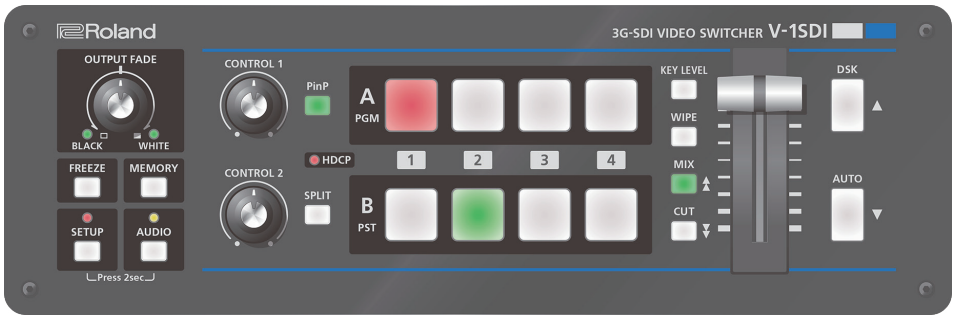


3G-SDI VIDEO SWITCHER

V-1SDI

Reference Manual

Version 1.5 and later

Contents

Menu List

* Menus are shown only on the monitor connected to the MULTI-VIEW connector (HDMI).
* The default value is printed in bold characters.

SETUP Menu (Pressing and holding the [SETUP] button for 2 seconds or longer)

Setting item		Value	Explanation
VIDEO INPUT (page 1/16)			
CH3 INPUT SELECT		**AUTO**, SDI, HDMI	This specifies the video source input on channel 3. AUTO: The connector where the connection is made is automatically detected and video is output. When devices are connected to both the SDI IN 3 connector and the HDMI IN 3 connector, SDI input takes precedence. SDI: Video is input only via the SDI IN 3 connector. HDMI: Video is input only via the HDMI IN 3 connector.
CH4 HDMI	This adjusts the HDMI input video on channel 4.		
	SCALING TYPE	**FULL**, LETTERBOX, CROP, DOT BY DOT	This sets the scaling type. FULL: This always displays the picture expanded to full screen, irrespective of the aspect ratio of the input video. LETTERBOX: This expands the input video to match the horizontal screen resolution while maintaining the aspect ratio. The protruding picture is cut off at top and bottom. CROP: This expands the input video to match the vertical screen resolution while maintaining the aspect ratio. The protruding picture is cut off at the left and right. DOT BY DOT: This performs no scaling.
	H. POSITION	-1920–**0**–1920	This adjusts the display position in the horizontal direction.
	V. POSITION	-1080–**0**–1080	This adjusts the display position in the vertical direction.
	ZOOM	50–**100**–200	This adjusts the zoom ratio.
VIDEO INPUT (page 2/16)			
CH4 HDMI	**CONTRAST**	-64–**0**–63	This adjusts the contrast.
	SATURATION	-64–**0**–63	This adjusts the saturation.
	BRIGHTNESS	-64–**0**–63	This adjusts the brightness.
	FLICKER FILTER	**OFF**, ON	This reduces flicker.
	EDID	**AUTO**, 480/576i, 480/576p, 720p, 1080i, 1080p, 640 x 480, 800 x 600, 1024 x 768, 1280 x 768, 1280 x 1024, 1366 x 768, 1400 x 1050, 1600 x 1200, 1920 x 1200	This sets the EDID value.
VIDEO OUTPUT (page 3/16)			
SDI OUTPUT	**PVW ASSIGN**	MULTI-VIEW, **PST**, PGM	This sets the view mode for the preview video output from the PVW connector (SDI).
	3G-SDI MAPPING	LEVEL-A, **LEVEL-B**	This sets the mapping structure for 3G-SDI output.
HDMI OUTPUT	**OUTPUT ASSIGN**	**MULTI-VIEW**, PST, PGM	This sets the view mode for the preview video output from the MULTI-VIEW connector (HDMI).
	COLOR SPACE	**AUTO**, RGB 0-255, RGB 16-235, YCC	This sets the color space for HDMI output.
	DVI-D/HDMI SIGNAL	**AUTO**, DVI-D, HDMI	This sets the output mode for HDMI output.
VIDEO OUTPUT (page 4/16)			
COLOR CORRECTION (*1)	**CONTRAST**	-64–**0**–63	This adjusts the contrast of output video.
	SATURATION	-64–**0**–63	This adjusts the saturation of output video.
	BRIGHTNESS	-64–**0**–63	This adjusts the brightness of output video.
TRANSITION/PinP (page 5/16)			
TRANSITION TIME		0.0–**1.0**–4.0 sec	This sets the length of time for applying a video transition.
TRANSITION PATTERN	**WIPE**	H-DOWN, H-UP, **V-RIGHT**, V-LEFT, H-IN, H-OUT, V-IN, V-OUT, R-DOWN, L-DOWN, R-UP, L-UP, BLOCK, V-GRID, H-GRID, H-DOWN/s, H-UP/s, V-RIGHT/s, V-LEFT/s, H-IN/s, H-OUT/s, V-IN/s, V-OUT/s, R-DOWN/s, L-DOWN/s, R-UP/s, L-UP/s, BLOCK/s, V-GRID/s, H-GRID/s	This specifies the transition pattern assigned to the [WIPE] button. * Setting values indicated with "/s" are soft edge transition patterns.
	MIX	**MIX**, FAM, NAM, MOSAIC	This specifies the transition pattern assigned to the [MIX] button.
PinP/SPLIT PATTERN	**PinP**	**PinP 1/4**, PinP 1/3, PinP 1/2, SPLIT-VS, SPLIT-VC, SPLIT-HS, SPLIT-HC, QUAD	This sets the type of compositing assigned to the [PinP] button.
	SPLIT	PinP 1/4, PinP 1/3, PinP 1/2, **SPLIT-VS**, SPLIT-VC, SPLIT-HS, SPLIT-HC, QUAD	This sets the type of compositing assigned to the [SPLIT] button.

(*1) These settings are common to both HDMI output (MULTI-PREVIEW connector) and SDI output (PGM and PVW connectors).

Setting item		Value	Explanation
TRANSITION/PinP (page 6/16)			
PinP BORDER	**WIDTH**	0–**3**–15	This adjusts the width of the border added to the PinP inset screen.
	COLOR	BLACK, **WHITE**, GRAY, RED, GREEN, BLUE, YELLOW	This specifies the color of the border added to the PinP inset screen.
DSK (page 7/16)			
DSK		**OFF**, ON	This sets DSK composition on or off.
SOURCE CH		INPUT1, INPUT2, INPUT3, **INPUT4**, STILL	This sets the input channel used for DSK composition. Setting this to "STILL" performs DSK compositing using a captured still image or a still image sent from V-1SDI RCS dedicated software.
KEY TYPE		WHT-L.KEY, BLK-L.KEY, GRN-C.KEY, **BLU-C.KEY**	This sets the extraction color for DSK composition.
KEY LEVEL		0–**64**–255	This adjusts the amount of keying for text and video used in DSK composition.
KEY GAIN		**0**–255	This adjusts the degree of edge blur for text and video used in DSK composition.
MIX LEVEL		0–**255**	This adjusts the overall concentration (output level) for text and video used in DSK composition.
DSK (page 8/16)			
CHROMA KEY (*2)	**HUE WIDTH**	-127–**0**–127	This adjusts the hue width (range).
	HUE FINE	-127–**0**–127	This adjusts the center position for hue.
	SATURATION WIDTH	-127–**0**–127	This adjusts the saturation width (range).
	SATURATION FINE	0–255	This adjusts the center position for saturation.
PANEL (page 9/16)			
PANEL MODE		**PGM/PST**, A/B	This sets the operation mode for video transitions.
PGM LED		**RED**, GREEN, YELLOW, BLUE, PURPLE, L.BLUE, WHITE	This specifies the color used when the output video channel buttons ([A-1]–[A-4], [B-1]–[B-4]) light up.
PST LED		RED, **GREEN**, YELLOW, BLUE, PURPLE, L.BLUE, WHITE	This specifies the color used when the buttons for the video channel to output next ([A-1]–[A-4], [B-1]–[B-4]) light up.
INPUT LED		OFF, **ON**	When set to "ON," the [A-1]–[A-4] and [B-1]–[B-4] buttons light up, flash, and go dark as shown below. **Button** / **Input video status** Lighted in white: Valid video is input. Flashing in white: Video whose format differs from the [FORMAT] switch setting is input. Dark: No video is input.
DSK LED		OFF, **ON**	Setting this to "ON" makes the [DSK] button light up in red when DSK composition is on.
AUTO LED		OFF, **ON**	Setting this to "ON" makes the [AUTO] button always light up in white. It flashes in white during video transitions.
AUDIO LED		OFF, **MASTER OUT**, MIC, AUDIO IN, SDI 1, SDI 2, SDI 3, HDMI 3, HDMI 4	This specifies the audio signal monitored by the AUDIO indicator.
ALL LED OFF		**DISABLE**, ENABLE	Setting this to "ENABLE" makes all LEDs stay dark at all times, irrespective of the LED setting for each button.
PANEL LOCK (page 10/16)			
These set whether panel lock to enabled (ON) or disabled (OFF) for individual buttons and knobs.			
ALL SW & VOLUME		**OFF**, ON	All controls on menu items for PANEL LOCK (pages 10/16–12/16).
RIGHT SW		**OFF**, ON	[DSK], [AUTO] buttons
DSK SW		**OFF**, ON	[DSK] button
AUTO SW		**OFF**, ON	[AUTO] button
LEFT SW		**OFF**, ON	[FREEZE], [MEMORY], [AUDIO] buttons
FREEZE SW		**OFF**, ON	[FREEZE] button
MEMORY SW		**OFF**, ON	[MEMORY] button
AUDIO SW		**OFF**, ON	[AUDIO] button
PANEL LOCK (page 11/16)			
These set whether panel lock to enabled (ON) or disabled (OFF) for individual buttons and knobs.			
CENTER SW		**OFF**, ON	The following buttons
A/B BUS SW		**OFF**, ON	[A-1]–[A-4] buttons, [B-1]–[B-4] buttons
KEY LEVEL SW		**OFF**, ON	[KEY LEVEL] button
WIPE SW		**OFF**, ON	[WIPE] button
MIX SW		**OFF**, ON	[MIX] button
CUT SW		**OFF**, ON	[CUT] button
PinP SW		**OFF**, ON	[PinP] button
SPLIT SW		**OFF**, ON	[SPLIT] button

(*2) This is enabled when "KEY TYPE" is "GRN-C.KEY" or "BLU-C.KEY."

