

VR-50HD

MULTI-FORMAT AV MIXER

Reference Manual

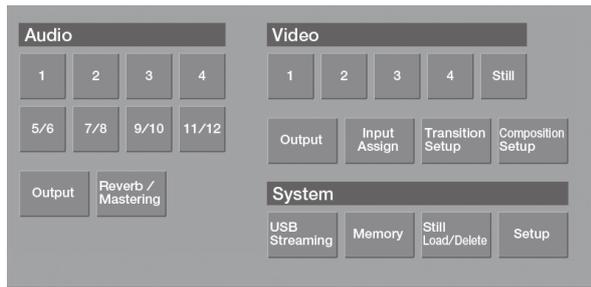
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Menu-Screen Parameter List

Pressing the [MENU] button displays the menu screen. Choose the item whose setting you want to change.



MEMO

- The values in bold are the factory default values of the VR-50HD. Hold down [ENTER] button and press [EXIT] button to make the value return to default. Continuing to hold down these buttons returns related parameters displayed on the same screen to their factory default values.
- You can change a setting value rapidly by holding down the [ENTER] button and turning the [VALUE] knob.
- If the MEMORY screen's "Auto Store" setting (p. 11) is set to ON, the state in effect when you exit the menu screen is automatically saved on the Memory No. 1.

Audio

1-4

| Parameter | Value | Explanation |
|-------------|---|--|
| +48 V | OFF , ON | You set this to ON when using a microphone that requires phantom power. |
| Solo | OFF , ON | When listening to audio through headphones, you can hear just the channels for which this value is set to ON. |
| Mute | OFF , ON | This mutes the audio on the selected channel. |
| Gain | 0.0 –+72 dB | This adjusts the input gain. You can also use the [GAIN] knobs on the top panel to adjust this. |
| HPF | OFF , ON | This switches the high-pass filter (75 Hz) on and off. |
| Level | -INF –0.0–+6.0 dB | This adjusts the level sent to the MAIN bus. You can also use the channel faders on the top panel to adjust this. |
| Delay | 0.0 –500.0 ms | This adjusts the amount of delay for correcting audio that is out of sync with the video (lip-sync). |
| AUX Send | -INF –0.0–+6.0 dB | This adjusts the level sent to the AUX bus. |
| AUX Delay | 0.0 –500.0 ms | This adjusts the amount of delay for correcting audio and video sent to the AUX bus that are out of sync (lip-sync). |
| Reverb Send | 0 –127 | This sets the amount of reverb applied. |
| Pan | Left, L62–L01, Center , R01–R62, Right | This adjusts the left-right balance of input. |

Equalizer

| | | |
|-----------|-------------------------------|--|
| ON/OFF | OFF , ON | This switches the equalizer on and off. |
| High | -15– 0 –+15 dB | This sets the gain of the high-frequency. |
| Frequency | 700 Hz– 8 kHz –11 kHz | This sets the center of the frequency that will be adjusted by the High. |
| Mid | -15– 0 –+15 dB | This sets the gain of the middle-frequency. |
| Frequency | 20 Hz– 2.5 kHz –10 kHz | This sets the center of the frequency that will be adjusted by the Mid. |
| Q | 0.5– 1.0 –16.0 | This sets the width of the area affected by the equalizer centered at the Mid-Frequency. Higher values will narrow the area. |
| Low | -15– 0 –+15 dB | This sets the gain of the low-frequency. |
| Frequency | 55 Hz– 110 Hz –800 Hz | This sets the center of the frequency that will be adjusted by the Low. |

Gate

| | | |
|-----------|-------------------------|--|
| ON/OFF | OFF , ON | This switches the gate feature on and off. |
| Threshold | -50– -48 –0 dB | This sets the sensitivity at which the gate starts to be applied. |
| Release | 30– 500 –5000 ms | This adjusts the time from when the gate begins to function until the noise level reaches "0." |

Compressor

| | | |
|-----------|-------------------------|--|
| ON/OFF | OFF , ON | This switches the compressor on and off. |
| Threshold | -50– -16 –0 dB | This sets the sensitivity at which the compressor starts to be applied. |
| Ratio | 1.0: 1– INF : 1 | This sets the compression ratio at which the audio signal will be compressed. |
| Attack | 0.2– 50 –100 ms | This sets the time from when the input level exceeds the threshold level until the compressor begins operating. |
| Release | 30– 500 –5000 ms | This sets the time from when the input level falls below the threshold level until the compressor stops operating. |

