute))
	nn=5D (Chorus Send)
	vv = 00H - 7FH (0 - 127 (Absolute))
:	:
F7	EOX (End of Exclusive)

* This parameter affects drum instruments only.

● Data transmission

VR-09 can receive the various parameters using System Exclusive messages.
When keyboard part in MIDI IN Mode: Mode 2, the exclusive message has a model ID of 62H and a device ID of 10H (17).

❍ Data set 1 DT1

This is the message that actually performs data transmission, and is used when you wish to transmit the data.

Status	Data byte	Status
F0H	41H, 10H, iiH, 12H, aaH, bbH, ccH, ddH, ... eeH, sum	F7H
F0H	41H, 10H, nnH, nnH, nnH, 12H, aaH, bbH, ccH, ddH, ... eeH, sum	F7H (VR-09 Synth Section)

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
10H	Device ID
iiH	Model ID (Keyboard part: 62H)
nnH	VR-09 Synth Section Model ID (00H 00H 71H)
12H	Command ID (DT1)
aaH	Address MSB: upper byte of the starting address of the transmitted data
bbH	Address: middle byte of the starting address of the transmitted data
ccH	Address LSB: lower byte of the starting address of the transmitted data
ddH	Data: the actual data to be transmitted. Multiple bytes of data are transmitted starting from the address.
:	:
:	:
eeH	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 can be received only from the specified starting address and size. Refer to the Address and Size given in "5. Parameter Address Map" (p. 11).
* Data larger than 128 bytes must be divided into packets of 128 bytes or less. If "Data Set 1" is transmitted successively, there must be an interval of at least 40 ms between packets.
* Regarding the checksum please refer to "Example of an Exclusive Message and Calculating a Checksum" (p. 14).

4. Transmit Data

■ Channel Voice Messages

● Note off

Status	2nd byte	3rd byte
8nH	kkH	40H

n = MIDI channel number:	0H-FH (ch.1-ch.16)
kk = note number:	24H-60H (36-96) * When the transpose is set to 0.

* Note off message is sent out with the velocity of 40H.

● Note on

Status	2nd bytes	3rd byte
9nH	kkH	vvH

n = MIDI channel number:	0H-FH (ch.1-ch.16)
kk = note number:	24H-60H (36-96) * When the transpose is set to 0.
vv = note on velocity:	0AH-7FH (10-127)

● Control Change

❍ Bank Select (Controller number 0, 32)

Status	2nd bytes	3rd byte
BnH	00H	mmH
BnH	20H	llH

n = MIDI channel number:	0H-FH (ch.1-ch.16) Initial Value = FH (ch.16)
mm, ll = Bank number:	00 00H - 7F 7FH (bank.1-bank.16384)

* The bank number stored in the registration will be transmitted on the control channel.

❍ Expression (Controller number 11)

Status	2nd bytes	3rd byte
BnH	0BH	vvH

n = MIDI channel number:	0H-FH (ch.1-ch.16)
vv = Expression:	00H-7FH (0-127)

* These are transmitted via the Control Channel.

❍ Hold 1 (Controller number 64)

Status	2nd bytes	3rd byte
BnH	40H	vvH

n = MIDI channel number:	0H-FH (ch.1-ch.16)
vv = Control value:	00H-7FH (0-127)

● Program Change

Status	2nd bytes
CnH	ppH

n = MIDI channel number:	0H-FH (ch.1-ch.16)
pp = Program number:	00H-7FH (prog.1-prog.128)

* Program numbers stored in the Registrations are transmitted via the Control Channel.

● Pitch Bend Range

Status	2nd bytes	3rd bytes
EnH	lIH	mmH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
pp = Program number: 00 00H-40 00H-7F 7FH (-8192 -0- +8192)

■ System Realtime Message

● Realtime Clock

Status
F8H

● Start

Status
FAH

* Transmitted when a song is started in Composer.

● Continue

Status
FBH

* Transmitted when a song is started in Composer from a point other than the beginning of the song.

● Stop

Status
FCH

* Transmitted when Composer is stopped.

● Active Sensing

Status
FEH

* This will be transmitted constantly at intervals of approximately 250 ms.

■ System Exclusive Messages

● Universal Non-realtime System Exclusive Message

❍ Identity Reply Message

Reply messages vary according to the MIDI IN mode.

(When MIDI In Mode is set to Mode 1)

Status	Data byte	Status
F0H	7EH, 10H, 06H, 02H, 41H, 42H, 00H, 00H, 1CH, 00H, 01H, 00H, 00H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
10H	Device ID
06H	Sub ID#1 (General Information)
02H	Sub ID#2 (Identity Reply)
41H	ID number (Roland)
42H	Device family code (LSB)
00H	Device family code (MSB)
00H	Device family number code (LSB)
1CH	Device family number code (MSB)
00H	Software revision level
01H	Software revision level
00H	Software revision level
00H	Software revision level
F7H	EOX (End of Exclusive)

(When MIDI In Mode is set to Mode 2 or KEYBOARD)

Status	Data byte	Status
F0H	7EH, 10H, 06H, 02H, 41H, 62H, 00H, 00H, 06H, 00H, 01H, 00H, 00H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
10H	Device ID
06H	Sub ID#1 (General Information)
02H	Sub ID#2 (Identity Reply)
41H	ID number (Roland)
62H	Device family code (LSB)
00H	Device family code (MSB)
00H	Device family number code (LSB)
06H	Device family number code (MSB)
00H	Software revision level
01H	Software revision level
00H	Software revision level
00H	Software revision level
F7H	EOX (End of Exclusive)

● System exclusive messages associated with MIDI Visual Control

❍ MIDI Visual Control ON

Status	Data byte	Status
F0H	7EH, dev, 0CH, 01H, 10H, 00H, 00H, 01H, 0FH, 0FH, sum	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
dev	Device ID (fixed at 00H)
0CH	Sub ID#1
01H	Sub ID#2
10H	Address MSB
00H	Address
00H	Address LSB
01H	Data (MIDI Visual Control ON)
0FH	Data (Clip Ctrl Rx MIDI ch: 16)
0FH	Data (ColorCtrl Rx MIDI ch: 16)
sum	Checksum
F7H	EOX (End of Exclusive)

❍ MIDI Visual Control OFF

Status	Data byte	Status
F0H	7EH, dev, 0CH, 01H, 10H, 00H, 00H, 00H, sum	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
dev	Device ID (fixed at 00H)
0CH	Sub ID#1
01H	Sub ID#2
10H	Address MSB
00H	Address
00H	Address LSB
00H	Data (MIDI Visual Control OFF)
sum	Checksum
F7H	EOX (End of Exclusive)

❍ KEYBOARD RANGE

Status	Data byte	Status
F0H	7EH, dev, 0CH, 01H, 10H, 30H, 02H, 55H, 60H, sum	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
dev	Device ID (fixed at 00H)
0CH	Sub ID#1
01H	Sub ID#2
10H	Address MSB
30H	Address
02H	Address LSB
55H	Data (Keyboard Range Lower)
60H	Data (Keyboard Range Upper)
sum	Checksum
F7H	EOX (End of Exclusive)

❍ NOTE MESSAGE ENABLED ASSIGNABLE

Status	Data byte	Status
F0H	7EH, dev, 0CH, 01H, 10H, 00H, 03H, 01H, sum	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
dev	Device ID (fixed at 00H)
0CH	Sub ID#1
01H	Sub ID#2
10H	Address MSB
00H	Address
03H	Address LSB
01H	Data (Assignable)
sum	Checksum
F7H	EOX (End of Exclusive)

❍ NOTE MESSAGE ENABLED OFF

Status	Data byte	Status
F0H	7EH, dev, 0CH, 01H, 10H, 00H, 03H, 00H, sum	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
dev	Device ID (fixed at 00H)
0CH	Sub ID#1
01H	Sub ID#2
10H	Address MSB
00H	Address
03H	Address LSB
00H	Data (OFF)
sum	Checksum
F7H	EOX (End of Exclusive)

● System exclusive messages related to V-LINK settings

❍ V-LINK ON

Status	Data byte	Status
F0H	41H, dev, 00H, 51H, 12H, 10H, 00H, 00H, 01H, 0FH, 0FH, sum	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number
dev	Device ID (fixed at 10H)
00H	Model ID#1 (DV-7PR)
51H	Model ID#2 (DV-7PR)
12H	Command ID (DT1)
10H	Address MSB
00H	Address
00H	Address LSB
01H	Data (V-LINK ON)
0FH	Data (Clip Ctrl Rx MIDI ch:16)
0FH	Data (ColorCtrl Rx MIDI ch:16)
sum	Checksum
F7H	EOX (End of Exclusive)

❍ V-LINK OFF

Status	Data byte	Status
F0H	41H, dev, 00H, 51H, 12H, 10H, 00H, 00H, 00H, sum	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number
dev	Device ID (fixed at 10H)
00H	Model ID#1 (DV-7PR)
51H	Model ID#2 (DV-7PR)
12H	Command ID (DT1)
10H	Address MSB
00H	Address
00H	Address LSB
00H	Data (V-LINK OFF)
sum	Checksum
F7H	EOX (End of Exclusive)