Menu List

Setting item		Value	Explanation
PANEL LOCK (page 12/16)			
These set whether panel lock to enabled (ON) or disabled (OFF) for individual knobs and A/B fader.			
VOLUME		**OFF**, ON	The following knobs and the A/B fader
OUTPUT FADE VOL		**OFF**, ON	[OUTPUT FADE] knob
CONTROL 1 VOL		**OFF**, ON	[CONTROL 1] knob
CONTROL 2 VOL		**OFF**, ON	[CONTROL 2] knob
A/B FADER		**OFF**, ON	A/B fader
MEMORY (page 13/16)			
MEMORY PANEL LOAD		OFF, **ON**	This sets whether the state of the operation panel is updated to the state saved in memory (ON) or not updated (OFF) when a memory is recalled.
POWER ON LOAD		**1**–8	Selecting a memory number causes the settings at the selected memory number to be recalled at startup.
MEMORY PROTECT		**OFF**, ON	Setting this to "ON" protects the memory, making it impossible to saving settings to memory. * When this is set to "ON," the AUTO MEMORY feature is disabled.
AUTO MEMORY		OFF, **ON**	Setting this to "ON" makes memory 1 function as a last memory. Settings are automatically saved to memory 1 on exiting the menu or releasing the [MEMORY] button.
SYSTEM (page 14/16)			
HDCP		**OFF**, ON	When set to "ON," copyright-protected (HDCP) video can be input. HDCP is also added to the video that is output.
FRAME RATE		**59.94**, 50	This sets the frame rate.
FREEZE MODE		**ALL**, SELECT, STILL	• "ALL" and "SELECT" specify the operation mode for freezes. ALL: All video that is input freezes. SELECT: Input video selected using the [A-1]– [A-4] buttons freezes. • Setting this to "STILL" makes the [FREEZE] button function as a still-image output button.
DEINTERLACE MODE		WEAVE, **BOB**	This specifies the method used when converting interlaced input video to progressive video.
AUTO OFF		OFF, **ON**	This sets the Auto Off function on or off. When set to "ON," the power to the V-1SDI is automatically turned off if 240 minutes elapse with no operation performed on the unit.
OUTPUT FADE ASSIGN		VIDEO, **V & A**, AUDIO, BLACK / A	This specifies the function of the [OUTPUT FADE] knob. VIDEO: Applies a fade to the main output video. V & A: Simultaneously applies a fade to the main output video and adjusts the volume level of output audio. AUDIO: Adjusts the volume level of output audio. BLACK / A: Turning counterclockwise applies a black fade to the main output video. Turning clockwise adjusts the volume level of output audio.
SYSTEM (page 15/16)			
PVW INDICATOR (*3)	**LABEL**	OFF, **ON**	Setting this to "ON" displays labels identifying SDI and HDMI in the preview output.
	TALLY	OFF, **ON**	Setting this to "ON" displays a tally border in the preview output.
	AUDIO LEVEL METER	OFF, UPPER, **LOWER**	Setting this to "UPPER" or "LOWER" displays a level meter for audio in the preview output.
AUTO SCAN		**OFF**, ON	This sets the Auto Scan function on or off. When set to "ON," channels 1 through 4 are switched automatically.
SCAN TIME		1–**5**–120 sec	When the Auto Scan function is on, this sets the video display interval.
TRANS TIME		0.0–**0.5**–4.0 sec	When the Auto Scan function is on, this sets the length of time for applying a video transition.
SYSTEM (page 16/16)			
COLOR BAR OUTPUT		**OFF**, ON	Setting this to "ON" outputs a color bar.
TEST TONE OUTPUT		**OFF**, -20 dB@1 kHz, -6 dB@1 kHz, 0 dB@1 kHz	This sets the test tone to output.
A/B FADER CALIBRATE		—	This calibrates the A/B fader.
CAPTURE IMAGE		—	You can capture still images from input video on channel 4. * Either the captured still image or the still image sent from V-1SDI RCS is temporarily stored in the V-1SDI unit. If a new still image is captured or is sent from V-1SDI RCS while a still image is already saved, the previously saved still image is overwritten. Also, still-image data is deleted when the power is turned off.
RS-232 PANEL STATUS		**OFF**, ON	Setting this to "ON" always sends a QPL (8: ALL) RS-232 command (p. 10) when switching channels or switching bus A and bus B.
FACTORY RESET		—	This returns the unit to its factory defaults.
VERSION		—	This displays the version of the system program.

(*3) This is enabled only for output from the MULTI-VIEW connector (HDMI).

AUDIO Menu (Pressing and holding the [AUDIO] button for 2 seconds or longer)

Setting item		Value	Explanation
AUDIO LEVEL (page 1/15)			
SDI1 **:** **SDI3** **HDMI3** **HDMI4** **AUDIO** **MIC**	**INPUT LEVEL**	-INF–**0.0**–+6.0 dB	This adjusts the volume level of the respective input audio streams.
MASTER OUTPUT LEVEL		-INF–**0.0**–+6.0 dB	This adjusts the volume level of output audio.
AUDIO FOLLOW (page 2/15)			
A.FOLLOW	**SDI1** **:** **SDI3** **HDMI3** **HDMI4**	**OFF**, ON	This sets the Audio Follow feature on or off for the respective input video streams. Setting this to "ON" automatically mutes out audio when the video channel is not selected.
AUDIO IN		**OFF**, 1–4	This sets the video channel to interlink by Audio Follow with audio input via AUDIO IN. Audio input via AUDIO IN is muted on other than the specified video.
MIC IN		**OFF**, 1–4	This sets the video channel to interlink by Audio Follow with audio input via MIC. Audio input via MIC is muted on other than the specified video.
AUDIO DELAY (page 3/15)			
CH1 SDI **:** **CH3 SDI** **CH3 HDMI** **CH4 HDMI** **AUDIO IN** **MIC IN**		**0.0**–500.0 ms	This adjusts the delay time for audio inputs.
SDI1 IN–SDI3 IN, HDMI3 IN, HDMI4 IN, ADUIO IN (page 4/15–9/15)			
EQ Hi		-15–**0**–15 dB	This boosts or attenuates the high band.
EQ Hi FREQ		1.00–**10.0**–20.0 kHz	This adjusts the center frequency when changing the sound quality in the high band.
EQ Mid		-15–**0**–15 dB	This boosts or attenuates the middle band.
EQ Mid FREQ		20 Hz–**500 Hz**–20.0 kHz	This adjusts the center frequency when changing the sound quality in the middle band.
EQ Mid Q		**0.5**–16.0	This adjusts the width of the frequency band when boosting or attenuating the middle band.
EQ Lo		-15–**0**–15 dB	This boosts or attenuates the low band.
EQ Lo FREQ		20–**100**–500 Hz	This adjusts the center frequency when changing the sound quality in the low band.
MIC IN (page 10/15)			
EQ Hi		-15–**0**–15 dB	This boosts or attenuates the high band.
EQ Hi FREQ		1.00–**10.0**–20.0 kHz	This adjusts the center frequency when changing the sound quality in the high band.
EQ Mid		-15–**0**–15 dB	This boosts or attenuates the middle band.
EQ Mid FREQ		20 Hz–**500 Hz**–20.0 kHz	This adjusts the center frequency when changing the sound quality in the middle band.
EQ Mid Q		**0.5**–16.0	This adjusts the width of the frequency band when boosting or attenuating the middle band.
EQ Lo		-15–**0**–15 dB	This boosts or attenuates the low band.
EQ Lo FREQ		20–**100**–500 Hz	This adjusts the center frequency when changing the sound quality in the low band.
HPF		**OFF**, ON	This sets the high-pass filter on or off.
MIC IN (page 11/15)			
COMP		**OFF**, ON	This sets the compressor on or off.
THRESHOLD		-50–**-16**–0 dB	This sets the level used as the threshold when compressing audio. Compression is applied to audio that exceeds the level set here.
RATIO		1.0:1–**INF:1**	This specifies the degree of compression applied to the audio. The state in which no compression is applied is defined as "1."
ATTACK		0.2–**50**–100 ms	This sets the time until compression starts when audio exceeding the threshold is input.
RELEASE		30–**500**–5000 ms	This adjusts the length of time until compression ends after audio falls below the threshold.
GATE		OFF, **ON**	This sets gate on or off.
THRESHOLD		-50–**-36**–0 dB	This sets the level used as the threshold for removing audio. Audio below the level set here is removed.
RELEASE		30–**800**–5000 ms	This adjusts the length of time until the audio is fully attenuated after audio falls below the threshold.

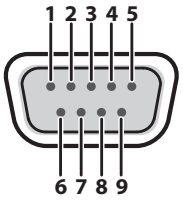
Menu List

Setting item		Value	Explanation
AUDIO OUTPUT (page 12/15)			
EQ Hi		-15–**0**–15 dB	This boosts or attenuates the high band.
EQ Hi FREQ		1.00–**10.0**–20.0 kHz	This adjusts the center frequency when changing the sound quality in the high band.
EQ Mid		-15–**0**–15 dB	This boosts or attenuates the middle band.
EQ Mid FREQ		20 Hz–**500 Hz**–20.0 kHz	This adjusts the center frequency when changing the sound quality in the middle band.
EQ Mid Q		**0.5**–16.0	This adjusts the width of the frequency band when boosting or attenuating the middle band.
EQ Lo		-15–**0**–15 dB	This boosts or attenuates the low band.
EQ Lo FREQ		20–**100**–500 Hz	This adjusts the center frequency when changing the sound quality in the low band.
AUDIO OUTPUT (page 13/15)			
REVERB	**LEVEL**	**0**–127	This adjusts the return level from reverb of the audio. A setting of "0" results in no reverb applied.
	TIME	0.0–**1.0**–5.0 sec	This adjusts the length of the reverb.
	TYPE	**ROOM**, HALL	This specifies the type of reverb. ROOM: Produces the natural reverberations of a highly resonant room. HALL: Produces reverberations like that of a performance in a concert hall or other such space.
AUDIO OUTPUT (page 14/15)			
REVERB SEND LEVEL	**CH1 SDI** **:** **CH3 SDI** **CH3 HDMI** **CH4 HDMI** **AUDIO IN** **MIC IN**	0–**100**–127	This adjusts the send level of audio to Reverb.
AUDIO OUTPUT (page 15/15)			
MASTERING		**OFF**, ON	This sets the mastering on or off.
NOISE SUPPRESSOR		**0**–127	This adjusts the degree of application of the noise suppressor.
ENHANCER		**0**–127	This adjusts the degree of application of the enhancer.
Hi		**0**–127	This suppresses high-frequency distortion and adjusts the sound to have sustained tones.
Mid		**0**–127	This suppresses midrange distortion and adjusts the sound to have distinct tones.
Lo		**0**–127	This suppresses low-frequency distortion and adjusts the sound to have stable tones.

RS-232 Command Reference

Using the RS-232 connector, you can operate the V-1SDI remotely from an external device.

Specification of the RS-232 Connector



D-sub 9-pin (male)

Pin No.	Signal
1	N.C.
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	N.C.

Communication method	Synchronous (asynchronous), full-duplex
Communication speed	9600 bps
Parity	none
Data length	8 bit
Stop bit	1 bit
Code set	ASCII
Flow control	XON/XOFF

Cable Wiring Diagram

Wire the three lines of RXD, TXD, and GND as shown in the figure below.