Menu-Screen Parameter List

5/6–11/12

| Parameter | Value | Explanation |
|------------------|------------------------------------|--|
| Follow | | This switches the Audio Follow function on or off. |
| Solo | OFF , ON | When listening to audio through headphones, you can hear just the channels for which this value is set to ON. |
| Mute | | This mutes the audio on the selected channel. |
| Input | LINE , VIDEO | This selects the channel's audio input source. LINE: Analog audio incoming via the LINE jacks on the rear panel is input. VIDEO: Audio embedded in video is input. VIDEO is enabled when SDI or HDMI has been selected for Input Assign. |
| Level | -INF –0.0–+6.0 dB | This adjusts the level sent to the MAIN bus. You can also use the channel faders on the top panel to adjust this. |
| Delay | 0.0 –500.0 ms | This adjusts the amount of delay for correcting audio that is out of sync with the video (lip-sync). |
| AUX Send | -INF –0.0–+6.0 dB | This adjusts the level sent to the AUX bus. |
| AUX Delay | 0.0 –500.0 ms | This adjusts the amount of delay for correcting audio and video sent to the AUX bus that are out of sync. |
| Reverb Send | 0 –127 | This sets the amount of reverb applied. |
| Mono | OFF , ON | This sends the left-channel audio to the left and right channels; the right-channel audio is no longer heard. |
| Equalizer | | |
| ON/OFF | OFF , ON | This switches the equalizer on and off. |
| High | -15– 0 +15 dB | This sets the gain of the high-frequency. |
| Frequency | 700 Hz– 8 kHz –11 kHz | This sets the center of the frequency that will be adjusted by the High. |
| Mid | -15– 0 +15 dB | This sets the gain of the middle-frequency. |
| Frequency | 20.0 Hz– 2.50 kHz –10.0 kHz | This sets the center of the frequency that will be adjusted by the Mid. |
| Q | 0.5– 1.0 –16.00 | This sets the width of the area affected by the equalizer centered at the Mid-Frequency. Higher values will narrow the area. |
| Low | -15– 0 +15 dB | This sets the gain of the low-frequency. |
| Frequency | 55 Hz– 110 Hz –800 Hz | This sets the center of the frequency that will be adjusted by the Low. |

Output

| Parameter | Value | Explanation |
|-------------------|--------------------------|--|
| MAIN | | |
| Level | -INF –0.0–+6.0 dB | This adjusts the output level of the MAIN bus. You can also use the [MAIN] fader on the top panel to adjust this. |
| AUX | | |
| Level | -INF –0.0–+6.0 dB | This adjusts the output level of the AUX bus. |
| Output Bus | | |
| AUDIO MAIN | MAIN , AUX | This selects whether the signals of the PGM bus or the signals of the AUX bus are output via the various output connectors. You select from among SDI PGM–HDMI AUX when audio input from HDMI or SDI has been assigned to channels 5/6–11/12. |
| AUDIO AUX | MAIN, AUX | |
| SDI PGM | MAIN , AUX | |
| SDI AUX | MAIN, AUX | |
| HDMI PGM | MAIN , AUX | |
| HDMI AUX | MAIN, AUX | |
| PHONES | MAIN , AUX | |

Reverb/Mastering

| Parameter | Value | Explanation |
|------------------|------------------------------------|--|
| Reverb | | |
| ON/OFF | OFF , ON | This switches reverb on and off. |
| Level | 0 , 127 | This sets the amount of reverb applied. |
| Time | 0.1– 1.0 –5.0 sec | This sets the duration of the reverb. |
| Type | Room , Hall | This selects the type of reverb. |
| Equalizer | | |
| ON/OFF | OFF , ON | This switches the equalizer on and off. |
| High | -15– 0 –+15 dB | This adjusts the volume level of the high-frequency. |
| Frequency | 700 Hz– 8.00 kHz –11.0 kHz | This sets the center of the frequency that will be adjusted by the High. |
| Mid | -15– 0 –+15 dB | This adjusts the volume level of the middle-frequency. |
| Frequency | 20.0 Hz– 2.50 kHz –10.0 kHz | This sets the center of the frequency that will be adjusted by the Mid. |
| Q | 0.5– 1.0 –16.0 | This sets the width of the area affected by the equalizer centered at the Mid-Frequency. Higher values will narrow the area. |
| Low | -15– 0 –+15 dB | This adjusts the volume level of the low-frequency. |
| Frequency | 55– 110 –800 Hz | This sets the center of the frequency that will be adjusted by the Low. |
| Mastering | | |
| ON/OFF | OFF , ON | This switches mastering on and off. |
| High | 0 –127 | This suppresses high-frequency distortion. |
| Mid | | This suppresses middle-frequency distortion. |
| Low | | This suppresses Low-frequency distortion. |
| NS | | This adjusts the degree of application of the noise suppressor. |
| Enhancer | | This adjusts the degree of application of the enhancer. |

Video

NOTE

Depending on the input/output format settings, the range of value settings will be altered. Also, some changes to setting values do not alter the video picture.

1-4

| Parameter | Value | Explanation |
|-------------------------|---|--|
| Scaling | | |
| Type | Full, Letterbox, Crop, Dot by Dot, Manual | This selects the scaling type. Full: The input image will be displayed fully on output screen. The aspect ratio will be changed. Letterbox: The entirety of the input image will be displayed on output screen. The aspect ratio will be maintained. Crop: The input image will be displayed fully on the output screen. The aspect ratio will be maintained. Dot by Dot: Scaling will not be executed. Manual: The scaling will be executed depending on the manual settings of Size H and Size V. |
| Size H | -1920-0--+1920 | This sets the horizontal size. |
| Size V | -1080-0--+1080 | This sets the vertical size. |
| Zoom | 10-100-1000% | This sets the zoom ratio. |
| Position H | -1920-0--+1920 | This sets the horizontal position. |
| Position V | -1080-0--+1080 | This sets the vertical position. |
| Color Correction | | |
| Brightness | -64-0--+63 | This adjusts the brightness. |
| Contrast | | This adjusts the contrast. |
| Saturation | | This adjusts the color saturation. |
| Red | | This adjusts the red level. |
| Green | | This adjusts the green level. |
| Blue | | This adjusts the blue level. |