❍ KEYBOARD RANGE

Status	Data byte	Status
F0H	41H, dev, 00H, 51H, 12H, 10H, 30H, 02H, 55H, 60H, sum	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number
dev	Device ID (fixed at 10H)
00H	Model ID#1 (DV-7PR)
51H	Model ID#2 (DV-7PR)
12H	Command ID (DT1)
10H	Address MSB
30H	Address
02H	Address LSB
55H	Data (Keyboard Range Lower)
60H	Data (Keyboard Range Upper)
sum	Checksum
F7H	EOX (End of Exclusive)

❍ NOTE MESSAGE ENABLED ASSIGNABLE

Status	Data byte	Status
F0H	41H, dev, 00H, 51H, 12H, 10H, 00H, 03H, 02H, sum	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number
dev	Device ID (fixed at 10H)
00H	Model ID#1 (DV-7PR)
51H	Model ID#2 (DV-7PR)
12H	Command ID (DT1)
10H	Address MSB
00H	Address
03H	Address LSB
02H	Data (assignable)
sum	Checksum
F7H	EOX (End of Exclusive)

❍ NOTE MESSAGE ENABLED OFF

Status	Data byte	Status
F0H	41H, dev, 00H, 51H, 12H, 10H, 00H, 03H, 00H, sum	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number
dev	Device ID (fixed at 10H)
00H	Model ID#1 (DV-7PR)
51H	Model ID#2 (DV-7PR)
12H	Command ID (DT1)
10H	Address MSB
00H	Address
03H	Address LSB
00H	Data (OFF)
sum	Checksum
F7H	EOX (End of Exclusive)

5. Parameter Address Map

This map indicates address, size, Data (range), Parameter, Description, and Default Value of parameters which can be transferred using and "Data set 1 (DT1)."
All the numbers of address, size, Data, and Default Value are indicated in 7-bit Hexadecimal-form.

● VR-09 [Keyboard part: ModelID = 62H]

* Addresses marked at "#" cannot be used as starting addresses.

Start Address	Description
00 00 00	System
01 01 00	Upper Part Information (PIANO)
01 02 00	Upper Part Information (SYNTH DUAL2)
01 03 00	Upper Part Information (SYNTH)
01 11 00	Lower Part Information (PIANO LOWER)
01 13 00	Lower Part Information (SYNTH LOWER)
01 31 00	Upper Part Information (PIANO DUAL2)
01 41 00	DRUM Part Information
02 00 00	ORGAN Information (UPPER)
02 01 00	ORGAN Information (LOWER)
02 02 00	ORGAN Information (PEDAL)

* System

	Offset Address		Description	
	00 00	0000 0aaa	REVERB TYPE	(2, 3, 4, 5, 7) [REVERB VARIATION = 00h] 2:ROOM, 3:HALL, 5:PLATE, 7:SPRING [REVERB VARIATION = 01h] 3:CATHEDRAL, 4:STAGE
#	00 01	0aaa aaaa	REVERB LEVEL	(0 - 127)
	00 02	0000 000a	ROTARY ON/OFF	(0 - 1) OFF, ON
	00 03	0000 000a	ROTARY FAST/SLOW	(0 - 1) SLOW, FAST
	00 23	0aaa aaaa	SONG LEVEL	(0 - 127)
	00 25	0aaa aaaa	RHYTHM LEVEL	(0 - 127)
	00 29	0000 0aaa	WALL TYPE	(0 - 7) DRAPERY, CARPET, ACOUSTIC TILE, WOOD, BRICK, PLASTER, CONCRETE BLOCK, MARBLE
	00 2A	0000 000a	REVERB VARIATION	(0 - 1)
	00 2B	0000 aaaa	TRANSPOSE	(0 - 11) Ab, A, Bb, B, C, C#, D, Eb, E, F, F#, G
	00 2E	0000 aaaa	INITIAL TOUCH	(1 - 11) OFF, 1 - 10
	00 36	0000 00aa	N.CONTROL	(0 - 3) N.CONTROL 1 OFF, ON N.CONTROL 2 OFF, ON
	00 38	0000 0aaa	VIBRATO / CHORUS TYPE	(0 - 5) V-1, V-2, V-3, C-1, C-2, C-3
	00 3C	0aaa aaaa	ORGAN LEVEL	(0 - 127)
	00 3D	0000 00aa	EXPRESSION CURVE	(0 - 3)
	00 3E	00aa aaaa	D-BEAM TYPE	(0, 1, 7, 9, 12, 13, 14, 18, 19, 21 - 34) OFF, PITCH, ROTARY FAST/SLOW, MODULATION, N.CONTROL 1, N.CONTROL 2, CRASH CYMBAL, BIG GONG, WIND CHIME DOWN, VIBRASLAP, WIND WHISTLE, BIG SHOT, SMASH GLASS, WHEEL BRAKE, SCRATCH 1, SPRING SHOCK, SCRATCH 2, REVERSE CYM, TR KICK, TR CYMBAL, EXPLOSION, SCI-FI BEAM, LASER SHOT
	00 3F	0aaa aaaa	OVERDRIVE	(0 - 127)
	00 40	0aaa aaaa	ORGAN EQ HIGH	(52 - 76) -12 - +12
	00 41	0aaa aaaa	ORGAN EQ LOW	(52 - 76) -12 - +12
	00 42	0000 00aa	ORGAN TYPE	(0 - 2) JAZZ, ROCK, TRANSISTOR
	00 43	0000 000a	ROTARY TYPE	(0 - 1) TYPE 1, TYPE 2
	00 44	0aaa aaaa	ROTARY WOOFER SLOW SPEED	(0 - 127)
	00 45	0aaa aaaa	ROTARY WOOFER FAST SPEED	(0 - 127)
	00 46	0000 aaaa	ROTARY WOOFER ACCEL	(0 - 15)
	00 47	0aaa aaaa	ROTARY TWEETER SLOW SPEED	(0 - 127)
	00 48	0aaa aaaa	ROTARY TWEETER FAST SPEED	(0 - 127)
	00 49	0000 aaaa	ROTARY TWEETER ACCEL	(0 - 15)
	00 4A	0aaa aaaa	LEAKAGE LEVEL	(0 - 127)
	00 4B	000a aaaa	ON CLICK	(0 - 31)
	00 4C	000a aaaa	OFF CLICK	(0 - 31)
	00 4E	000a aaaa	PERCUSSION SOFT NORMAL	(0 - 15, 18) SOFT: 0 - 15 NORMAL: 18
	00 4F	0000 aaaa	L FOOT SWITCH	(0, 3, 4, 9 , 10, 12, 13, 14) ROTARY FAST/SLOW, RHYTHM START/STOP, SONG START/STOP, DAMPER OF UPPER, DAMPER OF LOWER, N.CONTROL 1, N.CONTROL 2, OFF
	00 50	0000 aaaa	R FOOT SWITCH	(0, 3, 4, 9 , 10, 12, 13, 14) ROTARY FAST/SLOW, RHYTHM START/STOP, SONG START/STOP, DAMPER OF UPPER, DAMPER OF LOWER, N.CONTROL 1, N.CONTROL 2, OFF
	00 51	0000 00aa	DAMPER PART	(0 - 2) to UPPER, to LOWER, to ALL
	00 57	0000 000a	WHEEL BRAKE	(0 - 1) OFF, ON
	00 5D	000a aaaa	MFX TYPE	(0 - 19) TWIN ROTARY, SMALL PHASER 1, SMALL PHASER 2, PHASER, STEP PHASER, TEMPO STEP PHASER, CHORUS, HEXA-CHORUS, FLANGER, MODULATION D, TREMOLO 1, TREMOLO 2, T.WAH 1, T.WAH 2, RING MODULATOR, BIT CRASH, DISTORTION, SLICER, TEMPO SLICER, PITCH SHIFTER
	00 5E	0aaa aaaa	MFX LEVEL	(0 - 127)
	00 5F	0000 0aaa	DELAY TYPE	(0 - 5) DELAY, TAPE ECHO, REVERSE DELAY, 3TAP PAN DELAY, TEMPO DELAY, TEMPO REVERSE DLY
	00 60	0aaa aaaa	DELAY LEVEL	(0 - 127)
	00 61	0aaa aaaa	TONE LEVEL	(0 - 127) -64 - +63
	00 62	0aaa aaaa	COMPRESSOR LEVEL	(0 - 127)

