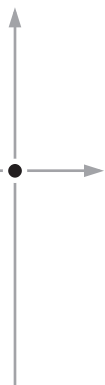# T2

INTELLIGENT DIGITAL DISK RECORDER

User Manual — Workstation mode —

17 September, 2009

grass valley

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About this manual

- The screens used as examples in this manual are those of the development stage, so they may vary from those in the final product.

- If there are any variations between the explanation in this manual and the actual application method, priority is given to the actual application method.

- This manual is written for people who have a basic knowledge of how to use a computer. If there are no special instructions, perform the same operation as a normal computer operation.

- In this manual, the system of the T2 is called "Workstation".

Warning

- Health precautions

  In rare cases, flashing lights or stimulation from the bright light of a computer display or TV monitor may trigger temporary epileptic seizures or loss of consciousness. It is believed that even individuals whom have never experienced such symptoms may be susceptible. If you or close relatives have experienced any of these symptoms, consult a doctor before using this product.

Contents

Contents

<p align="right">Section 1</p>

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Windows XP Embedded and Windows Embedded Standard Runtime

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- Updates,
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     • Print Services,

     • Internet Information Services, and

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http://www.microsoft.com/windowsxp/downloads/updates/sp2/docs/privacy. mspx.

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- *Digital Certificates.* The software uses digital certificates. These digital certificates confirm the identity of Internet users sending X.509 standard encrypted information. The software retrieves certificates and updates certificate revocation lists. These security features operate only when you use the Internet.

- *Auto Root Update.* The Auto Root Update feature updates the list of trusted certificate authorities. You can switch off the Auto Root Update feature.

- *Windows Media Player.* When you use Windows Media Player, it checks with Microsoft for

    - Compatible online music services in your region;

    - New versions of the player; and

    - Codecs if your device does not have the correct ones for playing content. You can switch off this feature. For more information, go to:

        http://microsoft.com/windows/windowsmedia/mp10/privacy.aspx.

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Setup

Overview

The T2 is a multi-channel digital video recorder that allows simultaneous recording and playback of media stored on internal disk drives. The T2 features a single recording channel (R1) and two playback channels (P1/P2). The quantity of hours recorded depends on the video compression settings that are selected. The front panel touch screen and TFT display, along with front panel transport controls, allow easy operation and monitoring with minimal external connections. The T2 also provides a Workstation mode, in which you can connect a keyboard, a mouse, and a VGA monitor to the T2's rear panel. The Workstation mode provides a graphical user interface to handle all essential tasks that are provided in front panel mode, and more.

With the Jog/Shuttle or the external controllers, variable speed playback is available.

Features

- Supporting a high quality "Canopus HQ Codec", the T2 can handle videos in full resolution (1920x1080), 4:2:2 color space, and up to 200Mbps.

- The T2 can load and play HQ videos edited on Grass Valley EDIUS, without any additional encoding.

- Equipped with 1 input line and 2 HD/SD-SDI output lines, recording and playback are available simultaneously, as well as playbacks with the 2 output channels perfectly synchronized.

- Supports RS-422A deck controls.

- Supports remote controls via GPI.

- Equipped with a 7-inched touch screen LCD and a jog/shuttle knob, the T2 can be operated as a stand-alone unit.

- With an external display, a keyboard and a mouse connected to the T2, the same operations as those in the Front Panel mode will be available (Workstation mode).

- Supports file import in various formats including QuickTime* and Windows Media.

  * QuickTime is not supported in some codecs.