Input Assign: HDMI, RGB/Component

| | | |
|----------------|---|---------------------------------------|
| Color Space | AUTO, RGB 0-255, RGB 16-235, YCC SD, YCC HD | This selects the color space. |
| Flicker Filter | OFF, ON | This turns on/off the flicker filter. |

Input Assign: RGB/Component

| Sampling | | |
|-----------------------|----------------|--|
| Auto Sampling Execute | | Touch this parameter to execute auto sampling setup. |
| Position H | -1920-0--+1920 | This sets the horizontal start position of sampling. |
| Position V | -1200-0--+1200 | This sets the vertical start position of sampling. |
| Phase | -128-0--+127 | This sets the sampling phase. |
| Frequency | | This sets the sampling frequency. |

Still

| Parameter | Value | Explanation |
|-------------------------|---------------|---|
| Scaling | | |
| Still | 1–4 | This selects the still image assigned to the VIDEO INPUT SELECT [STILL] button. |
| Position H | -1920–0→+1920 | This sets the horizontal position. |
| Position V | -1080–0→+1080 | This sets the vertical position. |
| Color Correction | | |
| Brightness | -64–0→+63 | This adjusts the brightness. |
| Contrast | | This adjusts the contrast. |
| Saturation | | This adjusts the color saturation. |
| Red | | This adjusts the red level. |
| Green | | This adjusts the green level. |
| Blue | | This adjusts the blue level. |

Output

| Parameter | Value | Explanation |
|----------------------------------|--|---|
| Format | 480i 4: 3 (*), 480i 16: 9 (*), 480p 4: 3 (*), 480p 16: 9 (*), 720p, 1080i , 1080p, 1024 x 768, 1280 x 720, 1280 x 800, 1280 x 1024, 1400 x 1050, 1920 x 1080 | Touching this parameter displays the Format Select screen. At the Format Select screen, you select the output format. (*): When the System value of Frame Rate (p. 11) is set to 50 Hz, these are 576i 4: 3, 576i 16: 9, 576p 4: 3, and 576p 16: 9. |
| Scaling | | |
| Zoom | 10– 100 –1000% | This sets the zoom ratio. |
| Size H | -2000–0→+2000 | This sets the horizontal size. |
| Size V | | This sets the vertical size. |
| Position H | -1920–0→+1920 | This sets the horizontal position. |
| Position V | -1080–0→+1080 | This sets the vertical position. |
| Color Correction | | |
| Brightness | -128–0→+127 | This adjusts the brightness. |
| Contrast | | This adjusts the contrast. |
| Saturation | | This adjusts the color saturation. |
| Red | | This adjusts the red level. |
| Green | | This adjusts the green level. |
| Blue | | This adjusts the blue level. |
| AUX Bus Source | Input 1–4, Mixer Output | This selects the signal of the AUX bus. |
| Output Bus: SDI | | |
| PGM | PGM , PVW, AUX | These select the output buses assigned to the respective SDI OUT connectors. |
| AUX | PGM, PVW , AUX | |
| Output Bus: HDMI | | |
| PGM | PGM , PVW, AUX | These select the output buses assigned to the respective HDMI OUT connectors. |
| AUX | PGM, PVW , AUX | |
| Output Bus: RGB/COMPONENT | | |
| PGM | PGM , AUX | These select the output buses assigned to the respective RGB/COMPONENT OUT connectors. |
| AUX | PGM, AUX | |

Menu-Screen Parameter List

| Parameter | Value | Explanation |
|------------------------|---|--|
| Cropping | | |
| ON/OFF | OFF, ON | This turns on/off the cropping. |
| Size H | 0, 128 , 1920 | This sets the horizontal size. |
| Size V | 0, 64 , 1080 | This sets the vertical size. |
| Orientation | | This sets the orientation of cropping. |
| Signal Type | | |
| 3G-SDI Mapping | Level A, Level B | This selects the mapping structure of 3G-SDI output. * Input is determined automatically. |
| HDMI PGM | | |
| Signal Type | HDMI , DVI-D | This selects the video signal type. |
| Color Space | RGB 0-255 , RGB 16: 235, YCC 4: 4: 4, YCC 4: 2: 2 | This selects the color space. |
| HDMI AUX | | |
| Signal Type | HDMI , DVI-D | This selects the video signal type. |
| Color Space | RGB 0-255 , RGB 16: 235, YCC 4: 4: 4, YCC 4: 2: 2 | This selects the color space. |
| HDMI MULTI-VIEW | | |
| Signal Type | HDMI , DVI-D | This selects the video signal type. |
| Color Space | RGB 0-255 , RGB 16: 235, YCC 4: 4: 4, YCC 4: 2: 2 | This selects the color space. |

Input Assign

| Parameter | Value | Explanation |
|-----------|--|--|
| 1 | SDI, HDMI, Composite, RGB/Component | You assign video connectors receiving input to channels 1–4. |
| 2 | | |
| 3 | SDI, HDMI | |
| 4 | | |

Transition Setup

| Parameter | Value | Explanation |
|---------------|------------------------------|--|
| Time | 0– 1.0 –4.0 sec | This sets the transition time. |
| Wipe | | |
| Pattern | | This selects the wipe pattern. |
| Direction | Normal , Reverse, N/R | This selects the wipe direction. |
| Border | | |
| Red | 0– 128 –255 | This sets the red level of border color. |
| Green | | This sets the green level of border color. |
| Blue | | This sets the blue level of border color. |
| Width | | 0– 63 |