* Upper Part Information

	Offset Address		Description	
	00 00	0000 000a	MUTE	(0 - 1) OFF, MUTE
	00 01	0aaa aaaa	TONE NUMBER	(0 - 127)
#	00 02	0bbb bbbb	BANK SELECT MSB	(0 - 127)
#	00 03	0ccc cccc	BANK SELECT LSB	(0 - 127) * Refer to the Tone List (p. 15)
	00 04	0aaa aaaa	VOLUME	(0 - 127)
	00 07	0aaa aaaa	OCTAVE SHIFT	(28, 40, 52, 64, 76, 88, 100) -3 - +3
	00 3A	0aaa aaaa	CUTOFF	(0 - 127)
	00 59	0aaa aaaa	RESONANCE	(0 - 127)
	00 5A	0aaa aaaa	ATTACK	(0 - 127)
	00 5B	0aaa aaaa	DECAY	(0 - 127)
	00 5C	0aaa aaaa	RELEASE	(0 - 127)
	00 63	0000 00aa	PORTAMENTO SWITCH	(0 - 2) OFF, ON, DEFAULT
	00 64	0aaa aaaa	PORTAMENTO TIME	(0 - 127)

* Lower Part Information

	Offset Address		Description	
	00 00	0000 000a	MUTE	(0 - 1) OFF, MUTE
	00 01	0aaa aaaa	TONE NUMBER	(0 - 127)
#	00 02	0bbb bbbb	BANK SELECT MSB	(0 - 127)
#	00 03	0ccc cccc	BANK SELECT LSB	(0 - 127) * Refer to the Tone List (p. 15)
	00 04	0aaa aaaa	VOLUME	(0 - 127)
	00 07	0aaa aaaa	OCTAVE SHIFT	(28, 40, 52, 64, 76, 88, 100) -3 - +3
	00 3A	0aaa aaaa	CUTOFF	(0 - 127)
	00 59	0aaa aaaa	RESONANCE	(0 - 127)
	00 5A	0aaa aaaa	ATTACK	(0 - 127)
	00 5B	0aaa aaaa	DECAY	(0 - 127)
	00 5C	0aaa aaaa	RELEASE	(0 - 127)
	00 63	0000 00aa	PORTAMENTO SWITCH	(0 - 2) OFF, ON, DEFAULT
	00 64	0aaa aaaa	PORTAMENTO TIME	(0 - 127)

* DRUM Part Information

	Offset Address		Description	
	00 00	0000 000a	MUTE	(0 - 1) OFF, MUTE
	00 01	0aaa aaaa	TONE NUMBER	(0 - 127)
#	00 02	0bbb bbbb	BANK SELECT MSB	(0 - 127)
#	00 03	0ccc cccc	BANK SELECT LSB	(0 - 127) * Refer to the Tone List (p. 15)
	00 04	0aaa aaaa	VOLUME	(0 - 127)

* ORGAN Information

	Offset Address		Description	
	00 00	0000 000a	MUTE	(0 - 1) OFF, MUTE
			* This affects all Organ regardless of the organ part number.	
	00 03	0000 aaaa	LEVEL 16'	(0 - 8)
	00 04	0000 aaaa	LEVEL 5 1/3'	(0 - 8)
	00 05	0000 aaaa	LEVEL 8'	(0 - 8)
	00 06	0000 aaaa	LEVEL 4'	(0 - 8)

00 07	0000 aaaa	LEVEL 2 2/3’	(0 - 8)
00 08	0000 aaaa	LEVEL 2’	(0 - 8)
00 09	0000 aaaa	LEVEL 1 3/5’	(0 - 8)
00 0A	0000 aaaa	LEVEL 1 1/3’	(0 - 8)
00 0B	0000 aaaa	LEVEL 1’	(0 - 8)
00 0D	0aaa aaaa	PERCUSSION	(0, 1, 2, 65, 66)
			OFF, 2ND/SHORT, 3RD/SHORT, 2ND/LONG, 3RD/LONG
		* This is valid only for the upper part.	
00 37	0000 000a	VIBRATO / CHORUS SWITCH	(0 - 1)
			OFF, ON

●VR-09 [Keyboard part (synth section): ModelID = 00H 00H 71H]

* In the case of addresses marked by #, the data is divided into multiple pieces for transmission. For example, hexadecimal data ABH would be divided into 0AH and 0BH, and transmitted and received in that order.
* Addresses and parameters marked by <*> will be ignored even if received by the VR-09.

Start Address	Description
18 00 00 00	Temporary Synth Set
19 21 00 00	Temporary Synth Tone (Upper 2)
19 41 00 00	Temporary Synth Tone (Upper 1)
1A 21 00 00	Temporary Synth Tone (Lower)

* Synth Set

Offset Address	Description
00 21 00	Synth Set Part (Upper 2)
00 22 00	Synth Set Part (Upper 1)
00 25 00	Synth Set Part (Lower)

* Synth Tone

Offset Address	Description
00 00 00	Synth Tone Common
00 01 00	Synth Tone Partial (1)
00 02 00	Synth Tone Partial (2)
00 03 00	Synth Tone Partial (3)

* Synth Set Part

Offset Address		Description	
00 00	0000 000a	(reserve) <*>	
00 01	0000 000a	(reserve) <*>	
00 02	0000 000a	(reserve) <*>	
00 03	0000 000a	(reserve) <*>	
00 04	0000 000a	(reserve) <*>	
00 05	0000 000a	(reserve) <*>	
00 06	0aaa aaaa	Tone Bank Select MSB (CC# 0)	(0 - 127)
00 07	0aaa aaaa	Tone Bank Select LSB (CC# 32)	(0 - 127)
00 08	0aaa aaaa	Tone Program Number (PC)	(0 - 127)
00 00 00 09		Total Size	

* Synth Tone Common

Offset Address		Description	
00 00	0aaa aaaa	Tone Name 1	(32 - 127) 32 - 127 [ASCII]
00 01	0aaa aaaa	Tone Name 2	(32 - 127) 32 - 127 [ASCII]
00 02	0aaa aaaa	Tone Name 3	(32 - 127) 32 - 127 [ASCII]
00 03	0aaa aaaa	Tone Name 4	(32 - 127) 32 - 127 [ASCII]
00 04	0aaa aaaa	Tone Name 5	(32 - 127) 32 - 127 [ASCII]
00 05	0aaa aaaa	Tone Name 6	(32 - 127) 32 - 127 [ASCII]
00 06	0aaa aaaa	Tone Name 7	(32 - 127) 32 - 127 [ASCII]
00 07	0aaa aaaa	Tone Name 8	(32 - 127) 32 - 127 [ASCII]
00 08	0aaa aaaa	Tone Name 9	(32 - 127) 32 - 127 [ASCII]
00 09	0aaa aaaa	Tone Name 10	(32 - 127) 32 - 127 [ASCII]
00 0A	0aaa aaaa	Tone Name 11	(32 - 127) 32 - 127 [ASCII]
00 0B	0aaa aaaa	Tone Name 12	(32 - 127) 32 - 127 [ASCII]
00 0C	0aaa aaaa	Tone Level	(0 - 127)
# 00 0D	0000 aaaa 0000 bbbb 0000 cccc		
00 10	0000 000a	(reserve) <*>	
00 11	0000 000a	(reserve) <*>	
00 12	0000 000a	Portamento Switch	(0 - 1) OFF, ON
00 13	0aaa aaaa	Portamento Time	(0 - 127)
00 14	0000 00aa	Mono/Poly	(0 - 1) POLY, MONO
00 15	0000 0aaa	(reserve) <*>	
00 16	000a aaaa	(reserve) <*>	
00 17	000a aaaa	(reserve) <*>	
00 18	0000 0aaa	(reserve) <*>	
00 19	0000 000a	Partial1 Switch	(0 - 1) OFF, ON
00 1A	0000 000a	Partial1 Select	(0 - 1) OFF, ON
00 1B	0000 000a	Partial2 Switch	(0 - 1) OFF, ON
00 1C	0000 000a	Partial2 Select	(0 - 1) OFF, ON
00 1D	0000 000a	Partial3 Switch	(0 - 1) OFF, ON
00 1E	0000 000a	Partial3 Select	(0 - 1) OFF, ON
00 1F	0000 00aa	RING Switch	(0 - 2) OFF, ---, ON
00 20	0000 000a	(reserve) <*>	
00 21	0000 00aa	(reserve) <*>	
00 22	0000 000a	(reserve) <*>	
00 23	0000 000a	(reserve) <*>	
00 24	00aa aaaa	(reserve) <*>	
00 25	0000 000a	(reserve) <*>	
00 26	0000 000a	(reserve) <*>	
00 27	0000 000a	(reserve) <*>	
00 28	0000 000a	(reserve) <*>	
00 29	0000 000a	(reserve) <*>	
00 2A	0000 000a	(reserve) <*>	
00 2B	0000 000a	(reserve) <*>	
00 2C	0000 000a	(reserve) <*>	
00 2D	0000 000a	(reserve) <*>	
00 2E	0000 000a	Unison Switch	(0 - 1) OFF, ON
00 2F	0000 000a	(reserve) <*>	
00 30	0000 000a	(reserve) <*>	
00 31	0000 000a	(reserve) <*>	
00 32	0000 000a	(reserve) <*>	OFF, ON
00 33	0000 000a	(reserve) <*>	
00 34	0aaa aaaa	(reserve) <*>	
00 35	0aaa aaaa	Wave Shape	(0 - 127)
00 36	0aaa aaaa	Tone Category	(0 - 127)
# 00 37	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	(reserve) <*>	
00 3B	0000 0aaa	(reserve) <*>	
00 3C	0000 00aa	Unison Size	(0 - 3) 2, 4, 6, 8
00 3D	0aaa aaaa	(reserve) <*>	
00 3E	0aaa aaaa	(reserve) <*>	
00 3F	0aaa aaaa	(reserve) <*>	
00 00 00 40		Total Size	