V-1SDI	Controller
N.C.: 1	1:
RXD: 2	2: RXD
TXD: 3	3: TXD
DTR: 4	4:
GND: 5	5: GND
DSR: 6	6:
RTS: 7	7:
CTS: 8	8:
N.C.: 9	9:

* The connections between 4 and 6 and between 7 and 8 are inside the V-1SDI.

* When connecting to a controlling device (such as an RS-232 compatible computer), use a crossover cable.

Overview of Commands

Commands are each formatted as an ASCII code string composed of "stx" plus "three alphabetic letters (capitals)" plus ";" (semicolon).

The three letters of the alphabet indicate the type of command.

If the command has an argument, a colon (":") is inserted between the command letters and the argument. When multiple arguments occur, they are separated by commas (",").

stx	An ASCII-code signal name (code number: 02H), this is a control code indicating the start of a command. "H" indicates that it is a hexadecimal value.
:	This is the code that the V-1SDI recognizes as a separator between a command and its argument.
;	This is the code that the V-1SDI recognizes as the end of a command.

* The codes of stx (02H), ACK (06H), and Xon (11H)/ Xoff (13H) are the control codes.

* When successively sending commands to the V-1SDI from an external device, after each command, be sure that "ACK" is returned before sending the next command.

List of Commands

Video-related Operations

Item	Sent Commands	Response Command	Parameter
Select bus A channel number	stxPGM:a;	ACK	a: 0 (CH 1)–3 (CH 4)
Select bus B channel number	stxPST:a;	ACK	a: 0 (CH 1)–3 (CH 4)
Specify transition effect	stxTRS:a;	ACK	a: 0 (WIPE), 1 (MIX), 2 (CUT)
Set transition time	stxTIM:a;	ACK	a: 0 (0.0 sec)–40 (4.0 sec)
Press the [AUTO] button	stxATO;	ACK	
Press the [PinP] button	stxPIP;	ACK	
Press the [SPLIT] button	stxSPT;	ACK	
Press the [DSK] button	stxDSK;	ACK	
Press the [FREEZE] button	stxFRZ;	ACK	
Select input connector for INPUT 3	stxIPS:a;	ACK	a: 0 (AUTO), 1 (SDI 3) ,2 (HDMI 3)
Select scaling type for INPUT 4	stxISC:a;	ACK	a: 0 (FULL), 1 (LETTERBOX), 2 (CROP), 3 (DOT BY DOT)
Adjust horizontal position of INPUT 4	stxIHP:a;	ACK	a: -1920–1920 * Only commands containing a multiple of 8 are accepted.
Adjust vertical position of INPUT 4	stxIVP:a;	ACK	a: -1080–1080 * Only commands containing a multiple of 8 are accepted.
Adjust zoom rasio of INPUT 4	stxIZM:a;	ACK	a: 50–200
Assign video output of the PVW connector (SDI)	stxOPS:a;	ACK	a: 0 (MULTI-VIEW), 1 (PST), 2 (PGM)
Assign video output of the MULTI-VIEW connector (HDMI)	stxOMS:a;	ACK	a: 0 (MULTI-VIEW), 1 (PST), 2 (PGM)
Change DSK KEY LEVEL	stxKYL:a;	ACK	a: 0–255
Adjust position of PinP 1/4-size inset screen * PinP inset screen assigned to the [PinP] button	stxPQA:a,b;	ACK	a: 0–255 Horizontal position b: 0–255 Vertical position
Adjust position of PinP 1/3-size inset screen * PinP inset screen assigned to the [PinP] button	stxPTA:a,b;	ACK	a: 0–255 Horizontal position b: 0–255 Vertical position
Adjust position of PinP 1/2-size inset screen * PinP inset screen assigned to the [PinP] button	stxPHA:a,b;	ACK	a: 0–255 Horizontal position b: 0–255 Vertical position
Adjust position of PinP 1/4-size inset screen * PinP inset screen assigned to the [SPLIT] button	stxPQB:a,b;	ACK	a: 0–255 Horizontal position b: 0–255 Vertical position
Adjust position of PinP 1/3-size inset screen * PinP inset screen assigned to the [SPLIT] button	stxPTB:a,b;	ACK	a: 0–255 Horizontal position b: 0–255 Vertical position
Adjust position of PinP 1/2-size inset screen * PinP inset screen assigned to the [SPLIT] button	stxPHB:a,b;	ACK	a: 0–255 Horizontal position b: 0–255 Vertical position
Adjust split-composition "SPLIT-HC" position * Split-composition video assigned to the [PinP] button	stxSHA:a,b;	ACK	a: 0–255 Vertical position of PGM video (displayed on the left) b: 0–255 Vertical position of PST video (displayed on the right)
Adjust split-composition "SPLIT-VC" position * Split-composition video assigned to the [PinP] button	stxSVA:a,b;	ACK	a: 0–255 Horizontal position of PGM video (displayed above) b: 0–255 Horizontal position of PST video (displayed below)
Adjust split-composition "SPLIT-HC" position * Split-composition video assigned to the [SPLIT] button	stxSHB:a,b;	ACK	a: 0–255 Vertical position of PGM video (displayed on the left) b: 0–255 Vertical position of PST video (displayed on the right)
Adjust split-composition "SPLIT-VC" position * Split-composition video assigned to the [SPLIT] button	stxSVB:a,b;	ACK	a: 0–255 Horizontal position of PGM video (displayed above) b: 0–255 Horizontal position of PST video (displayed below)
Acquire information on input connector selected for INPUT 3	stxQIS;	stxQIS:a; ACK	a: 0 (SDI), 1 (HDMI)

Audio-related Operations

Item	Sent Commands	Response Command	Parameter
Adjust level of input audio	stxIAL:a,b;	ACK	a: 0 (SDI 1), 1 (SDI 2), 2 (SDI 3), 3 (HDMI 3), 4 (HDMI 4), 5 (AUDIO IN), 6 (MIC IN) b: 0–127 * For details, refer to the "Input/Output Level Correspondence Chart" below.
Adjust level of output audio	stxOAL:a;	ACK	a: 0–127 * For details, refer to the "Input/Output Level Correspondence Chart" below.
Adjust delay time of input audio	stxADT:a,b;	ACK	a: 0 (SDI 1),1 (SDI 2), 2 (SDI 3), 3 (HDMI 3), 4 (HDMI 4), 5 (AUDIO IN), 6 (MIC IN) b: 0 (0.0 ms)–5000 (500.0 ms)
Acquire information on audio level	stxQAL:a;	stxQAL:b; ACK	**Sent command parameters** a: 0 (SDI 1), 1 (SDI 2), 2 (SDI 3), 3 (HDMI 3), 4 (HDMI 4), 5 (AUDIO IN), 6 (MIC IN), 7 (MASTER OUT), 8 (ALL) **Response command parameters** When a=0, b: 0–127 SDI 1 audio level When a=1, b: 0–127 SDI 2 audio level When a=2, b: 0–127 SDI 3 audio level When a=3, b: 0–127 HDMI 3 audio level When a=4, b: 0–127 HDMI 4 audio level When a=5, b: 0–127 AUDIO IN audio level When a=6, b: 0–127 MIC IN audio level When a=7, b: 0–127 MASTER OUT audio level When a=8, sends all audio levels. Example: stxQAL:100,80,70,60,50,40,30,20;

Input/Output Level Correspondence Chart (Unit: dB)

0	-INF	20	-28.0	40	-18.0	60	-10.3	80	-5.0	100	0.0	120	+4.6
1	-84.3	21	-27.2	41	-17.6	61	-10.0	81	-4.8	101	+0.2	121	+4.8
2	-68.7	22	-26.4	42	-17.2	62	-9.8	82	-4.6	102	+0.4	122	+5.0
3	-60.2	23	-25.6	43	-16.8	63	-9.5	83	-4.4	103	+0.6	123	+5.2
4	-56.3	24	-24.8	44	-16.4	64	-9.3	84	-4.2	104	+0.8	124	+5.4
5	-53.2	25	-24.0	45	-16.0	65	-9.0	85	-4.0	105	+1.0	125	+5.6
6	-50.1	26	-23.6	46	-15.6	66	-8.8	86	-3.6	106	+1.3	126	+5.8
7	-48.0	27	-23.2	47	-15.2	67	-8.6	87	-3.3	107	+1.5	127	+6.0
8	-46.0	28	-22.8	48	-14.8	68	-8.4	88	-3.0	108	+1.8		
9	-44.0	29	-22.4	49	-14.4	69	-8.2	89	-2.6	109	+2.0		
10	-42.0	30	-22.0	50	-14.0	70	-8.0	90	-2.3	110	+2.3		
11	-40.0	31	-21.6	51	-13.6	71	-7.6	91	-2.0	111	+2.5		
12	-38.0	32	-21.2	52	-13.2	72	-7.3	92	-1.8	112	+2.8		
13	-36.0	33	-20.8	53	-12.8	73	-7.0	93	-1.5	113	+3.0		
14	-34.5	34	-20.4	54	-12.4	74	-6.6	94	-1.3	114	+3.3		
15	-33.0	35	-20.0	55	-12.0	75	-6.3	95	-1.0	115	+3.5		
16	-32.0	36	-19.6	56	-11.6	76	-6.0	96	-0.8	116	+3.8		
17	-31.0	37	-19.2	57	-11.3	77	-5.8	97	-0.6	117	+4.0		
18	-30.0	38	-18.8	58	-11.0	78	-5.5	98	-0.4	118	+4.2		
19	-29.0	39	-18.4	59	-10.6	79	-5.3	99	-0.2	119	+4.4		

System-related Operations

Item	Sent Commands	Response Command	Parameter
Set HDCP on/off	stxHCP:a;	ACK	a: 0 (OFF), 1 (ON)
Set Auto Scan on/off	stxASN:a;	ACK	a: 0 (OFF) 1 (ON)
Call up memory	stxMEM:a;	ACK	a: 0 (A-1), 1 (A-2), 2 (A-3), 3 (A-4), 4 (B-1), 5 (B-2), 6 (B-3), 7 (B-4)
Acquire status of operation-panel buttons	stxQPL:a;	stxQPL:b; ACK	**Sent command parameters** a: 0 (PGM), 1 (PST), 2 (PinP), 3 (SPLIT), 4 (DSK), 5 (TRANSITION), 6 (OUTPUT FADE), 7 (A/B fader), 8 (ALL) **Response command parameters** When a=0, b: 0 (CH 1)–3 (CH 4) PGM When a=1, b: 0 (CH 1)–3 (CH 4) PST When a=2, b: 0 (OFF), 1 (ON) [PinP] button When a=3, b: 0 (OFF), 1 (ON) [SPLIT] button When a=4, b: 0 (OFF), 1 (ON) [DSK] button When a=5, b: 0 (WIPE), 1 (MIX), 2 (CUT) TRANSITION buttons When a=6, b: 0–255 Output fade level 0: black, 255: white, 128: center When a=7, b: 0–255 Output level of A/B fader 0: bus B end, 255: bus A end, 128: center When a=8, sends all information described above. Example: stxQPL:0,1,0,1,1,0,100,255;
Acquire status of V-1SDI	stxACS;	ACK	
Version information	stxVER;	stxVER:V-1SDI,a;	a: Version * The version info is ASCII text strings.
Flow control	XON		
Flow control	XOFF		