Composition Setup

| Parameter | Value | Explanation |
|-----------|---------------------------|---|
| Preview | PinP, PinP KEY, STILL KEY | This selects the video composition mode displayed in Preview. |
| Edit | PinP, PinP KEY, STILL KEY | Touch the screen to select the video composition mode for editing. |
| Source | --- | This displays the Source screen for the video composition mode selected using Edit. |
| Detail | | This displays the detailed setting screen for the video composition mode selected using Edit. |
| Layer | | This displays the Composition Layer screen. |

<Source> → PinP Source, PinP/KEY Source screen

| Parameter | Value | Explanation |
|-----------|---|--|
| Source | SDI 1-4, ANALOG/HDMI 1, ANALOG/HDMI 2, HDMI 3 , HDMI 4 | This selects the connector for inputting the video for video compositing. * When ANALOG/HDMI 1 or ANALOG/HDMI 2 has been selected The same connector as the Input Assign setting (p. 8) is selected from among the input connectors displayed in the lower row. |
| Edit | --- | This displays the detailed settings (Video Input) screen for the selected input connector. It sets the same parameters as for Video 1-4 (p. 6). |

<Source> → STILL KEY Source screen

| Parameter | Value | Explanation |
|-----------|-------|--|
| Source | --- | This displays the Video Input Still screen. It sets the same parameters as for Still (p. 7). |

<Detail> → PinP, PinP/KEY screen

| Parameter | Value | Explanation |
|------------|------------------------|--|
| ON/OFF | OFF, ON | This turns on/off the PinP. |
| Size | 10- 25 -100% | This sets the size of the inset screen. |
| Position H | -100-- 30 +100% | This sets the horizontal position of the inset screen. |
| Position V | -100-- 25 +100% | This sets the vertical position of the inset screen. |

Cropping

| Parameter | Value | Explanation |
|-----------|-------------------------------------|--|
| Type | Original , 4:3, 16:9, Manual | This selects the cropping type of the inset screen. When Manual has been selected, the settings for Manual H and Manual V are used. |
| Manual H | -2000- 0 +2000 | This sets the horizontal cropping width. |
| Manual V | | This sets the vertical cropping width. |

View

| Parameter | Value | Explanation |
|------------|-----------------------|------------------------------------|
| Zoom | 100 -1000% | This sets the zoom ratio. |
| Position H | -1920- 0 +1920 | This sets the horizontal position. |
| Position V | -1080- 0 +1080 | This sets the vertical position. |

Border

| Parameter | Value | Explanation |
|-----------|--------------------|--|
| Red | 0- 128 -255 | This sets the red level of border color. |
| Green | | This sets the green level of border color. |
| Blue | | This sets the blue level of border color. |
| Width | 0- 5 -63 | This sets the border width. |

PinP/KEY, STILL KEY screen

| Parameter | Value | Explanation |
|-----------|---|---|
| ON/OFF | OFF, ON | This sets key composition (still-image composition) on/off. |
| Type | (PinP/KEY) Lumi White, Lumi Black, Chroma Blue , Chroma Green (STILL KEY) Lumi White, Lumi Black, Chroma Blue , Chroma Green | This selects the key composition type (extraction color). Lumi White: This uses a brightness threshold to make white transparent when compositing. Lumi Black: This uses a brightness threshold to make black transparent when compositing. Chroma Blue: This uses a color threshold to make blue transparent when compositing. Chroma Green: This uses a color threshold to make green transparent when compositing. |

Menu-Screen Parameter List

| Parameter | Value | Explanation |
|--|---------------------|--|
| Level | 0- 32 -255 | This sets the amount of extraction. |
| Gain | 0-255 | This sets the amount of edge blur. |
| Hue * This is enabled when Type is set to Chroma Blue or Chroma Green. | | |
| Width | -128- 0 +127 | This adjusts the hue width (range). |
| Fine | | This adjusts the center position for hue. |
| Saturation * This is enabled when Type is set to Chroma Blue or Chroma Green. | | |
| Width | -128- 0 +127 | This adjusts the saturation width (range). |
| Fine | 0-255 | This adjusts the center position for saturation. |

<Layer> → Composition Layer screen

| Parameter | Value | Explanation |
|--------------|-----------------------------|---|
| Layer | | |
| PinP | Bottom , Middle, Top | This specifies the sequence of overlaid layers for compositing. |
| PinP/KEY | Bottom, Middle , Top | Touching the parameter makes the setting for Top. Touching the parameter set as Top makes the layers set as Bottom and Middle change place. |
| STILL KEY | Bottom, Middle, Top | |

System

USB Streaming

| Parameter | Value | Explanation |
|----------------|--------------------|---|
| Audio | | |
| Level | -INF-0.0-+12.0 dB | This sets the volume level of the audio output via USB. |
| Audio Bus | MAIN, AUX | This specifies either the MAIN bus or the AUX bus for the signals output via the USB Streaming port. |
| Delay | 0.0-500.0 ms | This adjusts the amount of delay for correcting for out-of-sync audio and video in USB output (lip-sync). |
| Video | | |
| Resolution | 480p, 720p, 1080p | This selects the format of the output. |
| Frame Rate | 59.94 Hz, 29.97 Hz | This selects the frame rate. |
| Video Bus | PGM, AUX | This specifies either the PGM bus or the AUX bus for the signals output via the USB Streaming port. |
| Status | | |
| Connection | USB 2.0, USB 3.0 | This indicates whether the connection is USB 2.0 or USB 3.0. |
| Dropped Frames | --- | This displays the number of unsuccessfully sent frames in the last one-second interval. |
| Reset | | This severs the current USB connection and attempts to establish a new connection to the computer. |