* Synth Tone Partial

Offset Address		Description	
00 00	0000 0aaa	OSC Wave	(0 - 7) SAW, SQR, PW-SQR, TRI, SINE, NOISE, SUPER-SAW, PCM
00 01	00aa aaaa	OSC Wave Variation	(0 - 2) A, B, C
00 02	0000 00aa	(reserve) <*>	
00 03	00aa aaaa	OSC Pitch	(40 - 88) -24 - +24
00 04	0aaa aaaa	OSC Detune	(14 - 114) -50 - +50
00 05	0aaa aaaa	OSC Pulse Width Mod Depth	(0 - 127)
00 06	0aaa aaaa	OSC Pulse Width	(0 - 127)
00 07	0aaa aaaa	OSC Pitch Env Attack Time	(0 - 127)
00 08	0aaa aaaa	OSC Pitch Env Decay	(0 - 127)
00 09	0aaa aaaa	OSC Pitch Env Depth	(1 - 127) -63 - +63
00 0A	0000 0aaa	FILTER Mode	(0 - 4) BYPASS, LPF, HPF, BPF, PKG
00 0B	0000 000a	FILTER Slope	(0 - 1) -12, -24 [dB]
00 0C	0aaa aaaa	FILTER Cutoff	(0 - 127)
00 0D	00aa aaaa	FILTER Cutoff Keyfollow	(54 - 74) -100 - +100
00 0E	0aaa aaaa	(reserve) <*>	
00 0F	0aaa aaaa	FILTER Resonance	(0 - 127)

	00 10	0aaa aaaa	FILTER Env Attack Time (0 - 127)
	00 11	0aaa aaaa	FILTER Env Decay Time (0 - 127)
	00 12	0aaa aaaa	FILTER Env Sustain Level (0 - 127)
	00 13	0aaa aaaa	FILTER Env Release Time (0 - 127)
	00 14	0aaa aaaa	FILTER Env Depth (1 - 127) -63 - +63
	00 15	0aaa aaaa	AMP Level (0 - 127)
	00 16	0aaa aaaa	AMP Level Velocity Sens (1 - 127) -63 - +63
	00 17	0aaa aaaa	AMP Env Attack Time (0 - 127)
	00 18	0aaa aaaa	AMP Env Decay Time (0 - 127)
	00 19	0aaa aaaa	AMP Env Sustain Level (0 - 127)
	00 1A	0aaa aaaa	AMP Env Release Time (0 - 127)
	00 1B	0aaa aaaa	AMP Pan (0 - 127) L64 - 63R
	00 1C	0000 0aaa	LFO Shape (0 - 5) TRI, SIN, SAW, SQR, S&H, RND
	00 1D	0aaa aaaa	LFO Rate (0 - 127)
	00 1E	0000 000a	LFO Tempo Sync Switch (0 - 1) OFF, ON
	00 1F	000a aaaa	LFO Tempo Sync Note (0 - 19) 16, 12, 8, 4, 2, 1, 3/4, 2/3, 1/2, 3/8, 1/3, 1/4, 3/16, 1/6, 1/8, 3/32, 1/12, 1/16, 1/24, 1/32
	00 20	0aaa aaaa	LFO Fade Time (0 - 127)
	00 21	0000 000a	(reserve) <*>
	00 22	0aaa aaaa	LFO Pitch Depth (1 - 127) -63 - +63
	00 23	0aaa aaaa	LFO FILTER Depth (1 - 127) -63 - +63
	00 24	0aaa aaaa	LFO AMP Depth (1 - 127) -63 - +63
	00 25	0aaa aaaa	(reserve) <*>
	00 26	0000 0aaa	Modulation LFO Shape (0 - 5) TRI, SIN, SAW, SQR, S&H, RND
	00 27	0aaa aaaa	Modulation LFO Rate (0 - 127)
	00 28	0000 000a	Modulation LFO Tempo Sync Switch (0 - 1) OFF, ON
	00 29	000a aaaa	Modulation LFO Tempo Sync Note (0 - 19) 16, 12, 8, 4, 2, 1, 3/4, 2/3, 1/2, 3/8, 1/3, 1/4, 3/16, 1/6, 1/8, 3/32, 1/12, 1/16, 1/24, 1/32
	00 2A	0aaa aaaa	(reserve) <*>
	00 2B	0000 000a	(reserve) <*>
	00 2C	0aaa aaaa	Modulation LFO Pitch Depth (1 - 127) -63 - +63
	00 2D	0aaa aaaa	Modulation LFO FILTER Depth (1 - 127) -63 - +63
	00 2E	0aaa aaaa	Modulation LFO AMP Depth (1 - 127) -63 - +63
	00 2F	0aaa aaaa	(reserve) <*>
	00 30	0aaa aaaa	(reserve) <*>
	00 31	0aaa aaaa	(reserve) <*>
	00 32	0aaa aaaa	(reserve) <*>
	00 33	0aaa aaaa	(reserve) <*>
	00 34	0000 00aa	(reserve) <*>
#	00 35	0000 aaaa 0000 bbbb 0000 cccc 0000 dddd	Wave Number (0 - 16384) OFF, 1 - 16384
	00 39	0aaa aaaa	(reserve) <*>
	00 3A	0aaa aaaa	Super Saw Detune (0 - 127)
	00 3B	0aaa aaaa	Modulation LFO Rate Control (1 - 127) -63 - +63
	00 3C	000a aaaa	(reserve) <*>
	00 00 00 3D	Total Size	

6. Supplementary Material

● Decimal and Hexadecimal Table

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.

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 (1) greater than the values given in the above table.
* A 7-bits byte 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-bits bytes would indicate a value of aa x 128 + bb.
* In the case of values which have a ± sign, 00H = -64, 40H = ±0, and 7FH = +63, so that the decimal expression would be 64 less than the value given in the above chart. In the case of two types, 00 00H = -8192, 40 00H = ±0, and 7F 7FH = +8191. For example if aa bbH were expressed as decimal, this would be aa bbH - 40 00H = aa x 128 + bb - 64 x 128.
* Data marked "nibbled" is expressed in hexadecimal in 4-bits units. A value expressed as a 2-byte nibble 0a 0bH has the value of a x 16 + b.

<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 12H = 18 and 34H = 52
18 x 128 + 52 = 2356

<Example 3>
What is the decimal expression of the nibbled value 0A 03 09 0D?
From the preceding table, since 0AH = 10, 03H = 3, 09H = 9, 0DH = 13
((10 x 16 + 3) x 16 + 9) x 16 + 13 = 41885

<Example 4>
What is the nibbled expression of the decimal value 1258?

```
16) 1258
16)   78... 10
16)    4... 14
        0... 4
```

Since from the preceding table, 0 = 00H, 4 = 04H, 14 = 0EH, 10 = 0AH, the answer is 00 04 0E 0AH.

● 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> CE 49
CnH is the Program Change status, and n is the MIDI channel number. Since EH = 14 and 49H = 73, this is a Program Change message with MIDI CH = 15, program number 74.

<Example 3> EA 00 28
EnH is the Pitch Bend Change status, and n is the MIDI channel number. The 2nd byte (00H = 0) is the LSB and the 3rd byte (28H = 40) is the MSB, but Pitch Bend Value is a signed number in which 40 00H (= 64 x 128 + 0 = 8192) is 0, so this Pitch Bend Value is 28 00H - 40 00H = 40 x 128 + 0 - (64 x 128 + 0) = 5120 - 8192 = -3072

If the Pitch Bend Sensitivity is set to 2 semitones, -8192 (00 00H) will cause the pitch to change 200 cents, so in this case -200 x (-3072) / (-8192) = -75 cents of Pitch Bend is being applied to MIDI channel 11.

<Example 4> B3 64 00 65 00 06 0C 26 00 64 7F 65 7F
BnH is the Control Change status, and n is the MIDI channel number. For Control Changes, the 2nd byte is the controller number, and the 3rd byte is the value. In a case in which two or more messages consecutive messages have the same status, MIDI has a provision called "running status" which allows the status byte of the second and following messages to be omitted. Thus, the above messages have the following meaning.