Commands Spontaneously Sent from the V-1SDI

Item	Sent Commands	Response Command	Parameter
Announce status of operation-panel buttons		stxQPL:b;	Parameter information is similar to QPL (8: ALL) response. * This is enabled when the "RS-232 PANEL STATUS" setting under SYSTEM (page 16/16) on the SETUP menu is set to "ON." * This sends the command when the channel is switched or bus A or B is switched.
Error detected		stxERR:a;	a: 0 (syntax error) The received command contains an error. 5 (out of range error) An argument of the received command is out of range.
Flow control		XON	
Flow control		XOFF	

MIDI Implementation

Model: V-1SDI
Date: February 28. 2017
Version: 1.50

Symbol	Item	Setting Range
n	MIDI Channel	Fixed at 00H
vv	Control Value, Velocity Value etc	00H–7FH (0–127) * If there is a center value, 40H (64) should be the center.
xx	Turning ON/OFF	00H(0): OFF 01H(1): ON

1. MIDI Messages Received at MIDI IN

■ Channel Voice Messages

● Control Change

○ Bank Select (Controller Number 0, 32)

Status	2nd Byte	3rd Byte
BnH	00H	mmH
BnH	20H	llH

mm,ll= Bank Number: 00 00H, 01 00H (bus A, bus B)

* This selects one from among video input on bus A, video input on bus B, or a memory number.
* If unavailable bank select is received, the unit ignores it and receives program change only.
* The received bank select information is withheld until the unit receives new bank select.
* Select video input or memory number along with the program change. Control for bank selects and program changes is as follows.

MSB	LSB	Program No.	Control
00H	00H	00H–03H	A ch. INPUT 1–4
01H	00H	00H–03H	B ch. INPUT 1–4
50H	00H	00H–07H	MEMORY 1–8

○ Panpot (Controller Number 10)

Status	2nd Byte	3rd Byte
BnH	0AH	vvH

* This controls the value of the AUDIO MIXER's SDI 1 audio input level.

○ Expression (Controller Number 11)

Status	2nd Byte	3rd Byte
BnH	0BH	vvH

* This controls the value of the AUDIO MIXER's SDI 2 audio input level.

○ Effect Control 1 (Controller Number 12)

Status	2nd Byte	3rd Byte
BnH	0CH	vvH

* This controls the value of the AUDIO MIXER's SDI 3 audio input level.

○ Effect Control 2 (Controller Number 13)

Status	2nd Byte	3rd Byte
BnH	0DH	vvH

* This controls the value of the AUDIO MIXER's HDMI 3 audio input level.

○ Undefined (Controller Number 14)

Status	2nd Byte	3rd Byte
BnH	0EH	vvH

* This controls the value of the AUDIO MIXER's HDMI 4 audio input level.

○ Undefined (Controller Number 15)

Status	2nd Byte	3rd Byte
BnH	0FH	vvH

* This controls the value of the AUDIO MIXER's AUDIO IN audio input level.

○ General Purpose Controllers 1 (Controller Number 16)

Status	2nd Byte	3rd Byte
BnH	10H	vvH

* This controls the value of the AUDIO MIXER's MIC audio input level.

○ General Purpose Controllers 2 (Controller Number 17)

Status	2nd Byte	3rd Byte
BnH	11H	vvH

* This controls the value of the AUDIO MIXER's MASTER audio output level.

○ General Purpose Controllers 3 (Controller Number 18)

Status	2nd Byte	3rd Byte
BnH	12H	vvH

* This controls the A/B fader.

○ General Purpose Controllers 4 (Controller Number 19)

Status	2nd Byte	3rd Byte
BnH	13H	ttH

tt= TRANSITION TIME: 00H–28H (0.0–4.0 sec)

* This controls the value of TRANSITION TIME.

○ Undefined (Controller Number 20)

Status	2nd Byte	3rd Byte
BnH	14H	ttH

tt= Transition Select: 00H–02H (WIPE, MIX, CUT)

* This controls the type of transition effect.

○ Undefined (Controller Number 21)

Status	2nd Byte	3rd Byte
BnH	15H	xxH

* This turns the [DSK] button on/off.

○ Undefined (Controller Number 22)

Status	2nd Byte	3rd Byte
BnH	16H	vvH

* This switches between bus A and bus B.
  vvH can be any value (00H–7FH).

○ Undefined (Controller Number 23)

Status	2nd Byte	3rd Byte
BnH	17H	xxH

* This turns the [KEY LEVEL] button on/off.

○ Undefined (Controller Number 24)

Status	2nd Byte	3rd Byte
BnH	18H	xxH

* This turns the [PinP] button on/off.

○ Undefined (Controller Number 25)

Status	2nd Byte	3rd Byte
BnH	19H	xxH

* This turns the [SPLIT] button on/off.

○ Undefined (Controller Number 26)

Status	2nd Byte	3rd Byte
BnH	1AH	vvH

* This controls the state of the [OUTPUT FADE] knob.

○ Undefined (Controller Number 27)

Status	2nd Byte	3rd Byte
BnH	1BH	xxH

* This turns the [FREEZE] button on/off.

○ Undefined (Controller Number 28)

Status	2nd Byte	3rd Byte
BnH	1CH	vvH

* This controls the state of the [CONTROL 1] knob.

○ Undefined (Controller Number 29)

Status	2nd Byte	3rd Byte
BnH	1DH	vvH

* This controls the state of the [CONTROL 2] knob.

● Program Change

Status	2nd Byte
CnH	ppH

pp= Program Number: 00H–7FH (1–128)

* Select video input or memory number along with the bank select. For information on control for bank select and program change, refer to "Bank Select"(p. 11)
* Unselectable program change will be ignored.

■ System Exclusive Messages

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

F0H:	Status of system exclusive message
ii= ID number:	This is the ID to recognize manufacturer of the exclusive message (manufacturer ID). The manufacturer ID of Roland is 41H. The ID numbers of 7EH and 7FH are expansion of MID standards and used as universal non-realtime message (7EH) of universal realtime message (7FH).
dd,...,ee= data:	00H–7FH (0–127)
F7H:	EOX (end of exclusive)

● Data Request 1 (RQ1)

This is the message to request of "send data" to the connected device. Specify data type and amount using address and size. When this is received, the unit sends the requested data as "Data Set 1 (DT1)" message in case the unit is in status where the sending of data is possible and requested address and size are appropriate. If not, the unit sends nothing.

Status	Data Byte	Status
F0H	41H, 10H, 00H, 00H, 00H, 31H, 11H, aaH, bbH, ccH, ssH, ttH, uuH, sum	F7H

Byte	Explanation
F0H	Exclusive Status
41H	Manufacturer ID (Roland)
10H	Device ID
00H	1st byte of model ID (V-1SDI)
00H	2nd byte of model ID (V-1SDI)
00H	3rd byte of model ID (V-1SDI)
31H	4th byte of model ID (V-1SDI)
11H	Command ID (RQ1)
aaH	Address upper byte
bbH	Address middle byte
ccH	Address lower byte
ssH	Size upper byte
ttH	Size middle byte
uuH	Size lower byte
sum	Checksum
F7H	EOX (end of exclusive)

* Depending on the data type, the amount of single-time transmission is specified. It is necessary to execute data request according to the specified first address and size. Refer to the "3. Parameter Address Map" (p. 14) for address and size.
* See "Example of an Exclusive Message and Calculating a Checksum" (p. 23) for checksum.

● Data Set 1 (DT1)

This is the message of actual data transmission. Use this when you want to set data to the unit.

Status	Data Byte	Status
F0H	41H, 10H, 00H, 00H, 00H, 31H, 12H, aaH, bbH, ccH, ddH, ..., eeH, sum	F7H

Byte	Explanation
F0H	Exclusive Status
41H	Manufacturer ID (Roland)
10H	Device ID
00H	1st byte of model ID (V-1SDI)
00H	2nd byte of model ID (V-1SDI)
00H	3rd byte of model ID (V-1SDI)
31H	4th byte of model ID (V-1SDI)
12H	Command ID (DT1)
aaH	Address upper byte
bbH	Address middle byte
ccH	Address lower byte
ddH	Data: actual data to transmit. Multiple byte data is sent in address order.
:	:
eeH	Data
sum	Checksum
F7H	EOX (end of exclusive)

* Depending on the data type, the amount of single-time transmission is specified. It is necessary to execute data request according to the specified first address and size. Refer to the "3. Parameter Address Map" (p. 14) for address and size.
* See "Example of an Exclusive Message and Calculating a Checksum" (p. 23) for checksum.
* Data exceeding 256 bytes should be divided into packets of 256 bytes or smaller. If you send data set 1 successively, set interval of 20 ms or longer between packets.

2. MIDI Messages Transmitted from MIDI OUT

■ Channel Voice Messages

● Control Change

○ Bank Select (Controller Number 0, 32)

Status	2nd Byte	3rd Byte
BnH	00H	mmH
BnH	20H	llH

mm, ll= Bank Number: 00 00H, 01 00H (bank.1, bank.2)

* When a video input or memory number has been selected, this transmits a bank number along with a program change. Control for bank selects and program changes is as follows.

MSB	LSB	Program No.	Control
00H	00H	00H–03H	A ch. INPUT 1–4
01H	00H	00H–03H	B ch. INPUT 1–4
50H	00H	00H–07H	MEMORY 1–8

○ Panpot (Controller Number 10)

Status	2nd Byte	3rd Byte
BnH	0AH	vvH

* This transmits the value when the AUDIO MIXER's SDI 1 audio input level has been changed.

○ Expression (Controller Number 11)

Status	2nd Byte	3rd Byte
BnH	0BH	vvH

* This transmits the value when the AUDIO MIXER's SDI 2 audio input level has been changed.

○ Effect Control 1 (Controller Number 12)

Status	2nd Byte	3rd Byte
BnH	0CH	vvH

* This transmits the value when the AUDIO MIXER's SDI 3 audio input level has been changed.

○ Effect Control 2 (Controller Number 13)

Status	2nd Byte	3rd Byte
BnH	0DH	vvH

* This transmits the value when the AUDIO MIXER's HDMI 3 audio input level has been changed.

○ Undefined (Controller Number 14)

Status	2nd Byte	3rd Byte
BnH	0EH	vvH

* This transmits the value when the AUDIO MIXER's HDMI 4 audio input level has been changed

○ Undefined (Controller Number 15)

Status	2nd Byte	3rd Byte
BnH	0FH	vvH

* This transmits the value when the AUDIO MIXER's AUDIO IN audio input level has been changed.

○ General Purpose Controllers 1 (Controller Number 16)

Status	2nd Byte	3rd Byte
BnH	10H	vvH

* This transmits the value when the AUDIO MIXER's MIC audio input level has been changed.

○ General Purpose Controllers 2 (Controller Number 17)

Status	2nd Byte	3rd Byte
BnH	11H	vvH

* This transmits the value when the AUDIO MIXER's MASTER audio output level has been changed.