Part names and functions

Front panel

DVD-ROM drive   Control buttons   Touch screen LCD   Control buttons

Power switch   USB ports   IEEE1394 port   Volume control   Headphone jack   Control buttons   Jog/Shuttle
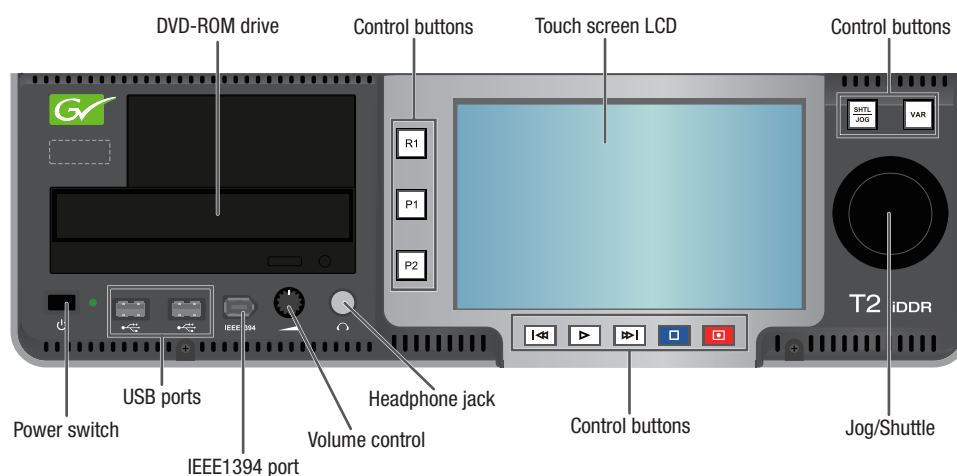
Touch screen LCD	Displays the T2 screens. By touching on the items displayed on screen, T2 can be operated.
DVD-ROM drive	Used to import video/audio media files stored on DVD-ROM. * Does not support DVD-Video playback.
Power switch	Turns on/off the T2.
USB ports	Used to connect USB removable devices.
IEEE1394 port	Used to connect IEEE1394 removable devices. * Does not support the connection of DV/HDV devices.
Volume control	Used to adjust the headphone volume.
Headphone jack	Used to connect a headphone.
Jog/Shuttle	(See *next page*)
Control buttons	(See *next page*)

Control buttons

Shuttle/Jog button   Jog/Shuttle

VAR button

R1 button

P1 button

P2 button

T2 iDDR

Rew button   FF button   Rec button

Play button   Stop button
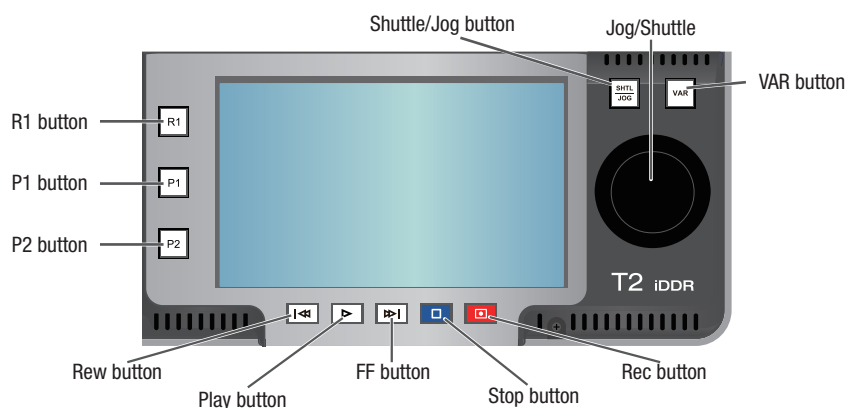
|	
R1 button	Switches the Recorder channel to active.
P1 button	Switches the Player1 channel to active.
P2 button	Switches the Player2 channel to active.
Rew button	Moves back frame by frame. Keep pressing the button will fast-rewind.
Play button	Starts playback.
FF button	Moves forward frame by frame. Keep pressing the button will fast-forward.
Stop button	Stops playback/recording.
Rec button	Starts recording.
Shuttle/Jog button	Makes Jog/Shuttle active. (Switches modes from VAR button.)
VAR button	Executes variable speed playback. (Opens the control screen. Switches modes from Shuttle/Jog button.)
Jog/Shuttle	Executes jog playback, shuttle playback.

Rew + Stop buttons	While playing a clip
	   Moves to the previous IN/OUT point, or the top of the clip.
	
	While playing a playlist
	   Moves to the previous event.

FF + Stop buttons	While playing a clip
	   Moves to the next IN/OUT point, or the end of the clip.
	
	While playing a playlist
	   Moves to the next event.