B3	64 00	MIDI ch.4, lower byte of RPN parameter number: 00H
(B3)	65 00	(MIDI ch.4) upper byte of RPN parameter number: 00H
(B3)	06 0C	(MIDI ch.4) upper byte of parameter value: 0CH
(B3)	26 00	(MIDI ch.4) lower byte of parameter value: 00H
(B3)	64 7F	(MIDI ch.4) lower byte of RPN parameter number: 7FH
(B3)	65 7F	(MIDI ch.4) upper byte of RPN parameter number: 7FH

In other words, the above messages specify a value of 0C 00H for RPN parameter number 00 00H on MIDI channel 4, and then set the RPN parameter number to 7F 7FH.

RPN parameter number 00 00H is Pitch Bend Sensitivity, and the MSB of the value indicates semitone units, so a value of 0CH = 12 sets the maximum pitch bend range to +/- 12 semitones (1 octave).

Once the parameter number has been specified for RPN or NRPN, all Data Entry messages transmitted on that same channel will be valid, so after the desired value has been transmitted, it is a good idea to set the parameter number to 7F 7FH to prevent accidents. This is the reason for the (B3) 64 7F (B3) 65 7F at the end.

It is not desirable for performance data (such as Standard MIDI File data) to contain many events with running status as given in <Example 4>. This is because if playback is halted during the song and then rewound or fast-forwarded, the sequencer may not be able to transmit the correct status, and the sound source will then misinterpret the data. Take care to give each event its own status.

It is also necessary that the RPN or NRPN parameter number setting and the value setting be done in the proper order. On some sequencers, events occurring in the same (or consecutive) clock may be transmitted in an order different than the order in which they were received. For this reason it is a good idea to slightly skew the time of each event (about 1 tick for TPQN = 96, and about 5 ticks for TPQN = 480).

* TPQN: Ticks Per Quarter Note

● Example of an Exclusive Message and Calculating a Checksum

Roland Exclusive messages are transmitted with a checksum at the end (before F7) to make sure that the message was correctly received. The value of the checksum is determined by the address and data (or size) of the transmitted exclusive message.

❍ How to Calculate the Checksum (Hexadecimal Numbers are Indicated by 'H')

The checksum is a value derived by adding the address, size 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 ccH and the data or size is dd ee ffH.

aa + bb + cc + dd + ee + ff = sum
sum / 128 = quotient ... remainder
128 - remainder = checksum
(However, the checksum will be 0 if the remainder is 0.)

<Example> With "JP8 Brass" set as the SYNTH tone

* Keyboard part tone settings are enabled when MIDI IN Mode is set to MODE 2.

According to the "Parameter Address Map," since the address for the tone number in the upper part information for the VR-09 [Keyboard part] is 01 0p 01H and the SYNTH Part Offset Value is p = 3, the address is then 01 03 01H. Since the tone map (Keyboard part) gives TONE NUMBER = 59H, BANK SELECT MSB = 01H, BANK SELECT LSB = 00H for the "JP8 Brass" tone number, (we get the following):

F0	41	10	62	12	01 03 01	59 01 00	??	F7
(1)	(2)	(3)	(4)	(5)	Address	data	Checksum	(6)

(1) Exclusive Status, (2) ID (Roland), (3) Device ID (17), (4) Model ID, (5) Command ID (DT1), (6) End of Exclusive

Next we calculate the checksum.

01H + 03H + 01H + 59H + 01H + 00H = 1 + 3 + 1 + 89 + 1 + 0 = 95 (sum)
95 (sum) / 128 = 0 (quotient) ... 95 (remainder)
checksum = 128 - 95 (remainder) = 33 = 21H

This means that F0 41 10 62 12 01 03 01 59 01 00 21 F7 is the message we transmit.

● About Tuning

In MIDI, individual Parts are tuned by sending RPN #1 (Master Fine Tuning) to the appropriate MIDI channel.
In MIDI, an entire device is tuned by either sending RPN #1 to all MIDI channels being used, or by sending a System Exclusive MASTER TUNE (address 40 00 00H).
RPN #1 allows tuning to be specified in steps of approximately 0.012 cents (to be precise, 100/8192 cent), and System Exclusive MASTER TUNE allows tuning in steps of 0.1 cent. One cent is 1/100th of a semitone.
The values of RPN #1 (Master Fine Tuning) and System Exclusive MASTER TUNE are added together to determine the actual pitch sounded by each Part.

Frequently used tuning values are given in the following table for your reference.
Values are in hexadecimal (decimal in parentheses).

Hz in A4	cent	RPN #1	Sys.Ex. 40 00 00
445.0	+19.56	4C 43 (+1603)	00 04 0C 04 (+196)
444.0	+15.67	4A 03 (+1283)	00 04 09 0D (+157)
443.0	+11.76	47 44 (+ 964)	00 04 07 06 (+118)
442.0	+7.85	45 03 (+ 643)	00 04 04 0F (+ 79)
441.0	+3.93	42 42 (+ 322)	00 04 02 07 (+ 39)
440.0	0.00	40 00 (0)	00 04 00 00 (0)
439.0	-3.94	3D 3D (- 323)	00 03 0D 09 (- 39)
438.0	-7.89	3A 7A (- 646)	00 03 0B 01 (- 79)

<Example> Set the tuning of MIDI channel 3 to A4 = 442.0 Hz
Send RPN#1 to MIDI channel 3. From the above table, the value is 45 03H.

B2	64 00	MIDI ch.3, lower byte of RPN parameter number: 00H
(B2)	65 01	(MIDI ch.3) upper byte of RPN parameter number: 01H
(B2)	06 45	(MIDI ch.3) upper byte of parameter value: 45H
(B2)	26 03	(MIDI ch.3) lower byte of parameter value: 03H
(B2)	64 7F	(MIDI ch.3) lower byte of RPN parameter number: 7FH
(B2)	65 7F	(MIDI ch.3) upper byte of RPN parameter number: 7FH

7. Tone List

* Values are in decimal (hexadecimal in parentheses).

● Piano Section

Tone Name	PC# (Tone Number)	CC0 (Bank Select MSB)	CC32 (Bank Select LSB)
[PIANO]			
GrandPianoV	57 (38h)	6 (06h)	0 (00h)
Grand Piano	57 (38h)	2 (02h)	0 (00h)
GrandPianoV2	57 (38h)	7 (07h)	0 (00h)
Rock Piano	80 (4Fh)	1 (01h)	0 (00h)
Mono Piano	80 (4Fh)	3 (03h)	0 (00h)
JD Piano	80 (4Fh)	2 (02h)	0 (00h)
SA Piano	80 (4Fh)	4 (04h)	0 (00h)
Honky-tonk	58 (39h)	0 (00h)	0 (00h)
Echo Piano	57 (38h)	10 (0Ah)	0 (00h)
European Pno	57 (38h)	9 (09h)	0 (00h)
Classic Pno	57 (38h)	8 (08h)	0 (00h)
[E.PIANO]			
Vintage EP	59 (3Ah)	6 (06h)	0 (00h)
Stone EP	59 (3Ah)	13 (0Dh)	0 (00h)
Tremolo EP	59 (3Ah)	14 (0Eh)	0 (00h)
Dyno E.Piano	59 (3Ah)	3 (03h)	0 (00h)
'60s E.Piano	59 (3Ah)	5 (05h)	0 (00h)
'60s TremEP	59 (3Ah)	12 (0Ch)	0 (00h)
FM EP 1	60 (3Bh)	2 (02h)	0 (00h)
FM EP 2	60 (3Bh)	3 (03h)	0 (00h)
80's EP	60 (3Bh)	4 (04h)	0 (00h)
[CLAV]			
Clav 1	81 (50h)	3 (03h)	0 (00h)
Clav 2	81 (50h)	4 (04h)	0 (00h)
Phase Clav 1	81 (50h)	6 (06h)	0 (00h)
T-Wah Clav	81 (50h)	9 (09h)	0 (00h)
Comp Clav	81 (50h)	10 (0Ah)	0 (00h)
BrillClav DB	81 (50h)	1 (01h)	0 (00h)
Pulse Clav	81 (50h)	8 (08h)	0 (00h)
Phase Clav 2	81 (50h)	7 (07h)	0 (00h)
Clav 3	81 (50h)	2 (02h)	0 (00h)
Velo Clav	81 (50h)	5 (05h)	0 (00h)
[OTHERS]			
Harmonderca	74 (49h)	4 (04h)	0 (00h)
BluesHarp	74 (49h)	5 (05h)	0 (00h)
Accordion	73 (48h)	5 (05h)	0 (00h)
Fr Musset	73 (48h)	1 (01h)	0 (00h)
La Seine	73 (48h)	8 (08h)	0 (00h)
Bandoneon	86 (55h)	0 (00h)	0 (00h)
OrganBell	48 (2Fh)	14 (0Eh)	0 (00h)
Fantasy	48 (2Fh)	9 (09h)	0 (00h)
HarpsiSingle	67 (42h)	1 (01h)	0 (00h)
HarpsiDouble	67 (42h)	2 (02h)	0 (00h)
Celesta	82 (51h)	0 (00h)	0 (00h)
Harp	68 (43h)	0 (00h)	0 (00h)
Hard Organ	13 (0Ch)	0 (00h)	0 (00h)
Mad Organ	14 (0Dh)	0 (00h)	0 (00h)
Pipe Organ1	21 (14h)	0 (00h)	0 (00h)
Pipe Organ2	22 (15h)	0 (00h)	0 (00h)
Pipe Organ3	26 (19h)	0 (00h)	0 (00h)
Gospel Or.1	27 (1Ah)	0 (00h)	0 (00h)
Gospel Or.2	28 (1Bh)	0 (00h)	0 (00h)
Gospel Or.3	32 (1Fh)	0 (00h)	0 (00h)