○ General Purpose Controllers 3 (Controller Number 18)

Status	2nd Byte	3rd Byte
BnH	12H	vvH

* This transmits the value when the A/B fader has been controlled.

○ General Purpose Controllers 4 (Controller Number 19)

Status	2nd Byte	3rd Byte
BnH	13H	ttH

tt= TRANSITION TIME: 00H–28H (0.0–4.0 sec)

* This transmits the value when TRANSITION TIME has been changed.

○ Undefined (Controller Number 20)

Status	2nd Byte	3rd Byte
BnH	14H	ttH

tt= Transition Select: 00H–02H (WIPE, MIX, CUT)

* This transmits the value when the [WIPE], [MIX], or [CUT] button has been operated.

○ Undefined (Controller Number 21)

Status	2nd Byte	3rd Byte
BnH	15H	xxH

* This transmits the value when [DSK] button has been operated.

○ Undefined (Controller Number 22)

Status	2nd Byte	3rd Byte
BnH	16H	vvH

* This transmits the value when the [AUTO] button has been operated.

○ Undefined (Controller Number 23)

Status	2nd Byte	3rd Byte
BnH	17H	xxH

* This transmits the value when the [KEY LEVEL] button has been operated.

○ Undefined (Controller Number 24)

Status	2nd Byte	3rd Byte
BnH	18H	xxH

* This transmits the value when the [PinP] button has been operated.

○ Undefined (Controller Number 25)

Status	2nd Byte	3rd Byte
BnH	19H	xxH

* This transmits the value when the [SPLIT] button has been operated.

○ Undefined (Controller Number 26)

Status	2nd Byte	3rd Byte
BnH	1AH	vvH

* This transmits the value when the [OUTPUT FADE] knob has been operated.

○ Undefined (Controller Number 27)

Status	2nd Byte	3rd Byte
BnH	1BH	xxH

* This transmits the value when the [FREEZE] button has been operated.

○ Undefined (Controller Number 28)

Status	2nd Byte	3rd Byte
BnH	1CH	vvH

* This transmits the value when the [CONTROL 1] knob has been operated.

○ Undefined (Controller Number 29)

Status	2nd Byte	3rd Byte
BnH	1DH	vvH

* This transmits the value when the [CONTROL 2] knob has been operated.

● Program Change

Status	2nd Byte
CnH	ppH

pp= Program Number: 00H–7FH (1–128)

* When a video input or memory number has been selected, this transmits a program number along with a bank select. For information on control for bank select and program change, refer to "Bank Select" (p. 13).

■ System Exclusive Message

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

F0H:	Status of system exclusive message
ii= ID number:	This is the ID to recognize manufacturer of the exclusive message (manufacturer ID). The manufacturer ID of Roland is 41H. The ID numbers of 7EH and 7FH are expansion of MID standards and used as universal non-realtime message (7EH) of universal realtime message (7FH).
dd,...,ee= data:	00H–7FH (0–127)
F7H:	EOX (end of exclusive)

● Data Set 1 (DT1)

This is the message of actual data transmission. Use this when you want to set data to the unit.

Status	Data Byte	Status
F0H	41H, 10H, 00H, 00H, 00H, 31H, 12H, aaH, bbH, ccH, ddH, ..., eeH, sum	F7H

Byte	Explanation
F0H	Exclusive Status
41H	Manufacturer ID (Roland)
10H	Device ID
00H	1st byte of model ID (V-1SDI)
00H	2nd byte of model ID (V-1SDI)
00H	3rd byte of model ID (V-1SDI)
31H	4th byte of model ID (V-1SDI)
12H	Command ID (DT1)
aaH	Address upper byte
bbH	Address middle byte
ccH	Address lower byte
ddH	Data: actual data to transmit. Multiple byte data is sent in address order.
:	:
eeH	Data
sum	Checksum
F7H	EOX (end of exclusive)

* Data exceeding 256 bytes should be divided into packets of 256 bytes or smaller. If you send sequentially, the intervals of packets should be longer than 20 ms.

3. Parameter Address Map

* At addresses with "#" appended, the specified data is transmitted divided into the upper 2 bytes and lower 2 bytes. The data is ignored if the 2-byte sets are not received in succession.

Start Address	Description
00H 00H 00H	Reserved
70H 00H 00H	System Parameter Area
71H 00H 00H	Video, Audio, Panel Parameter Area
72H 00H 00H	Video, Audio, Panel Parameter Memory Area
73H 00H 00H	Reserved
73H 01H 00H	Other Parameter Area
74H 00H 00H	Reserved

● System Parameter Area

○ Products, version, mode

Address	Parameter Name	Sys.Ex.Value	Meaning of Value
70H 00H 00H	System Version String (1)	00H–7FH	ASCII Character (Read Only)
70H 00H 01H	System Version String (2)	00H–7FH	ASCII Character (Read Only)
70H 00H 02H	System Version String (3)	00H–7FH	ASCII Character (Read Only)
70H 00H 03H	System Version String (4)	00H–7FH	ASCII Character (Read Only)
70H 00H 04H	System Version String (5)	00H–7FH	ASCII Character (Read Only)
70H 00H 05H	System Version String (6)	00H–7FH	ASCII Character (Read Only)
70H 00H 06H	System Version String (7)	00H–7FH	ASCII Character (Read Only)
70H 00H 07H	System Version String (8)	00H–7FH	ASCII Character (Read Only)
70H 00H 08H	System Version String (9)	00H–7FH	ASCII Character (Read Only)
70H 00H 09H	Reserved		
70H 00H 10H	System Device Mode	00H	00H: NORMAL (Read Only)

○ Setup Parameter

Address	Parameter Name	Sys.Ex.Value	Meaning of Value
70H 01H 00H	PANEL MODE	00H–01H	A/B, PGM/PST
70H 01H 01H	PGM LED	00H–06H	RED, GREEN, YELLOW, BLUE, PURPLE, L.BLUE, WHITE
70H 01H 02H	PST LED	00H–06H	RED, GREEN, YELLOW, BLUE, PURPLE, L.BLUE, WHITE
70H 01H 03H	INPUT LED	00H–01H	OFF, ON
70H 01H 04H	DSK LED	00H–01H	OFF, ON
70H 01H 05H	AUTO LED	00H–01H	OFF, ON
70H 01H 06H	AUDIO LED	00H–08H	OFF, MASTER OUT, MIC, AUDIO IN, SDI 1, SDI 2, SDI 3, HDMI 3, HDMI 4
70H 01H 07H	ALL LED OFF	00H–01H	DISABLE, ENABLE
70H 01H 08H	LOCK DSK SW	00H–01H	OFF, ON
70H 01H 09H	LOCK AUTO SW	00H–01H	OFF, ON
70H 01H 0AH	LOCK FREEZE SW	00H–01H	OFF, ON
70H 01H 0BH	LOCK MEMORY SW	00H–01H	OFF, ON
70H 01H 0CH	LOCK AUDIO SW	00H–01H	OFF, ON
70H 01H 0DH	LOCK A/B BUS SW	00H–01H	OFF, ON
70H 01H 0EH	LOCK KEY LEVEL SW	00H–01H	OFF, ON
70H 01H 0FH	LOCK WIPE SW	00H–01H	OFF, ON
70H 01H 10H	LOCK MIX SW	00H–01H	OFF, ON
70H 01H 11H	LOCK CUT SW	00H–01H	OFF, ON
70H 01H 12H	LOCK PinP SW	00H–01H	OFF, ON
70H 01H 13H	LOCK SPLIT SW	00H–01H	OFF, ON
70H 01H 14H	LOCK OUTPUT FADE VOL	00H–01H	OFF, ON
70H 01H 15H	LOCK CONTROL 1 VOL	00H–01H	OFF, ON
70H 01H 16H	LOCK CONTROL 2 VOL	00H–01H	OFF, ON
70H 01H 17H	LOCK A/B FADER	00H–01H	OFF, ON
70H 01H 18H	MEMORY PANEL LOAD	00H–01H	OFF, ON
70H 01H 19H	POWER ON LOAD	00H–07H	Memory 1–Memory 8
70H 01H 1AH	MEMORY PROTECT	00H–01H	OFF, ON
70H 01H 1BH	AUTO MEMORY	00H–01H	OFF, ON
70H 01H 1CH	HDCP	00H–01H	OFF, ON
70H 01H 1DH	FRAME RATE	00H–01H	59.94, 50

Address	Parameter Name	Sys.Ex.Value	Meaning of Value
70H 01H 1EH	FREEZE MODE	00H–02H	ALL, SELECT, STILL
70H 01H 1FH	DEINTERLACE MODE	00H–01H	WEAVE, BOB
70H 01H 20H	AUTO OFF	00H–01H	OFF, ON
70H 01H 21H	OUTPUT FADER ASSIGN	00H–03H	VIDEO, V & A, AUDIO, BLACK / A
70H 01H 22H	PVW INDICATER LABEL	00H–01H	OFF, ON
70H 01H 23H	PVW INDICATER TALLY	00H–01H	OFF, ON
70H 01H 24H	PVW INDICATER AUDIO	00H–02H	OFF, UPPER, LOWER
70H 01H 25H	AUTO SCAN ON/OFF	00H–01H	OFF, ON
70H 01H 26H	AUTO SCAN TIME	01H–78H	1–120 sec
70H 01H 27H	AUTO SCAN TRANS TIME	00H–28H	0.0–4.0 sec
70H 01H 28H	COLOR BAR OUTPUT	00H–01H	OFF, ON
70H 01H 29H	TEST TONE OUTPUT	00H–03H	OFF, -20 dB@1 kHz, -6 dB@1 kHz, 0 dB@1 kHz
70H 01H 2AH	RS-232 PANEL STATUS	00H–01H	OFF, ON
70H 01H 2BH	FREEZE SELECT CH	00H–03H	CH-1–CH-4

● Video/Audio/Panel Parameter Area

○ Video, Audio, Panel Parameter Area

These modify current operation.

Address	Parameter Name
71H 00H 00H	Video
71H 01H 00H	Audio Parameter-1
71H 02H 00H	Audio Parameter-2
71H 03H 00H	Panel Parameter

○ Video, Audio, Panel Parameter Memory Area

These read or overwrite data saved at memory numbers other than the one currently selected. Data saved at the currently selected memory is not modified.

* The parameters in "Video Parameter" (p. 16), "Audio Parameter-1" (p. 17), "Audio Parameter-2" (p. 18) and "Panel Parameter" (p. 20) are also common to the video, audio and panel parameter memory area.