Memory

| Parameter | Value | Explanation |
|-------------------|------------|--|
| Recall | --- | This calls up the unit's settings. |
| Store | | This saves the unit's settings. |
| Memory No. | 1-8 | This selects the number of the memory for recalling or storing settings. |
| Auto Store | *1 OFF, ON | When this is set to ON, the current state is automatically saved when you quit the menu screen or change screens. |
| USB Memory | | |
| Load | | This imports into the unit a file saved on a USB flash drive. |
| Save | | This overwrites the file saved on the USB flash drive. |
| Save As | --- | This groups together the settings saved at Memory No. 1-8 and the system settings, and saves them on a USB flash drive as a single file. |
| Format | | This formats a USB flash drive. |

*1: These are global parameters for the VR-50HD. A single set is stored in the unit.
After the settings have been made, changing the screen automatically saves the values, and the settings are automatically loaded at startup.

Still Load/Delete

| Parameter | Value | Explanation |
|-----------|-------|---|
| Load | --- | This imports into the unit a still image saved on a USB flash drive. * This still image is automatically imported at the next startup. |
| Delete | | This deletes the still image imported into the unit. |

Menu-Screen Parameter List

Setup

| Parameter | Value | Explanation |
|-------------------------|--|---|
| HDCP | *1 OFF, ON | This selects whether HDCP is disabled or enabled. |
| NTSC Setup | *1 OIRE, 7.5IRE | This selects the setup level for NTSC. |
| Frame Rate | *1 59.94 Hz, 50 Hz | This selects the VR-50HD's system frame rate. |
| Field Sync | *1 OFF, ON | This synchronizes the input field and output field. Setting this to ON enhances image quality, but delay between input and output increases. |
| Reference | | |
| Reference | *1 Internal, SDI 1 | This selects the VR-50HD's synchronization mode. |
| Clock Adj. | *1 -1920-0-+1920 | This makes the synchronization setting for when Reference is set to SDI 1. |
| Line Adj. | *1 -1080-0-+1080 | This makes the line setting for when Reference is set to SDI 1. |
| Freeze/User Logo | | |
| Mode | Freeze, User Logo | This specifies the functioning of the [FREEZE/USER LOGO] button. Freeze: Pressing the button freezes video output. User Logo: Pressing the button stops video output and outputs a user logo. |
| Still | 1-4 | This selects the user-logo file that is output when Mode is set to User Logo. |
| Output Fade | | |
| Color | *1 Black, White | This selects the image for the fade destination. Black: Fade to black White: Fade to white |
| Output Capture | | |
| Still | 1-4 | This selects the destination for saving a captured output picture. |
| Execute | --- | This executes capture of the output picture. |
| MIDI | | |
| Status | Native, V-LINK, MVC | This selects the MIDI remote control mode. Native: Communicate using standard MIDI mode. V-LINK: Communicate as the V-Link device. MVC: Communicate as the MVC (MIDI Visual Control) device. * The Native setting is enabled at power up. * The setting is not stored in memory. |
| Channel | *1 1-16 | This selects the MIDI channel to be used in standard MIDI mode. |
| OUT/THRU | *1 OUT, THRU | This selects the operation of the MIDI OUT/THRU connector. |
| Test Pattern | OFF, 75% Color Bar, 100% Color Bar, Ramp, Step, Hatch, Frame | This selects the test pattern. * The setting is not stored in memory. |
| Test Tone | OFF, ON | This turns on/off the test tone. * The setting is not stored in memory. |
| Touch Panel | | |
| Beep | *1 OFF, ON | This turns on/off the audible beep heard when the screen is touched. |
| Label | --- | Touching this parameter displays the Label screen. There you can assign each channel a text-string label of your choosing (up to 8 characters). |
| Version | --- | This displays the version information for the software. Touching this parameter changes the display to the build number. |
| Factory Reset | | This makes the VR-50HD to return to factory default setting. |

*1: These are global parameters for the VR-50HD. A single set is stored in the unit.

After the settings have been made, changing the screen automatically saves the values, and the settings are automatically loaded at startup.

Remote Controlling via MIDI

MIDI Control Modes of the VR-50HD

These are the MIDI control modes for the VR-50HD.

Standard MIDI mode

This is the mode for remote controlling the VR-50HD from an external MIDI device (like a keyboard) or linking 2 units of the VR-50HD.

V-LINK mode

This is the mode for remote controlling VR-50HD from an external V-LINK device.

What is V-LINK

V-LINK is a feature for performing video synchronized to music using MIDI. The V-LINK feature provides a quick and simple way to establish a link with a compatible device.

MVC mode

This is the mode for remote controlling the VR-50HD from an external MVC (MIDI Visual Control) device.

What is MVC (MIDI Visual Control)

MIDI Visual Control is an internationally-used recommended practice that was added to the MIDI specification so that visual expression could be linked with musical performance. Video equipment that is compatible with MIDI Visual Control can be connected to electronic musical instruments via MIDI in order to control video equipment in tandem with a performance.

MIDI Settings for VR-50HD

You can make VR-50HD MIDI settings in the System screen.

The current MIDI mode is displayed at Status.