● Synthesizer Section

Tone Name	PC# (Tone Number)	CC0 (Bank Select MSB)	CC32 (Bank Select LSB)
[BRASS]			
JP8 Brass	90 (59h)	1 (01h)	0 (00h)
80s Brs 1	90 (59h)	4 (04h)	0 (00h)
Hybrid Brass	90 (59h)	8 (08h)	0 (00h)
JUNO Brs	90 (59h)	2 (02h)	0 (00h)
Soft Syn Brs	90 (59h)	6 (06h)	0 (00h)
ResoSweepBrs	90 (59h)	5 (05h)	0 (00h)
Jmp Brass	90 (59h)	9 (09h)	0 (00h)
80s Brs 2	90 (59h)	3 (03h)	0 (00h)
Analog Brs	90 (59h)	7 (07h)	0 (00h)
FS Brass	66 (41h)	5 (05h)	0 (00h)
StackTp Sect	65 (40h)	15 (0Fh)	0 (00h)
Tp/TbSecStac	66 (41h)	6 (06h)	0 (00h)
N.Trumpet	95 (5Eh)	9 (09h)	0 (00h)
Classical Tp	95 (5Eh)	10 (0Ah)	0 (00h)
Mute Tp	96 (5Fh)	5 (05h)	0 (00h)
Harmon Mute	96 (5Fh)	6 (06h)	0 (00h)
Cup Mute Tp	96 (5Fh)	2 (02h)	0 (00h)
Solo Tb	105 (68h)	6 (06h)	0 (00h)
Soft Tb	105 (68h)	5 (05h)	0 (00h)
N.Alto Sax	97 (60h)	6 (06h)	0 (00h)
Blow Sax	97 (60h)	2 (02h)	0 (00h)
Soprano Sax	106 (69h)	0 (00h)	0 (00h)
F.Horns Sect	89 (58h)	10 (0Ah)	0 (00h)
[STRINGS]			
JP8 Strings1	45 (2Ch)	2 (02h)	0 (00h)
JP8 Strings2	45 (2Ch)	3 (03h)	0 (00h)
Syn Strings1	45 (2Ch)	13 (0Dh)	0 (00h)
Syn Strings2	45 (2Ch)	14 (0Eh)	0 (00h)
JUNO Str 1	45 (2Ch)	4 (04h)	0 (00h)
JUNO Str 2	45 (2Ch)	5 (05h)	0 (00h)
OB Strings	45 (2Ch)	6 (06h)	0 (00h)
Vintage	45 (2Ch)	7 (07h)	0 (00h)
Oct Str	45 (2Ch)	8 (08h)	0 (00h)
Brite Str	45 (2Ch)	9 (09h)	0 (00h)
Digi Str	45 (2Ch)	10 (0Ah)	0 (00h)
Hybrid Str	45 (2Ch)	11 (0Bh)	0 (00h)
Phase Str	45 (2Ch)	12 (0Ch)	0 (00h)
Full Strings	42 (29h)	5 (05h)	0 (00h)
Dyn Strings	42 (29h)	4 (04h)	0 (00h)
Slow Strings	43 (2Ah)	4 (04h)	0 (00h)
Mood Strings	43 (2Ah)	3 (03h)	0 (00h)
Pizzicato	56 (37h)	0 (00h)	0 (00h)
Violin	93 (5Ch)	6 (06h)	0 (00h)
Cello	94 (5Dh)	0 (00h)	0 (00h)
[CHOIR]			
Vox Pad 1	53 (34h)	7 (07h)	0 (00h)
HyperVentChr	53 (34h)	11 (0Bh)	0 (00h)
JD80 SoftVox	53 (34h)	6 (06h)	0 (00h)
Vox Pad 2	53 (34h)	8 (08h)	0 (00h)
Vox Pad 3	53 (34h)	10 (0Ah)	0 (00h)
Syn Vox 1	53 (34h)	5 (05h)	0 (00h)
Vox Pad 4	53 (34h)	9 (09h)	0 (00h)
VP-330 Chr	51 (32h)	3 (03h)	0 (00h)
Jazz Scat	50 (31h)	1 (01h)	0 (00h)
Jazz Doo	50 (31h)	2 (02h)	0 (00h)
Classical	49 (30h)	2 (02h)	0 (00h)
Gregorian	49 (30h)	1 (01h)	0 (00h)
Choir	49 (30h)	0 (00h)	0 (00h)
[SYNTH LEAD]			
Saw Lead 1	112 (6Fh)	11 (0Bh)	0 (00h)
Super Saw Ld	112 (6Fh)	13 (0Dh)	0 (00h)
Pure Lead	111 (6Eh)	6 (06h)	0 (00h)
Sine Lead 1	111 (6Eh)	15 (0Fh)	0 (00h)
Sky Bit	112 (6Fh)	6 (06h)	0 (00h)
Punker	64 (3Fh)	10 (0Ah)	0 (00h)
Fat GR Lead	111 (6Eh)	14 (0Eh)	0 (00h)
OSC-SyncLd1	112 (6Fh)	3 (03h)	0 (00h)
OSC-SyncLd2	112 (6Fh)	2 (02h)	0 (00h)
Saw Lead 2	111 (6Eh)	8 (08h)	0 (00h)
Saw Lead 3	112 (6Fh)	10 (0Ah)	0 (00h)
Square Lead1	111 (6Eh)	12 (0Ch)	0 (00h)
Square Lead2	111 (6Eh)	13 (0Dh)	0 (00h)
Pulse Lead	111 (6Eh)	11 (0Bh)	0 (00h)
LP Dist	64 (3Fh)	8 (08h)	0 (00h)
FS Plugged	64 (3Fh)	9 (09h)	0 (00h)
Pure Square	112 (6Fh)	12 (0Ch)	0 (00h)
Trance Key	110 (6Dh)	14 (0Eh)	0 (00h)
Bit Poly 1	112 (6Fh)	9 (09h)	0 (00h)
Bit Poly 2	112 (6Fh)	5 (05h)	0 (00h)
Tekno Lead	112 (6Fh)	4 (04h)	0 (00h)
Saws Key	110 (6Dh)	5 (05h)	0 (00h)
Super Saws	111 (6Eh)	10 (0Ah)	0 (00h)
Poly Slice	112 (6Fh)	8 (08h)	0 (00h)
Poly Syn 1	110 (6Dh)	6 (06h)	0 (00h)
Poly Syn 2	110 (6Dh)	7 (07h)	0 (00h)
Poly Syn 3	110 (6Dh)	8 (08h)	0 (00h)
Wire String	110 (6Dh)	9 (09h)	0 (00h)
Cutter Key	110 (6Dh)	10 (0Ah)	0 (00h)
Digi Key 1	110 (6Dh)	11 (0Bh)	0 (00h)
Digi Key 2	110 (6Dh)	12 (0Ch)	0 (00h)
J-Pop Kira	110 (6Dh)	13 (0Dh)	0 (00h)
Sqr Key	110 (6Dh)	15 (0Fh)	0 (00h)
JP80 SynHarp	48 (2Fh)	13 (0Dh)	0 (00h)
Bell Key	48 (2Fh)	15 (0Fh)	0 (00h)
AnalogBell 1	48 (2Fh)	11 (0Bh)	0 (00h)
AnalogBell 2	48 (2Fh)	12 (0Ch)	0 (00h)
Pipe Key	53 (34h)	12 (0Ch)	0 (00h)
SEQ 1	111 (6Eh)	7 (07h)	0 (00h)
SEQ 2	111 (6Eh)	5 (05h)	0 (00h)
Crossfire	111 (6Eh)	9 (09h)	0 (00h)
Bodyart	112 (6Fh)	7 (07h)	0 (00h)
[SYNTH PAD]			
Soft Pad 1	47 (2Eh)	8 (08h)	0 (00h)
Str Pad	46 (2Dh)	10 (0Ah)	0 (00h)
Atk Pad	46 (2Dh)	11 (0Bh)	0 (00h)
Heaven Pad	47 (2Eh)	10 (0Ah)	0 (00h)
Sweep Pad	48 (2Fh)	5 (05h)	0 (00h)
Dreaming	48 (2Fh)	10 (0Ah)	0 (00h)
Stone Pad	48 (2Fh)	3 (03h)	0 (00h)
Syn Pad 1	47 (2Eh)	14 (0Eh)	0 (00h)
JP8 Hollow	47 (2Eh)	11 (0Bh)	0 (00h)