Address	Parameter Name	Address	Parameter Name
72H 00H 00H	Video (Memory 1)	72H 10H 00H	Video (Memory 5)
72H 01H 00H	Audio Parameter-1 (Memory 1)	72H 11H 00H	Audio Parameter-1 (Memory 5)
72H 02H 00H	Audio Parameter-2 (Memory 1)	72H 12H 00H	Audio Parameter-2 (Memory 5)
72H 03H 00H	Panel (Memory 1)	72H 13H 00H	Panel (Memory 5)
72H 04H 00H	Video (Memory 2)	72H 14H 00H	Video (Memory 6)
72H 05H 00H	Audio Parameter-1 (Memory 2)	72H 15H 00H	Audio Parameter-1 (Memory 6)
72H 06H 00H	Audio Parameter-2 (Memory 2)	72H 16H 00H	Audio Parameter-2 (Memory 6)
72H 07H 00H	Panel (Memory 2)	72H 17H 00H	Panel (Memory 6)
72H 08H 00H	Video (Memory 3)	72H 18H 00H	Video (Memory 7)
72H 09H 00H	Audio Parameter-1 (Memory 3)	72H 19H 00H	Audio Parameter-1 (Memory 7)
72H 0AH 00H	Audio Parameter-2 (Memory 3)	72H 1AH 00H	Audio Parameter-2 (Memory 7)
72H 0BH 00H	Panel (Memory 3)	72H 1BH 00H	Panel (Memory 7)
72H 0CH 00H	Video (Memory 4)	72H 1CH 00H	Video (Memory 8)
72H 0DH 00H	Audio Parameter-1 (Memory 4)	72H 1DH 00H	Audio Parameter-1 (Memory 8)
72H 0EH 00H	Audio Parameter-2 (Memory 4)	72H 1EH 00H	Audio Parameter-2 (Memory 8)
72H 0FH 00H	Panel (Memory 4)	72H 1FH 00H	Panel (Memory 8)

○ Video Parameter

Address	Parameter Name	Sys.Ex.Value	Meaning of Value
71H 00H 00H	CH3 INPUT SELECT	00H–02H	AUTO, SDI, HDMI
71H 00H 01H	CH4 HDMI SCALING TYPE	00H–03H	FULL, LETTERBOX, CROP, DOT BY DOT
#71H 00H 02H 03H	CH4 HDMI H. POSITION	00H 00H–1EH 00H	-1920–1920 * Only values that are multiples of 8 can be specified.
#71H 00H 04H 05H	CH4 HDMI V. POSITION	00H 00H–10H 70H	-1080–1080 * Only values that are multiples of 8 can be specified.
#71H 00H 06H 07H	CH4 HDMI ZOOM	00H 32H–01H 48H	50–200
71H 00H 08H	CH4 HDMI CONTRAST	00H–7FH	-64–63
71H 00H 09H	CH4 HDMI SATURATION	00H–7FH	-64–63
71H 00H 0AH	CH4 HDMI BRIGHTNESS	00H–7FH	-64–63
71H 00H 0BH	CH4 HDMI FLICKER FILTER	00H–01H	OFF, ON

Address	Parameter Name	Sys.Ex.Value	Meaning of Value
71H 00H 0CH	CH4 HDMI EDID	00H–0EH	AUTO, 480/576i, 480/576p, 720p, 1080i, 1080p, 640x480, 800x600, 1024x768, 1280x768, 1280x1024, 1366x768, 1400x1050, 1600x1200, 1920x1200
71H 00H 0DH	Reserved		
71H 00H 0EH	SDI PVW ASSIGN	00H–02H	MULTI-VIEW, PST, PGM
71H 00H 0FH	3G-SDI MAPPING	00H–01H	LEVEL A, LEVEL B
71H 00H 10H	HDMI PVW ASSIGN	00H–02H	MULTI-VIEW, PST, PGM
71H 00H 11H	HDMI OUT COLOR SPACE	00H–03H	AUTO, RGB 0-255, RGB 16-235, YCC
71H 00H 12H	DVI-D/HDMI SIGNAL	00H–02H	AUTO, DVI-D, HDMI
71H 00H 13H	VIDEO OUT CONTRAST	00H–7FH	-64–63
71H 00H 14H	VIDEO OUT SATURATION	00H–7FH	-64–63
71H 00H 15H	VIDEO OUT BRIGHTNESS	00H–7FH	-64–63
71H 00H 16H	Reserved		
71H 00H 17H	TRANSITION TIME	00H–28H	0.0–4.0 sec
71H 00H 18H	WIPE PATTERN	00H–1DH	H-DOWN, H-UP, V-RIGHT, V-LEFT, H-IN, H-OUT, V-IN, V-OUT, R-DOWN, L-DOWN, R-UP, L-UP, BLOCK, V-GRID, H-GRID, H-DOWN/s, H-UP/s, V-RIGHT/s, V-LEFT/s, H-IN/s, H-OUT/s, V-IN/s, V-OUT/s, -DOWN/s, L-DOWN/s, R-UP/s, L-UP/s, BLOCK/s, V-GRID/s, H-GRID/s
71H 00H 19H	MIX PATTERN	00H–03H	MIX, FAM, NAM, MOSAIC
71H 00H 1AH	PinP PATTERN	00H–07H	PinP 1/4, PinP 1/3, PinP 1/2, SPLIT-VS, SPLIT-VC, SPLIT-HS, SPLIT-HC, QUAD
71H 00H 1BH	SPLIT PATTERN	00H–07H	PinP 1/4, PinP 1/3, PinP 1/2, SPLIT-VS, SPLIT-VC, SPLIT-HS, SPLIT-HC, QUAD
71H 00H 1CH	PinP BORDER WIDTH	00H–0FH	0–15
71H 00H 1DH	PinP BORDER COLOR	00H–06H	BLACK, WHITE, GRAY, RED, GREEN, BLUE, YELLOW
71H 00H 1EH	Reserved		
71H 00H 1FH	DSK ON/OFF	00H–01H	OFF, ON
71H 00H 20H	DSK SOURCE CH	00H–04H	INPUT1, INPUT2, INPUT3, INPUT4, STILL
71H 00H 21H	KEY TYPE	00H–03H	WHT-L.KEY, BLK-L.KEY, GRN-C.KEY, BLU-C.KEY
#71H 00H 22H 23H	KEY LEVEL	00H 00H–01H 7FH	0–255
#71H 00H 24H 25H	KEY GAIN	00H 00H–01H 7FH	0–255
#71H 00H 26H 27H	MIX LEVEL	00H 00H–01H 7FH	0–255
#71H 00H 28H 29H	HUE WIDTH	00H 00H–01H 7FH	-128–127
#71H 00H 2AH 2BH	HUE FINE	00H 00H–01H 7FH	-128–127
#71H 00H 2CH 2DH	SATURATION WIDTH	00H 00H–01H 7FH	-128–127
#71H 00H 2EH 2FH	SATURATION FINE	00H 00H–01H 7FH	0–255

○ Audio Parameter-1

Address	Parameter Name	Sys.Ex.Value	Meaning of Value
71H 01H 00H	SDI1 INPUT LEVEL	00H–7FH	-INF–+6.0 dB
71H 01H 01H	SDI2 INPUT LEVEL	00H–7FH	-INF–+6.0 dB
71H 01H 02H	SDI3 INPUT LEVEL	00H–7FH	-INF–+6.0 dB
71H 01H 03H	HDMI3 INPUT LEVEL	00H–7FH	-INF–+6.0 dB
71H 01H 04H	HDMI4 INPUT LEVEL	00H–7FH	-INF–+6.0 dB
71H 01H 05H	AUDIO INPUT LEVEL	00H–7FH	-INF–+6.0 dB
71H 01H 06H	MIC INPUT LEVEL	00H–7FH	-INF–+6.0 dB
71H 01H 07H	MASTER OUT LEVEL	00H–7FH	-INF–+6.0 dB
71H 01H 08H	A. FOLLOW SDI1	00H–01H	OFF, ON
71H 01H 09H	A. FOLLOW SDI2	00H–01H	OFF, ON
71H 01H 0AH	A. FOLLOW SDI3	00H–01H	OFF, ON
71H 01H 0BH	A. FOLLOW HDMI3	00H–01H	OFF, ON
71H 01H 0CH	A. FOLLOW HDMI4	00H–01H	OFF, ON
71H 01H 0DH	A. FOLLOW AUDIO IN	00H–04H	OFF, 1–4
71H 01H 0EH	A. FOLLOW MIC IN	00H–04H	OFF, 1–4
71H 01H 0FH	Reserved		
#71H 01H 10H 11H	DELAY SDI1	00H 00H–27H 08H	0.0–500.0 ms

Address	Parameter Name	Sys.Ex.Value	Meaning of Value
#71H 01H 12H 13H	DELAY SDI2	00H 00H–27H 08H	0.0–500.0 ms
#71H 01H 14H 15H	DELAY SDI3	00H 00H–27H 08H	0.0–500.0 ms
#71H 01H 16H 17H	DELAY HDMI3	00H 00H–27H 08H	0.0–500.0 ms
#71H 01H 18H 19H	DELAY HDMI4	00H 00H–27H 08H	0.0–500.0 ms
#71H 01H 1AH 1BH	DELAY AUDIO IN	00H 00H–27H 08H	0.0–500.0 ms
#71H 01H 1CH 1DH	DELAY MIC IN	00H 00H–27H 08H	0.0–500.0 ms
71H 01H 1EH	Reserved		
71H 01H 1FH	Reserved		
71H 01H 20H	SDI1 IN EQ Hi	00H–1EH	-15–15 dB
71H 01H 21H	SDI1 IN EQ Hi FREQ	44H–78H	1.00–20.0 kHz
71H 01H 22H	SDI1 IN EQ Mid	00H–1EH	-15–15 dB
71H 01H 23H	SDI1 IN EQ Mid FREQ	00H–78H	20 Hz–20.0 kHz
71H 01H 24H	SDI1 IN EQ Mid Q	00H–05H	0.5–16.0
71H 01H 25H	SDI1 IN EQ Lo	00H–1EH	-15–15 dB
71H 01H 26H	SDI1 IN EQ Lo FREQ	00H–38H	20–500 Hz
71H 01H 27H	Reserved		
71H 01H 28H	SDI2 IN EQ Hi	00H–1EH	-15–15 dB
71H 01H 29H	SDI2 IN EQ Hi FREQ	44H–78H	1.00–20.0 kHz
71H 01H 2AH	SDI2 IN EQ Mid	00H–1EH	-15–15 dB
71H 01H 2BH	SDI2 IN EQ Mid FREQ	00H–78H	20 Hz–20.0 kHz
71H 01H 2CH	SDI2 IN EQ Mid Q	00H–05H	0.5–16.0
71H 01H 2DH	SDI2 IN EQ Lo	00H–1EH	-15–15 dB
71H 01H 2EH	SDI2 IN EQ Lo FREQ	00H–38H	20–500 Hz
71H 01H 2FH	Reserved		
71H 01H 30H	SDI3 IN EQ Hi	00H–1EH	-15–15 dB
71H 01H 31H	SDI3 IN EQ Hi FREQ	44H–78H	1.00–20.0 kHz
71H 01H 32H	SDI3 IN EQ Mid	00H–1EH	-15–15 dB
71H 01H 33H	SDI3 IN EQ Mid FREQ	00H–78H	20 Hz–20.0 kHz
71H 01H 34H	SDI3 IN EQ Mid Q	00H–05H	0.5–16.0
71H 01H 35H	SDI3 IN EQ Lo	00H–1EH	-15–15 dB
71H 01H 36H	SDI3 IN EQ Lo FREQ	00H–38H	20–500 Hz
71H 01H 37H	Reserved		
71H 01H 38H	HDMI3 IN EQ Hi	00H–1EH	-15–15 dB
71H 01H 39H	HDMI3 IN EQ Hi FREQ	44H–78H	1.00–20.0 kH
71H 01H 3AH	HDMI3 IN EQ Mid	00H–1EH	-15–15 dB
71H 01H 3BH	HDMI3 IN EQ Mid FREQ	00H–78H	20 Hz–20.0 kHz
71H 01H 3CH	HDMI3 IN EQ Mid Q	00H–05H	0.5–16.0
71H 01H 3DH	HDMI3 IN EQ Lo	00H–1EH	-15–15 dB
71H 01H 3EH	HDMI3 IN EQ Lo FREQ	00H–38H	20–500 Hz
71H 01H 3FH	Reserved		
71H 01H 40H	HDMI4 IN EQ Hi	00H–1EH	-15–15 dB
71H 01H 41H	HDMI4 IN EQ Hi FREQ	44H–78H	1.00–20.0 kHz
71H 01H 42H	HDMI4 IN EQ Mid	00H–1EH	-15–15 dB
71H 01H 43H	HDMI4 IN EQ Mid FREQ	00H–78H	20 Hz–20.0 kHz
71H 01H 44H	HDMI4 IN EQ Mid Q	00H–05H	0.5–16.0
71H 01H 45H	HDMI4 IN EQ Lo	00H–1EH	-15–15 dB
71H 01H 46H	HDMI4 IN EQ Lo FREQ	00H–38H	20–500 Hz