- Native: Standard MIDI mode
- V-Link: V-LINK mode
- MVC: MVC (MIDI Visual Control) mode

If the VR-50HD receives V-LINK ON or MVC ON message from an external device while it's in standard MIDI mode, the mode switches automatically. Reception of V-LINK OFF or MVC OFF message also switches the mode automatically to standard MIDI mode.

When THRU is selected for THRU/OUT, the received signal coming in from MIDI IN connector will be output from MIDI THRU/OUT connector without any alteration. VR-50HD exclusive messages will not be output.

Using in standard MIDI mode

Set Channel to match the MIDI channel of the connected MIDI device.

Using in V-LINK mode

When you use in V-LINK slave mode, send V-LINK ON message while the VR-50HD is in standard MIDI mode.

The MIDI device ID of the VR-50HD will be 10H.

Using in MVC mode

When you use in MVC slave mode, send MIDI Visual Control ON message while the VR-50HD is in standard MIDI mode.

The MIDI device ID of the VR-50HD will be 00H.

MIDI Implementation

Messages Transmitted and Received in Standard MIDI Mode

● Program Change

| <u>PC</u> | <u>Value</u> | <u>Function</u> |
|-----------|--------------|-----------------|
| CnH | 0: 1-7: 8 | Memory Recall |

● Control Change

| <u>CC</u> | <u>CC#</u> | <u>Value</u> | <u>Function</u> |
|-----------|------------|-------------------------|--|
| BnH | 0CH | 0: 1-3: 4, 4: Still | Video Input Select PST |
| | 0DH | 0: 1-3: 4, 4: Still | Video Input Select PGM |
| | | | * Send only |
| | | | * After completion of a transition, this changes to the same value as PST. |
| | 11H | 0: 0.0s-40: 4.0s | Transition Time |
| | 12H | 0: CUT, 1: MIX, 2: WIPE | Transition Type Switch |
| | 13H | 127 | Output Fade Switch |
| | 14H | 127 | User Logo/Freeze Switch |
| | 15H | 0-127 | Audio Input Level Ch 1 |
| | 16H | 0-127 | Audio Input Level Ch 2 |
| | 17H | 0-127 | Audio Input Level Ch 3 |
| | 18H | 0-127 | Audio Input Level Ch 4 |
| | 19H | 0-127 | Audio Input Level Ch 5/6 |
| | 1AH | 0-127 | Audio Input Level Ch 7/8 |
| | 1BH | 0-127 | Audio Input Level Ch 9/10 |
| | 1CH | 0-127 | Audio Input Level Ch 11/12 |
| | 1DH | 0-127 | Audio Output Level |
| | 40H | 127 | Composition PinP Switch |
| | 41H | 127 | Composition PinP/Key Switch |
| | 42H | 127 | Composition Still Key Switch |

Messages Received in V-LINK Mode

● Program Change

| Status | 2nd Byte | |
|-----------------------------|----------|--------------------------|
| CnH | ppH | |
| n= Ctrl Rx MIDI Ch. number: | | 0H–FH (Ch. 1–16) |
| pp= Video Input Channel: | | 00H–04H (CH1–CH4, Still) |

● Note On

| Status | 2nd Byte | 3rd Byte |
|--------|----------|----------|
| 9nH | kkH | vvH |

● Note Off

| Status | 2nd Byte | 3rd Byte |
|-----------------------------|----------|------------------|
| 8nH | kkH | vvH |
| n= Ctrl Rx MIDI Ch. number: | | 0H–FH (Ch. 1–16) |
| kk= note number : | | 00H–7FH (0–127) |
| vv= velocity: | | ignored |

* This is valid when the Note Message Enabled is 49 Keys or Assignable.

● Control Change

| Status | 2nd Byte | 3rd Byte |
|-----------------------------|----------|------------------|
| BnH | ccH | vvH |
| n= Ctrl Rx MIDI Ch. number: | | 0H–FH (Ch. 1–16) |
| cc= Controller number: | | 00H–7FH (0–127) |
| vv= value: | | 00H–7FH (0–127) |

● Channel Pressure/Aftertouch

| Status | 2nd Byte | |
|-----------------------------|----------|------------------|
| DnH | vvH | |
| n= Ctrl Rx MIDI Ch. number: | | 0H–FH (Ch. 1–16) |
| vv= value: | | 00H–7FH (0–127) |

● Pitch Bend Change

| Status | 2nd Byte | 3rd Byte |
|-----------------------------|----------|------------------|
| EnH | llH | mmH |
| n= Ctrl Rx MIDI Ch. number: | | 0H–FH (Ch. 1–16) |
| ll= ignored | | |
| mm= value: | | 00H–7FH (0–127) |

● Reset All Controllers

| Status | 2nd Byte | 3rd Byte |
|-------------------------------------|----------|------------------|
| BnH | 79H | 00H |
| n= Ctrl Rx MIDI Ch. number: | | 0H–FH (Ch. 1–16) |
| * Returns to V-LINK default status. | | |

■ System Exclusive Messages

● Data Set 1 (DT1)

This is the message for actual data transmission. Use this when you want to set data for the device.

| Status | Data Byte | Status |
|--------|--|--------|
| F0H | 41H, dev, 00H, 51H, 12H, aaH, bbH, ccH, ddH, ..., eeH, sum | F7H |

| Byte | Explanation |
|------|---|
| F0H | Exclusive Status |
| 41H | ID number (Roland) |
| 10H | Device ID |
| 00H | Model ID upper byte (V-LINK message) |
| 51H | Model ID lower byte (V-LINK message) |
| 12H | Command ID (DT1) |
| aaH | Address upper byte |
| bbH | Address |
| ccH | Address |
| ddH | Data: Actual data. If multiple, transmitted with address order. |
| : | |
| eeH | Data |
| sumH | Checksum |
| F7H | EOX (End of Exclusive) |

■ Parameter Address Map

* The values in bold are the factory default values.