Tone Name	PC# (Tone Number)	CC0 (Bank Select MSB)	CC32 (Bank Select LSB)
Soft Pad 2	47 (2Eh)	7 (07h)	0 (00h)
Soft Pad 3	47 (2Eh)	6 (06h)	0 (00h)
JP8 Stone	48 (2Fh)	4 (04h)	0 (00h)
Organ Pad	47 (2Eh)	9 (09h)	0 (00h)
Glass Pad	47 (2Eh)	12 (0Ch)	0 (00h)
Slow Pad	47 (2Eh)	15 (0Fh)	0 (00h)
Syn Pad 2	47 (2Eh)	13 (0Dh)	0 (00h)
Trance Pad	48 (2Fh)	6 (06h)	0 (00h)
5th Pad	48 (2Fh)	7 (07h)	0 (00h)
LFO Hollow	48 (2Fh)	8 (08h)	0 (00h)
[BASS]			
Syn Bass	124 (7Bh)	3 (03h)	0 (00h)
MG Bass	124 (7Bh)	2 (02h)	0 (00h)
Fat Analog	124 (7Bh)	11 (0Bh)	0 (00h)
Detune Bs 1	124 (7Bh)	5 (05h)	0 (00h)
PWM Bass	125 (7Ch)	2 (02h)	0 (00h)
Unison Bs	124 (7Bh)	7 (07h)	0 (00h)
Monster Bs	124 (7Bh)	12 (0Ch)	0 (00h)
Finger Bs	119 (76h)	5 (05h)	0 (00h)
RichFretless	119 (76h)	7 (07h)	0 (00h)
N.AcousticBs	118 (75h)	6 (06h)	0 (00h)
Detune Bs 2	124 (7Bh)	14 (0Eh)	0 (00h)
Detune Bs 3	124 (7Bh)	15 (0Fh)	0 (00h)
Low Bass	124 (7Bh)	10 (0Ah)	0 (00h)
FM Bass	124 (7Bh)	4 (04h)	0 (00h)
P5 Bass	124 (7Bh)	6 (06h)	0 (00h)
Camblast	124 (7Bh)	8 (08h)	0 (00h)
Reso Bs	124 (7Bh)	9 (09h)	0 (00h)
Carmelcorn	124 (7Bh)	13 (0Dh)	0 (00h)
Fretless Bs	119 (76h)	6 (06h)	0 (00h)
Picked Bs	120 (77h)	2 (02h)	0 (00h)
Slap Bass	120 (77h)	3 (03h)	0 (00h)
Chicken Bass	120 (77h)	4 (04h)	0 (00h)
[SFX]			
FX 1	88 (57h)	8 (08h)	0 (00h)
FX 2	88 (57h)	9 (09h)	0 (00h)
FX 3	88 (57h)	3 (03h)	0 (00h)
FX 4	88 (57h)	7 (07h)	0 (00h)
FX 5	88 (57h)	12 (0Ch)	0 (00h)
FX 6	88 (57h)	1 (01h)	0 (00h)
FX 7	88 (57h)	2 (02h)	0 (00h)
FX 8	88 (57h)	4 (04h)	0 (00h)
FX 9	88 (57h)	5 (05h)	0 (00h)
FX 10	88 (57h)	6 (06h)	0 (00h)
FX 11	88 (57h)	10 (0Ah)	0 (00h)
Sci-Fi Sweep	88 (57h)	11 (0Bh)	0 (00h)
Hover Dive	88 (57h)	13 (0Dh)	0 (00h)
Orch Hit	128 (7Fh)	6 (06h)	0 (00h)
Philly Hit	128 (7Fh)	7 (07h)	0 (00h)
House Hit	128 (7Fh)	8 (08h)	0 (00h)
[OTHERS]			
Vibraphone	69 (44h)	0 (00h)	0 (00h)
Marimba	70 (45h)	0 (00h)	0 (00h)
Glockenspiel	83 (52h)	0 (00h)	0 (00h)
Xylophone	84 (53h)	0 (00h)	0 (00h)
Steel Drums	92 (5Bh)	0 (00h)	0 (00h)
JC E.Guitar	63 (3Eh)	2 (02h)	0 (00h)
Muted Guitar	64 (3Fh)	4 (04h)	0 (00h)
Steel-str.Gt	62 (3Dh)	0 (00h)	0 (00h)
Jazz Guitar	63 (3Eh)	0 (00h)	0 (00h)
Nylon-str.Gt	61 (3Ch)	0 (00h)	0 (00h)
Ac.Gtr Sld	62 (3Dh)	3 (03h)	0 (00h)
N.Flute	99 (62h)	8 (08h)	0 (00h)
Andes Mood	100 (63h)	5 (05h)	0 (00h)
Clarinet	102 (65h)	1 (01h)	0 (00h)
Oboe	101 (64h)	0 (00h)	0 (00h)

● Drum Section

Tone Name	PC# (Tone Number)	CC0 (Bank Select MSB)	CC32 (Bank Select LSB)
Pop Kit	4 (03h)	1 (01h)	0 (00h)
Rock Kit	18 (11h)	1 (01h)	0 (00h)
Jazz Brush	44 (2Bh)	1 (01h)	0 (00h)
TR-808	24 (17h)	0 (00h)	0 (00h)
CR-78	28 (1Bh)	0 (00h)	0 (00h)
TR-606	29 (1Ch)	0 (00h)	0 (00h)
TR-707	30 (1Dh)	0 (00h)	0 (00h)
TR-909	31 (1Eh)	0 (00h)	0 (00h)
Hip Hop	10 (09h)	0 (00h)	0 (00h)
House	14 (0Dh)	0 (00h)	0 (00h)
Dance	27 (1Ah)	0 (00h)	0 (00h)
Vox Drum	64 (3Fh)	1 (01h)	0 (00h)
StandardKit2	1 (00h)	1 (01h)	0 (00h)
Room Kit	9 (08h)	0 (00h)	0 (00h)
Power Kit	17 (10h)	0 (00h)	0 (00h)
Jazz Kit	33 (20h)	0 (00h)	0 (00h)
Sound Effect	57 (38h)	0 (00h)	0 (00h)

● Tone List (GM2 Part)

Tone Name	CC0	CC32	PC#
Grand Piano1	121	0	1
Grand Piano1	121	1	1
Piano1	121	2	1
Piano 2	121	0	2
Grand Piano2	121	1	2
Piano 3	121	0	3
Rock Piano	121	1	3
GS Honkytonk	121	0	4
Honky-tonk 1	121	1	4
E.Piano 1	121	0	5
Soft E.Piano	121	1	5
FM+SA EP	121	2	5
Wurly	121	3	5
E.Piano 2	121	0	6
Detuned EP 2	121	1	6
St.FM EP	121	2	6
EP Legend	121	3	6
EP Phase	121	4	6
Harpsi.Singl	121	0	7
Harpsi.Doubl	121	1	7
Harpsichord	121	2	7
Harpsi.o	121	3	7
Soft Clav.	121	0	8

Tone Name	CC0	CC32	PC#
Pulse Clav	121	1	8
Celesta	121	0	9
GS Glocken	121	0	10
GS Music Box	121	0	11
GS Vibe	121	0	12
Vibraphone	121	1	12
GS Marimba	121	0	13
Marimba	121	1	13
Xylophone	121	0	14
Tubular-bell	121	0	15
Church Bell	121	1	15
Carillon	121	2	15
Santur	121	0	16
Full Organ 4	121	0	17
Detuned Or.1	121	1	17
Pop Organ 1	121	2	17
Full Organ 2	121	3	17
Jazz Organ1	121	0	18
Detuned Or.2	121	1	18
Jazz Organ2	121	2	18
Rock Organ2	121	0	19
Church Org.1	121	0	20
Church Org.2	121	1	20
Church Org.3	121	2	20
Reed Organ	121	0	21
Puff Organ	121	1	21
Accordion	121	0	22
Accordion It	121	1	22
Harmonica	121	0	23
Bandoneon	121	0	24
Nylon Guitar	121	0	25
Ukulele	121	1	25
Nylon Gt.o	121	2	25
Nylon Guitar	121	3	25
Steel Guitar	121	0	26
12str Guitar	121	1	26
GS Mandolin	121	2	26
Steel+Body	121	3	26
Jazz Guitar	121	0	27
Hawaiian Gt.	121	1	27
Clean Gt.	121	0	28
Chorus Gt.	121	1	28
Mid Tone GTR	121	2	28
Muted Gt.	121	0	29
Funk Gt.	121	1	29
Funk Gt.2	121	2	29
Jazz Man	121	3	29
Overdrive Gt	121	0	30
Guitar Pinch	121	1	30
DistortionGt	121	0	31
Feedback Gt.	121	1	31
Dist Rtm GTR	121	2	31
Gt.Harmonics	121	0	32
Gt. Feedback	121	1	32
Acoustic Bs.	121	0	33
Fingered Bs.	121	0	34
Finger Slap	121	1	34