○ Audio Parameter-2

Address	Parameter Name	Sys.Ex.Value	Meaning of Value
71H 02H 00H	AUDIO IN EQ Hi	00H–1EH	-15–15 dB
71H 02H 01H	AUDIO IN EQ Hi FREQ	44H–78H	1.00–20.0 kHz
71H 02H 02H	AUDIO IN EQ Mid	00H–1EH	-15–15 dB
71H 02H 03H	AUDIO IN EQ Mid FREQ	00H–78H	20 Hz–20.0 kHz
71H 02H 04H	AUDIO IN EQ Mid Q	00H–05H	0.5–16.0
71H 02H 05H	AUDIO IN EQ Lo	00H–1EH	-15–15 dB
71H 02H 06H	AUDIO IN EQ Lo FREQ	00H–38H	20–500 Hz
71H 02H 07H	Reserved		
71H 02H 08H	MIC IN EQ Hi	00H–1EH	-15–15 dB
71H 02H 09H	MIC IN EQ Hi FREQ	44H–78H	1.00–20.0 kHz
71H 02H 0AH	MIC IN EQ Mid	00H–1EH	-15–15 dB
71H 02H 0BH	MIC IN EQ Mid FREQ	00H–78H	20 Hz–20.0 kHz
71H 02H 0CH	MIC IN EQ Mid Q	00H–05H	0.5–16.0
71H 02H 0DH	MIC IN EQ Lo	00H–1EH	-15–15 dB
71H 02H 0EH	MIC IN EQ Lo FREQ	00H–38H	20–500 Hz
71H 02H 0FH	MIC IN HPF	00H–01H	OFF, ON
71H 02H 10H	MIC IN COMP	00H–01H	OFF, ON
71H 02H 11H	MIC IN COMP THRESHOLD	00H–32H	-50–0 dB
71H 02H 12H	MIC IN COMP RATIO	00H–08H	1.0:1 – INF:1
71H 02H 13H	MIC IN COMP ATTACK	00H–19H	0.2–100 ms
71H 02H 14H	MIC IN COMP RELEASE	00H–7FH	30–5000 ms
71H 02H 15H	MIC IN GATE	00H–01H	OFF, ON
71H 02H 16H	MIC IN GATE THRESHOLD	00H–32H	-50–0 dB
71H 02H 17H	MIC IN GATE RELEASE	00H–7FH	30–5000 ms
71H 02H 18H	MASTER OUT EQ Hi	00H–1EH	-15–15 dB
71H 02H 19H	MASTER OUT EQ Hi FREQ	44H–78H	1.00–20.0 kHz
71H 02H 1AH	MASTER OUT EQ Mid	00H–1EH	-15–15 dB
71H 02H 1BH	MASTER OUT EQ Mid FREQ	00H–78H	20 Hz–20.0 kHz
71H 02H 1CH	MASTER OUT EQ Mid Q	00H–05H	0.5–16.0
71H 02H 1DH	MASTER OUT EQ Lo	00H–1EH	-15–15 dB
71H 02H 1EH	MASTER OUT EQ Lo FREQ	00H–38H	20–500 Hz
71H 02H 1FH	Reserved		
71H 02H 20H	REVERB LEVEL	00H–7FH	0–127
71H 02H 21H	REVERB TIME	00H–32H	0.0–5.0 sec
71H 02H 22H	REVERB TYPE	00H–01H	ROOM, HALL
71H 02H 23H	REVERB SEND LEVEL SDI1	00H–7FH	0–127
71H 02H 24H	REVERB SEND LEVEL SDI2	00H–7FH	0–127
71H 02H 25H	REVERB SEND LEVEL SDI3	00H–7FH	0–127
71H 02H 26H	REVERB SEND LEVEL HDMI3	00H–7FH	0–127
71H 02H 27H	REVERB SEND LEVEL HDMI4	00H–7FH	0–127
71H 02H 28H	REVERB SEND LEVEL AUDIO IN	00H–7FH	0–127
71H 02H 29H	REVERB SEND LEVEL MIC IN	00H–7FH	0–127
71H 02H 2AH	MASTERING	00H–01H	OFF, ON
71H 02H 2BH	MASTERING NOISE SUPPRESSOR	00H–7FH	0–127
71H 02H 2CH	MASTERING ENHANSER	00H–7FH	0–127
71H 02H 2DH	MASTERING Hi	00H–7FH	0–127
71H 02H 2EH	MASTERING Mid	00H–7FH	0–127
71H 02H 2FH	MASTERING Lo	00H–7FH	0–127

○ Panel Parameter

Address	Parameter Name	Sys.Ex.Value	Meaning of Value
#71H 03H 00H 01H	A/B FADER	00H 00H–07H 7F	0–1023
#71H 03H 02H 03H	CONTROL 1 VOL	00H 00H–01H 7FH	0–255
#71H 03H 04H 05H	CONTROL 2 VOL	00H 00H–01H 7FH	0–255
#71H 03H 06H 07H	OUTPUT FADER	00H 00H–01H 7FH	0–255
71H 03H 08H	VIDEO SEL A	00H–03H	Input 1–4
71H 03H 09H	VIDEO SEL B	00H–03H	Input 1–4
71H 03H 0AH	[PinP]	00H–01H	[PinP] button OFF, ON
71H 03H 0BH	[SPLIT]	00H–01H	[SPLIT] button OFF, ON
71H 03H 0CH	TRANSITION PATTERN	00H–02H	WIPE, MIX, CUT
71H 03H 0DH	[DSK]	00H–01H	[DSK] button OFF, ON
71H 03H 0EH	[KEY LEVEL]	00H–01H	[KEY LEVEL] button OFF, ON
71H 03H 0FH	A/B FADER START POSITION	00H–01H	00H: bus A end, 01H: bus B end
#71H 03H 10H 11H	PinP 1/4 CONTROL 1 VOL (PinP SW)	00H 00H–01H 7FH	0–255
#71H 03H 12H 13H	PinP 1/4 CONTROL 2 VOL (PinP SW)	00H 00H–01H 7FH	0–255
#71H 03H 14H 15H	PinP 1/2 CONTROL 1 VOL (PinP SW)	00H 00H–01H 7FH	0–255
#71H 03H 16H 17H	PinP 1/2 CONTROL 2 VOL (PinP SW)	00H 00H–01H 7FH	0–255
#71H 03H 18H 19H	SPLIT VC CONTROL 1 VOL (PinP SW)	00H 00H–01H 7FH	0–255
#71H 03H 1AH 1BH	SPLIT VC CONTROL 2 VOL (PinP SW)	00H 00H–01H 7FH	0–255
#71H 03H 1CH 1DH	SPLIT HC CONTROL 1 VOL (PinP SW)	00H 00H–01H 7FH	0–255
#71H 03H 1EH 1FH	SPLIT HC CONTROL 2 VOL (PinP SW)	00H 00H–01H 7FH	0–255
#71H 03H 20H 21H	PinP 1/4 CONTROL 1 VOL (SPLIT SW)	00H 00H–01H 7FH	0–255
#71H 03H 22H 23H	PinP 1/4 CONTROL 2 VOL (SPLIT SW)	00H 00H–01H 7FH	0–255
#71H 03H 24H 25H	PinP 1/2 CONTROL 1 VOL (SPLIT SW)	00H 00H–01H 7FH	0–255
#71H 03H 26H 27H	PinP 1/2 CONTROL 2 VOL (SPLIT SW)	00H 00H–01H 7FH	0–255
#71H 03H 28H 29H	SPLIT VC CONTROL 1 VOL (SPLIT SW)	00H 00H–01H 7FH	0–255
#71H 03H 2AH 2BH	SPLIT VC CONTROL 2VOL (SPLIT SW)	00H 00H–01H 7FH	0–255
#71H 03H 2CH 2DH	SPLIT HC CONTROL 1 VOL (SPLIT SW)	00H 00H–01H 7FH	0–255
#71H 03H 2EH 2FH	SPLIT HC CONTROL 2 VOL (SPLIT SW)	00H 00H–01H 7FH	0–255
#71H 03H 30H 31H	PinP 1/3 CONTROL 1VOL (PinP SW)	00H 00H–01H 7FH	0–255
#71H 03H 32H 33H	PinP 1/3 CONTROL 2VOL (PinP SW)	00H 00H–01H 7FH	0–255
#71H 03H 34H 35H	PinP 1/3 CONTROL 1VOL (SPLIT SW)	00H 00H–01H 7FH	0–255
#71H 03H 36H 37H	PinP 1/3 CONTROL 2VOL (SPLIT SW)	00H 00H–01H 7FH	0–255

● Other Parameter Area

○ MEMORY

Address	Parameter Name	Sys.Ex.Value	Meaning of Value
73H 01H 00H	MEMORY SELECT	00H–07H	MEMORY 1–8
	MEMORY SAVE	10H–17H	MEMORY 1–8
	MEMORY INIT	20H–28H	This returns MEMORY 1–8 (20H–27H) and Current (28H) to default values.

* Sending 1nH or 2nH changes the memory selection to the specified memory.
* Even if 1nH or 2nH is specified, RQ1 results in sending of 00H–07H (the currently selected memory).