● System Preference Area

| Address | Parameter Name | Sys.Ex. Value | Meaning of Value |
|-------------|---------------------------------|-----------------|---|
| 10H 00H 00H | V-LINK ON/OFF | 00H –01H | 00H= Off, 01H= On |
| 10H 00H 01H | Ctrl Rx MIDI Ch. (Clip & Color) | 00H –10H | 00H= Ch. 1, 0FH= Ch. 16, 10H= Off |
| 10H 00H 03H | Note Message Enabled | 00H –02H | 00H= OFF, 01H= 49 Keys, 02H= Assignable |

● Clip Control Assignment Area

| Address | Parameter Name | Sys.Ex. Value | Meaning of Value |
|-------------|----------------------------------|----------------------|---|
| 10H 10H 02H | Dissolve Time Control Assign MSN | 00H –0FH | 4 bit MSN + 4 bit LSN= 8 bit data. D0H= Aftertouch E0H= Pitch Bend Change FFH= No assign |
| 10H 10H 03H | Dissolve Time Ctrl Assign LSN | 00H– 05H –0FH | 01H–1FH, 40H–5FH= Control Change number other values are reserved. |

● Clip Control Preference Area

| Address | Parameter Name | Sys.Ex. Value | Meaning of Value |
|-------------|--|----------------------|------------------|
| 10H 30H 02H | Assignable Note Mode Keyboard Range Lower | 00H– 24H –7FH | Note Number |
| 10H 30H 03H | Assignable Note Mode Keyboard Range Upper | 00H– 31H –7FH | Note Number |

Messages Received in MVC Mode

● Program Change

| Status | 2nd Byte |
|-------------------------------|------------------|
| CnH | ppH |
| n= MIDI channel number (CCM): | 0H–FH (Ch. 1–16) |
| pp= channel number: | 00H–09H (1–10) |

● Note On

| Status | 2nd Byte | 3rd Byte |
|--------|----------|----------|
| 9nH | kkH | vvH |

● Note Off

| Status | 2nd Byte | 3rd Byte |
|-------------------------------|------------------|----------|
| 8nH | kkH | vvH |
| n= MIDI channel number (CCM): | 0H–FH (Ch. 1–16) | |
| kk= note number: | 00H–7FH (0–127) | |

● Control Change

| Status | 2nd Byte | 3rd Byte |
|-------------------------------|------------------|----------|
| BnH | ccH | vvH |
| n= MIDI channel number (CCM): | 0H–FH (Ch. 1–16) | |
| cc= control number (CC#): | 00H–77H (0–119) | |
| vv= value | 00H–7FH (0–127) | |

● Channel Pressure (Aftertouch)

| Status | 2nd Byte |
|-------------------------------|------------------|
| DnH | vvH |
| n= MIDI channel number (CCM): | 0H–FH (Ch. 1–16) |
| vv= channel pressure value: | 00H–7FH (0–127) |

● Pitch Bend Change

| Status | 2nd Byte | 3rd Byte |
|-------------------------------|------------------|----------|
| EnH | llH | mmH |
| n= MIDI channel number (CCM): | 0H–FH (Ch. 1–16) | |
| ll= ignored | | |
| mm= pitch bend value: | 00H–7FH (0–127) | |

● Channel Mode Message

| Status | 2nd Byte | 3rd Byte |
|-------------------------------|------------------|----------|
| BnH | 79H | 00H |
| n= MIDI channel number (CCM): | 0H–FH (Ch. 1–16) | |

■ Universal System Exclusive

| Status | Data Byte | Status |
|--------|-------------------------|--------|
| FOH | 7EH Dev OCH 01H { . . } | F7H |

● MIDI Visual Control “Data Set”

MIDI Visual Control “Data Set” is made of data address, actual data to be transmitted and the checksum.

| Byte | Explanation |
|------|--|
| FOH | System Exclusive Status |
| 7EH | Universal System Exclusive Non Real-time Header |
| 00H | Device ID |
| 0CH | Sub ID#1 (MIDI Visual Control) |
| 01H | Sub ID#2 (MVC command set ID; 01H = Version 1.0) |
| aaH | address upper |
| bbH | address middle |
| ccH | address lower |
| ddH | data top |
| : | |
| eeH | data end |
| sumH | checksum |
| F7H | End of System Exclusive (EOX) |

■ MVC Slave Parameter Address Map

* The values in bold are the factory default values.