Rear panel
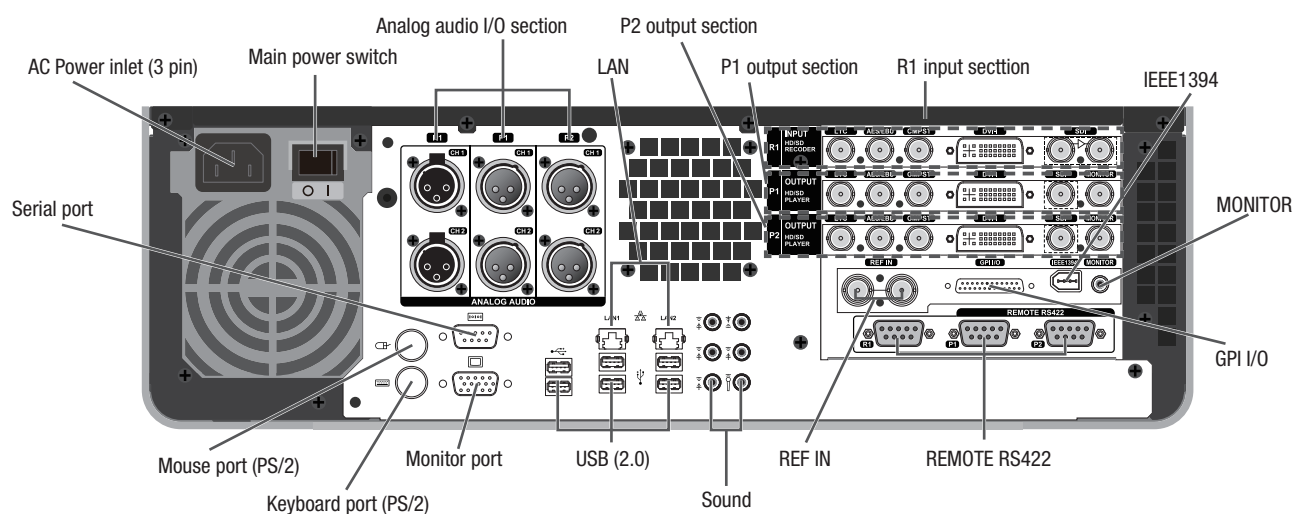
AC Power inlet (3 pin)	Use the supplied power cable and connect to the AC power.
Main power switch	Turns the main power ON/OFF.
Analog audio I/O section	Used for analog audio I/O.
Mouse port (PS/2)	Used to connect a mouse.
Keyboard port (PS/2)	Used to connect a keyboard.
Serial port	Not used.
Monitor port	Used to connect a PC monitor.
USB (2.0)	Used to connect a keyboard or mouse.
LAN	Used to connect a LAN cable.
Sound	Not used.
R1 input section	Used for inputting to the R1 channel.
P1 output section	Used for outputting from the P1 channel.
P2 output section	Used for outputting from the P2 channel.
REF IN	Used to input REF signal.
GPI I/O	Used for GPI I/O.
IEEE1394	Used to connect a device via IEEE1394.
MONITOR	Used for audio monitor.
REMOTE RS422	Used for remote control of R1, P1, P2 channels.

Analog audio I/O section
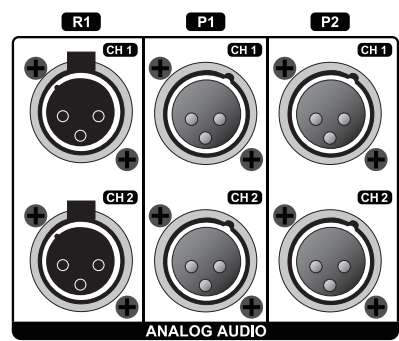
R1 – CH1 **R1 – CH2**	Used for audio input to the R1 channel. Balanced audio input. XLR-3-31x2 (CH1-2)
P1 – CH1 **P1 – CH2**	Used for audio output from the P1 channel. Balanced audio output. XLR-3-32x2 (CH1-2)
P2 – CH1 **P2 – CH2**	Used for audio output from the P2 channel. Balanced audio output. XLR-3-32x2 (CH1-2)

R1 input section
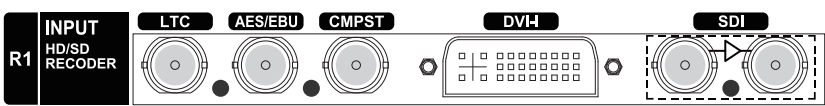
LTC	Used for LTC (timecode) input.
AES/EBU	Used for digital audio (AES/EBU) input.
CMPST	Used for Composite input.
DVI-I	Used for DVI-I input (for DVI, YPbPr).
SDI	Used for SDI input (left), and for active through (right).