○ LED

Address	Parameter Name	Sys.Ex.Value	Meaning of Value
73H 02H 00H	LED OUTFADER BLACK	00H–01H	OFF, GREEN (Read Only)
73H 02H 01H	LED OUTFADER WHITE	00H–01H	OFF, GREEN (Read Only)
73H 02H 02H	LED FREEZE	00H–01H	OFF, RED (Read Only)
73H 02H 03H	LED MEMORY	00H–01H	OFF, BLUE (Read Only)
73H 02H 04H	LED AUDIO	00H–03H	OFF, RED, GREEN, YELLOW (Read Only)
73H 02H 05H	LED PEKSIG	00H–03H	OFF, RED, GREEN, YELLOW (Read Only)
73H 02H 06H	LED SETUP	00H–01H	OFF, GREEN (Read Only)
73H 02H 07H	LED PANELLOCK	00H–01H	OFF, RED (Read Only)
73H 02H 08H	LED PINP	00H–01H	OFF, GREEN (Read Only)
73H 02H 09H	LED SPLIT	00H–01H	OFF, GREEN (Read Only)
73H 02H 0AH	LED HDCP	00H–01H	OFF, RED (Read Only)
73H 02H 0BH	LED KEYLEVEL	00H–01H	OFF, RED (Read Only)
73H 02H 0CH	LED WIPE	00H–01H	OFF, GREEN (Read Only)
73H 02H 0DH	LED MIX	00H–01H	OFF, GREEN (Read Only)
73H 02H 0EH	LED CUT	00H–01H	OFF, GREEN (Read Only)
73H 02H 0FH	LED DSK	00H–07H	OFF, RED, GREEN, YELLOW, BLUE, MAZENTA, CYAN, WHITE (Read Only)
73H 02H 10H	LED AUTO	00H–07H	OFF, RED, GREEN, YELLOW, BLUE, MAZENTA, CYAN, WHITE (Read Only)
73H 02H 11H	LED VDOSEL1A	00H–07H	OFF, RED, GREEN, YELLOW, BLUE, MAZENTA, CYAN, WHITE (Read Only)
73H 02H 12H	LED VDOSEL2A	00H–07H	OFF, RED, GREEN, YELLOW, BLUE, MAZENTA, CYAN, WHITE (Read Only)
73H 02H 13H	LED VDOSEL3A	00H–07H	OFF, RED, GREEN, YELLOW, BLUE, MAZENTA, CYAN, WHITE (Read Only)
73H 02H 14H	LED VDOSEL4A	00H–07H	OFF, RED, GREEN, YELLOW, BLUE, MAZENTA, CYAN, WHITE (Read Only)
73H 02H 15H	LED VDOSEL1B	00H–07H	OFF, RED, GREEN, YELLOW, BLUE, MAZENTA, CYAN, WHITE (Read Only)
73H 02H 16H	LED VDOSEL2B	00H–07H	OFF, RED, GREEN, YELLOW, BLUE, MAZENTA, CYAN, WHITE (Read Only)
73H 02H 17H	LED VDOSEL3B	00H–07H	OFF, RED, GREEN, YELLOW, BLUE, MAZENTA, CYAN, WHITE (Read Only)
73H 02H 18H	LED VDOSEL4B	00H–07H	OFF, RED, GREEN, YELLOW, BLUE, MAZENTA, CYAN, WHITE (Read Only)

○ AUDIO LEVEL METER

Address	Parameter Name	Sys.Ex.Value	Meaning of Value
73H 03H 00H	AUDIO LEVEL METER MASTER L	00H–33H	-INF, -50–0 dB (Read Only)
73H 03H 01H	AUDIO LEVEL METER MASTER R	00H–33H	-INF, -50–0 dB (Read Only)
73H 03H 02H	AUDIO LEVEL METER SDI1 L	00H–33H	-INF, -50–0 dB (Read Only)
73H 03H 03H	AUDIO LEVEL METER SDI1 R	00H–33H	-INF, -50–0 dB (Read Only)
73H 03H 04H	AUDIO LEVEL METER SDI2 L	00H–33H	-INF, -50–0 dB (Read Only)
73H 03H 05H	AUDIO LEVEL METER SDI2 R	00H–33H	-INF, -50–0 dB (Read Only)
73H 03H 06H	AUDIO LEVEL METER SDI3 L	00H–33H	-INF, -50–0 dB (Read Only)
73H 03H 07H	AUDIO LEVEL METER SDI3 R	00H–33H	-INF, -50–0 dB (Read Only)
73H 03H 08H	AUDIO LEVEL METER HDMI3 L	00H–33H	-INF, -50–0 dB (Read Only)
73H 03H 09H	AUDIO LEVEL METER HDMI3 R	00H–33H	-INF, -50–0 dB (Read Only)
73H 03H 0AH	AUDIO LEVEL METER HDMI4 L	00H–33H	-INF, -50–0 dB (Read Only)
73H 03H 0BH	AUDIO LEVEL METER HDMI4 R	00H–33H	-INF, -50–0 dB (Read Only)
73H 03H 0CH	AUDIO LEVEL METER LINE L	00H–33H	-INF, -50–0 dB (Read Only)
73H 03H 0DH	AUDIO LEVEL METER LINE R	00H–33H	-INF, -50–0 dB (Read Only)
73H 03H 0EH	AUDIO LEVEL METER MIC L	00H–33H	-INF, -50–0 dB (Read Only)
73H 03H 0FH	AUDIO LEVEL METER MIC R	00H–33H	-INF, -50–0 dB (Read Only)

○ CTRL BUTTON

Address	Parameter Name	Sys.Ex.Value	Meaning of Value
73H 04H 00H	[FREEZE]	00H, 20H, 40H	[FREEZE] button on/long press/off
	[MEMORY]	01H, 21H, 41H	[MEMORY] button on/long press/off
	[AUDIO]	02H, 22H, 42H	[AUDIO] button on/long press/off
	[SETUP]	03H, 23H, 43H	[SETUP] button on/long press/off
	[PinP]	04H, 24H, 44H	[PinP] button on/long press/off
	[SPLIT]	05H, 25H, 45H	[SPLIT] button on/long press/off
	[VIDEO SELECT 1A]	06H, 26H, 46H	[VIDEO SELECT 1A] button on/long press/off
	[VIDEO SELECT 2A]	07H, 27H, 47H	[VIDEO SELECT 2A] button on/long press/off
	[VIDEO SELECT 3A]	08H, 28H, 48H	[VIDEO SELECT 3A] button on/long press/off
	[VIDEO SELECT 4A]	09H, 29H, 49H	[VIDEO SELECT 4A] button on/long press/off
	[VIDEO SELECT 1B]	0AH, 2AH, 4AH	[VIDEO SELECT 1B] button on/long press/off
	[VIDEO SELECT 2B]	0BH, 2BH, 4BH	[VIDEO SELECT 2B] button on/long press/off
	[VIDEO SELECT 3B]	0CH, 2CH, 4CH	[VIDEO SELECT 3B] button on/long press/off
	[VIDEO SELECT 4B]	0DH, 2DH, 4DH	[VIDEO SELECT 4B] button on/long press/off
	[KEY LEVEL]	0EH, 2EH, 4EH	[KEY LEVEL] button on/long press/off
	[WIPE]	0FH, 2FH, 4FH	[WIPE] button on/long press/off
	[MIX]	10H, 30H, 50H	[MIX] button on/long press/off
	[CUT]	11H, 31H, 51H	[CUT] button on/long press/off
	[DSK]	12H, 32H, 52H	[DSK] button on/long press/off
	[AUTO]	13H, 33H, 53H	[AUTO] button on/long press/off

4. Supplementary Material

● Decimal and Hexadecimal Table

(Hexadecimal Numbers are Indicated by 'H')

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 expressions used for MIDI channel, bank select, and program change are 1 greater than the decimal value shown in the above table.
* Hexadecimal values in 7-bit units can express a maximum of 128 levels in one byte of data. If the data requires greater resolution, two or more bytes are used. For example, a value indicated by a hexadecimal expression in two 7-bit bytes aa bbH would be 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-bit units. A value expressed as a 2-byte nibble 0a 0bH has the value of a x 16 + b.

<Example1>
What is the decimal expression of 5AH?
From the preceding table, 5AH = 90

<Example2>
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

<Example3>
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

<Example4>
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.

● MIDI Message Examples

<Example 1> 92H 3EH 5FH
9n is a note on status and n is the MIDI channel number.
As 2H = 2, 3EH = 62 and 5FH = 95, this is a note on message of MIDI CH =3 , note number 62 (D4) and velocity 95.

<Example 2> CEH 49H
CnH is program change status, and n is the MIDI channel number.
As EH = 14 and 49H = 73, this is a program change message of MIDI CH = 15 and program number 74 (in the GS sound map, Flute).

● 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 that produces a lower 7 bits of zero when the address, size, and checksum itself are summed. If the exclusive message to be transmitted has an address of aa bb ccH and the data is dd ee ffH, the actual calculation would be as follows:

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>
Setting Dissolve Time Ctrl Assign in MIDI Visual Control to Modulation for Control Changes

From the "Parameter Address Map," the start address of the Dissolve Time Ctrl Assign in MIDI Visual Control is 10H 10H 02H and the Modulation parameter in Control Change is 00H 01H. Therefore ...

F0H	7EH	00H	0CH 01H	10H 10H 02H	00H 01H	??H	F7H
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

(1) Exclusive Status
(2) ID Number (Universal SysEx Non Realtime)
(3) Device ID (0)
(4) Sub ID (MIDI Visual Control Version 1.0)
(5) Address
(6) Data
(7) Checksum
(8) EOX

Next calculate the checksum. Add (5) to (6).
10H + 10H + 02H + 00H + 01H = 16 + 16 + 2 + 0 + 1 = 35 (sum)
35 (sum) / 128 = 0 (quotient) ... 35 (remainder)
Checksum = 128 - 35 (remainder) = 93 = 5DH

Thus, the message to transmit is :
F0H 7EH 00H 0CH 01H 10H 10H 02H 00H 01H 5DH F7H

3G-SDI Video Switcher
Model V-1SDI

MIDI Implementation Chart

Date: Feb. 28, 2017
Version: 1.50

Function		Transmitted	Recognized	Remarks
Basic	Default	×	×	Saved when power off
Channel	Unchanged	1	1	
Mode	Default	×	×	
	Messages	×	×	
	Altered	**********	**********	
Note Number	True Voice	×	×	
Velocity	Note On	×	×	
	Note Off	×	×	
After Touch	Key's	×	×	
	Channel's	×	×	Controls various parameters
Pitch Bend		×	×	Controls various parameters
Control Change	0, 32	O	O	Controls various parameters
	1–9	×	×	
	10–29	O	O	
	30–119	×	×	
Program Change		O	O	Channel select
	: True Number	0–127	0–127	
System Exclusive		O	O	
System Common	: Song Position	×	×	
	: Song Select	×	×	
	: Tune Request	×	×	
System Real Time	: Clock	×	×	
	: Commands	×	×	
Aux Messages	: All Sound Off	×	×	
	: Reset All Controllers	×	×	
	: Local On/Off	×	×	
	: All Notes Off	×	×	
	: Active Sensing	×	×	
	: System Reset	×	×	
Notes				

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

O : Yes
X : No