● System Preference Area

| Address | Parameter Name | Sys.Ex. Value | Meaning of Value |
|-------------|--------------------------------|-----------------|-----------------------------------|
| 10H 00H 00H | MIDI Visual Control ON/OFF | 00H –01H | 00H= Off, 01H= On |
| 10H 00H 01H | CCM (Clip Control Rx MIDI Ch.) | 00H –10H | 00H= Ch. 1, 0FH= Ch. 16, 10H= Off |
| 10H 00H 03H | NME (Note Message Enabled) | 00H –01H | 00H= OFF, 01H= Assignable |

● Clip Control Assignment Area

| Address | Parameter Name | Sys.Ex. Value | Meaning of Value |
|-------------|-------------------------------|----------------------|--|
| 10H 10H 02H | Dissolve Time Ctrl Assign MSN | 00H –0FH | 4 bit MSN + 4 bit LSN= 8 bit data. |
| 10H 10H 03H | Dissolve Time Ctrl Assign LSN | 00H– 05H –0FH | D0H= Aftertouch E0H= Pitch Bend Change FFH= No Assign 01H–1FH, 40H–5FH= Control Change number Other values are reserved. |

● Clip Control Preference Area

| Address | Parameter Name | Sys.Ex. Value | Meaning of Value |
|-------------|----------------------|----------------------|------------------|
| 10H 30H 02H | Keyboard Range Lower | 00H– 24H –7FH | Note Number |
| 10H 30H 03H | Keyboard Range Upper | 00H– 54H –7FH | Note Number |

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 channels, bank select, program change and device ID are 1 greater than the decimal value shown on above table.

● Exclusive message and checksum calculation

Roland exclusive messages (DT1) contain a checksum following the data (after F7), which can be used to check whether the message was received correctly.

The checksum value is derived from the address and data (or size) of the transmitted exclusive message.

○ Calculating 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 aaH bbH ccH and the data is ddH eeH, the actual calculation would be as follows:

$$aaH + bbH + ccH + ddH + eeH = \text{sum}$$

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

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

ADDR

The address of the transmitted data. If multiple data is transmitted, this will be the address of the first data. Each data byte has addresses made of 3 bytes and the range is from 10H 00H 00H to 10H 7FH 7FH. Refer to Parameter Address Map for addresses.

DATA

The actual parameter data to be transmitted. When you set multiple parameters that do not include reserved address, you can transmit multiple items in one message. However, if it exceeds 128 bytes, it should be divided in order to make the message smaller than 128 bytes and the interval of transmission must be 20 ms or longer.

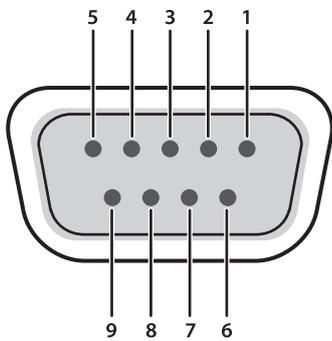
SUM

The SUM is a value that produces a lower 7 bits of zero when the ADDR, DAT, and SUM (checksum) itself are summed.

VR-50HD Command Reference

It is possible to remote control the VR-50HD from an external device using the RS-232C connector.

Specification of the RS-232C Connector



| Pin No. | Signal |
|---------|--------|
| 1 | DCD |
| 2 | RXD |
| 3 | TXD |
| 4 | DTR |
| 5 | GND |
| 6 | DSR |
| 7 | RTS |
| 8 | CTS |
| 9 | RI |

| | |
|----------------------|---|
| 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 |

Overview of Commands

A command consists of an ASCII code sequence containing "stx," three uppercase letters, and a semicolon (";"). The three letters indicate the command type.

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"

This is the ASCII code signal name (code number 02H (hexadecimal)) and code that signals the command start.

":"

This is the code to separate the command and its argument.

";"

This is the code to make VR-50HD recognize the end of a command.

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

* If the external device sends multiple commands to the VR-50HD sequentially, it must wait for ACK to be returned before sending the next command.

Commands Received by the VR-50HD

| Command | Value | Explanation |
|---------|-------------------------|----------------------------|
| PGM | 0: 1-3: 4, 4: Still | Video Input Select |
| TRS | 0: CUT, 1: MIX, 2: WIPE | Transition Type Switch |
| TIM | 0: 0.0 s-40: 4.0 s | Transition Time |
| PIP | 0: OFF, 1: ON | Composition PinP |
| PKY | 0: OFF, 1: ON | Composition PinP/KEY |
| SKY | 0: OFF, 1: ON | Composition STILL KEY |
| FDE | 0: OFF, 1: ON | Output Fade |
| ULF | 0: OFF, 1: ON | Freeze/User Logo |
| LM1 | 0-127 | Audio Input Level CH 1 |
| LM2 | 0-127 | Audio Input Level CH 2 |
| LM3 | 0-127 | Audio Input Level CH 3 |
| LM4 | 0-127 | Audio Input Level CH 4 |
| LS1 | 0-127 | Audio Input Level CH 5/6 |
| LS2 | 0-127 | Audio Input Level CH 7/8 |
| LS3 | 0-127 | Audio Input Level CH 9/10 |
| LS4 | 0-127 | Audio Input Level CH 11/12 |
| LMN | 0-127 | Audio Main Output Level |
| MEM | 0: 1-7: 8 | Memory Recall Number |

Commands Transmitted from the VR-50HD

| Command | Value | Explanation |
|---------|--------------------|--|
| ACK | ACK | This is transmitted when the command is properly received. |
| ERR | stxERR: a | a: 0 (syntax error) The command contains error. a: 5 (out of range error) The command is out of range. |
| VER | stxVER: VR-50HD, a | a: version This is transmitted when the unit receives VER command. * The version info is ASCII text strings. |
| XON | XON | Flow control. |
| XOFF | XOFF | Flow control. |