Tone Name	CC0	CC32	PC#
Picked Bs.	121	0	35
Fretless Bs.	121	0	36
Slap Bass	121	0	37
Slap Bass 2	121	0	38
Synth Bass 1	121	0	39
SynthBass101	121	1	39
Synth Bass 3	121	2	39
Clavi Bass	121	3	39
Hammer	121	4	39
Synth Bass 2	121	0	40
Synth Bass 4	121	1	40
Rubber Bass	121	2	40
Attack Pulse	121	3	40
GS Violin	121	0	41
Slow Violin	121	1	41
Viola	121	0	42
GS Cello	121	0	43
Contrabass	121	0	44
GS Trem.Str	121	0	45
PizzicatoStr	121	0	46
Harp	121	0	47
Yang Qin	121	1	47
Timpani	121	0	48
Strings	121	0	49
Orchestra	121	1	49
60's Strings	121	2	49
Slow Strings	121	0	50
Syn.Strings1	121	0	51
Syn.Strings3	121	1	51
Syn.Strings2	121	0	52
Choir Aahs	121	0	53
Choir	121	1	53
Doos Voice	121	0	54
Humming	121	1	54
SynVox	121	0	55
Analog Voice	121	1	55
OrchestraHit	121	0	56
Euro Hit	121	1	56
6th Hit	121	2	56
Euro Hit	121	3	56
Trumpet	121	0	57
Dark Trumpet	121	1	57
TromboneSoft	121	0	58
GS Trombone	121	1	58
Bright Tb	121	2	58
Tuba	121	0	59
MutedTrumpet	121	0	60
MuteTrumpet2	121	1	60
French Horn	121	0	61
Fr.Horn Solo	121	1	61
Brass 1	121	0	62
Brass 2	121	1	62
Synth Brass1	121	0	63
Synth Brass3	121	1	63
AnalogBrass1	121	2	63
Jump Brass	121	3	63
Synth Brass2	121	0	64

Tone Name	CC0	CC32	PC#
Synth Brass4	121	1	64
AnalogBrass2	121	2	64
Soprano Sax	121	0	65
Blow Sax	121	0	66
Tenor Sax	121	0	67
Baritone Sax	121	0	68
Oboe	121	0	69
GS Eng.Horn	121	0	70
Bassoon	121	0	71
Clarinet	121	0	72
Piccolo	121	0	73
Flute	121	0	74
Recorder	121	0	75
Pan Flute	121	0	76
Bottle Blow	121	0	77
Shakuhachi	121	0	78
Whistle	121	0	79
Ocarina	121	0	80
Square Wave	121	0	81
Square	121	1	81
Sine Wave	121	2	81
Saw Wave	121	0	82
Saw	121	1	82
Doctor Solo	121	2	82
Natural Lead	121	3	82
SequencedSaw	121	4	82
Syn.Calliope	121	0	83
Chiffer Lead	121	0	84
Charang	121	0	85
Wire Lead	121	1	85
Solo Vox	121	0	86
5th Saw Wave	121	0	87
Bass & Lead	121	0	88
Delayed Lead	121	1	88
Fantasia	121	0	89
Warm Pad	121	0	90
Sine Pad	121	1	90
Polysynth	121	0	91
Space Voice	121	0	92
Itopia	121	1	92
Bowed Glass	121	0	93
Metal Pad	121	0	94
Halo Pad	121	0	95
Sweep Pad	121	0	96
Ice Rain	121	0	97
Soundtrack	121	0	98
Crystal	121	0	99
Syn Mallet	121	1	99
Atmosphere	121	0	100
Brightness	121	0	101
Goblin	121	0	102
Echo Drops	121	0	103
Echo Bell	121	1	103
Echo Pan	121	2	103
Star Theme	121	0	104
Sitar	121	0	105
Sitar 2	121	1	105

Tone Name	CC0	CC32	PC#
Banjo	121	0	106
Shamisen	121	0	107
Koto	121	0	108
Taisho Koto	121	1	108
Kalimba	121	0	109
Bagpipe	121	0	110
Fiddle	121	0	111
Shanai	121	0	112
Tinkle Bell	121	0	113
Agogo	121	0	114
Steel Drums	121	0	115
Woodblock	121	0	116
Castanets	121	1	116
Taiko	121	0	117
Concert BD	121	1	117
Melo. Tom 1	121	0	118
Melo. Tom 2	121	1	118
Synth Drum	121	0	119
808 Tom	121	1	119
Elec Perc.	121	2	119
Reverse Cym.	121	0	120
Gt.FretNoise	121	0	121
Gt.Cut Noise	121	1	121
String Slap	121	2	121
Breath Noise	121	0	122
Fl.Key Click	121	1	122
Seashore	121	0	123
Rain	121	1	123
Thunder	121	2	123
Wind	121	3	123
Stream	121	4	123
Bubble	121	5	123
Bird	121	0	124
Dog	121	1	124
Horse-Gallop	121	2	124
Bird 2	121	3	124
Telephone 1	121	0	125
Telephone 2	121	1	125
DoorCreaking	121	2	125
Door	121	3	125
Scratch	121	4	125
Windchime	121	5	125
Helicopter	121	0	126
Car-Engine	121	1	126
Car-Stop	121	2	126
Car-Pass	121	3	126
Car-Crash	121	4	126
Siren	121	5	126
Train	121	6	126
Jetplane	121	7	126
Starship	121	8	126
Burst Noise	121	9	126
Applause	121	0	127
Laughing	121	1	127
Screaming	121	2	127
Punch	121	3	127
Heart Beat	121	4	127

Tone Name	CC0	CC32	PC#
Footsteps	121	5	127
Gun Shot	121	0	128
Machine Gun	121	1	128
Lasergun	121	2	128
Explosion	121	3	128

● Drum Set

Set Name	CC0	CC32	PC#
STANDARD 2	0	120	1
ROOM 2	0	120	9
POWER	0	120	17
ELECTRONIC	0	120	25
TR-808	0	120	26
JAZZ	0	120	33
BRUSH 2	0	120	41
ORCHESTRA	0	120	49
SOUND EFFECTS	0	120	57

Keyboard
Model: V-Combo VR-09

MIDI Implementation Chart

Date: Oct 1, 2013
Version: 1.01

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default	1 (Piano Dual 2) 2 (Pedal) 3 (Lower) 4 (Upper) 11 (Drum) 16 (Expression, PC)	1 (Piano Dual 2) *3 2 (Pedal) *3 3 (Lower) *3 4 (Upper) *3 11 (Drum) *3 16 (Expression) *3 1–16 (GM2) *4	
	Changed	1–16	×	
Mode	Default	X	Mode 3	
	Messages	X	Mode 3, 4 (M = 1)	*7
	Altered	**********		
Note Number	:True Voice	36–96 **********	0–127 0–127	
Velocity	Note On	O *1	O	
	Note Off	X 8n V = 0–64	X	
After Touch	Key's	X	O	
	Channel's	X	O *5, 6	
Pitch Bend		O	O	
Control Change	0, 32	O *1	O *2, 5	Bank select
	1	X	O *5, 6	Modulation
	5	X	O *5	Portamento time
	6, 38	X	O *5, 6	Data entry
	10	X	O *2, 5, 6	Panpot
	11	O	O *2, 5, 6	Expression
	64	O	O *2, 5, 6	Hold 1
	65	X	O *2, 5	Portamento
	66	X	O *5	Sostenuto
	67	X	O *5	Soft
	71	X	O *5	Resonance
	72	X	O *5	Release time
	73	X	O *5	Attack time
	74	X	O *5	Cutoff
	75	X	O *5	Decay time
	76	X	O *5	Vibrato rate
	77	X	O *5	Vibrato depth
	91	X	O *2, 5	Effect 1 depth
	93	X	O *2, 5	Effect 3 depth
	100, 101	X	O *5, 6	RPN LSB, MSB
Program Change		0–127 *1	O *2, 5, 6	
	: True Number	**********	0–127	Program No. 1–128
System Exclusive		O	O	
System Common	: Song Position	X	X	
	: Song Select	X	X	
	: Tune Request	X	X	
System Real Time	: Clock	O	X	
	: Commands	O	X	
Aux Messages	: All Sound Off	X	O (120, 126, 127) *5	
	: Reset All Controllers	X	O *5	
	: Local On/Off	X	X	
	: All Notes Off	X	O (123–125) *5, 6	
	: Active Sensing	O	O	
	: System Reset	X	X	
Notes		* 1 O X is selectable. * 2 Not received in the keyboard part * 3 With MIDI IN Mode 2 * 4 With MIDI IN Mode 1 * 5 Received in GM2 mode * 6 Received in General MIDI mode * 7 Recognized as M≠1 even if M=1.		

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

O : Yes
X : No