P1/P2 output section
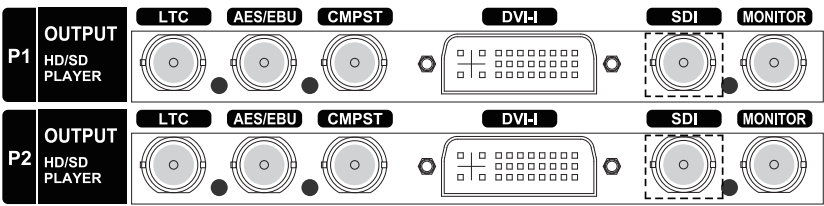
LTC	Used for LTC (timecode) output.
AES/EBU	Used for digital audio (AES/EBU) output.
CMPST	Used for Composite output.
DVI-I	Used for DVI-I output (for DVI, RGB, YPbPr).
SDI	Used for SDI output.
MONITOR	Used for monitor output (Composite).

Note   The YPbPr signal is input/output via analog RGB pins on the DVI-I port. To output YPbPr, use a RGB conversion connector cable.
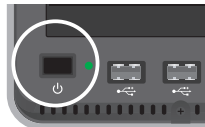
Start-up and shutdown

Start-up

The following procedure is to start-up the T2.

1. Switch the Main power switch on the rear panel to the on position, and turn the Power switch on the front panel ON.

Power switch

2. T2 starts up and the 3ch View screen appears on the touch screen LCD.

3ch View

Switching to the Workstation mode

When the T2 starts up, it is running in the Front Panel mode by default. To switch it to the Workstation mode, perform the following procedure.

1. On the PC monitor connected to the T2, choose **Switch to Workstation mode** from the **System** menu.

   * To switch back to the Front Panel mode, touch the touch screen LCD screen, or choose **Switch to Front Panel Mode** from the **System** menu on the PC monitor.

Shutdown

The following procedure is to shutdown the T2.

1. Choose **System** - **Exit**.

System menu
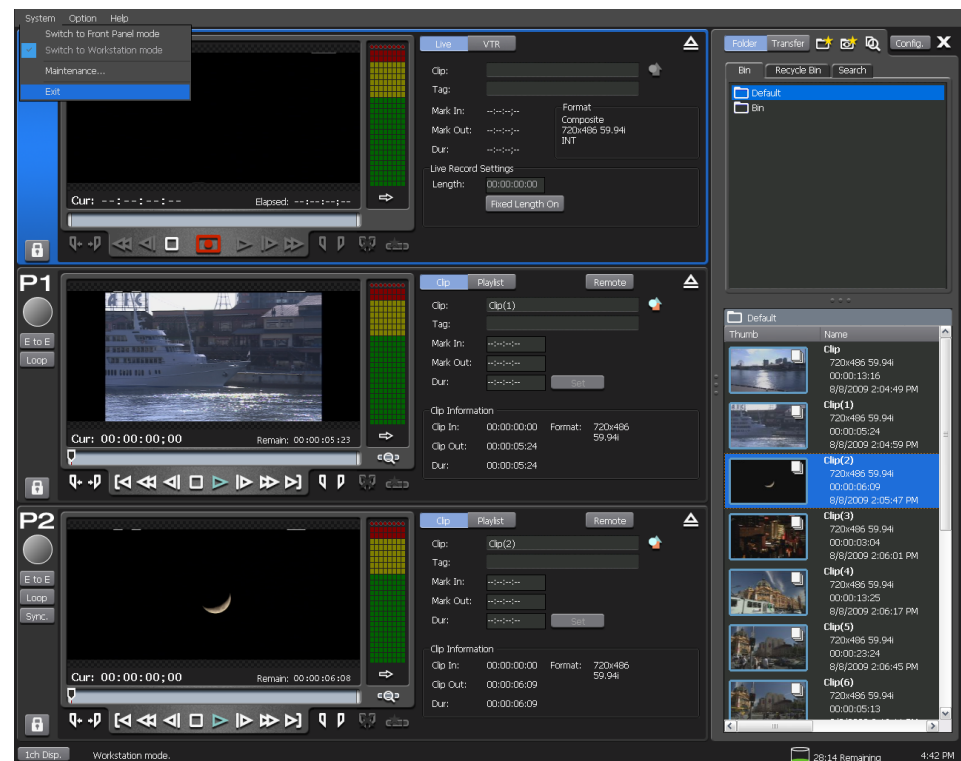
2. On the dialog displayed, choose **Shutdown** and click the **OK** button.

   To turn the T2's main power off, wait until the screen goes blank, confirm that the shutdown is complete, and then turn off the main power switch on the rear panel.

Hardware settings

Clicking the **Config** button at the top right corner of the screen displayed in the Workstation mode, the System settings screen will open.

Modify the settings according to your environment.

Config button

System settings

Hardware settings
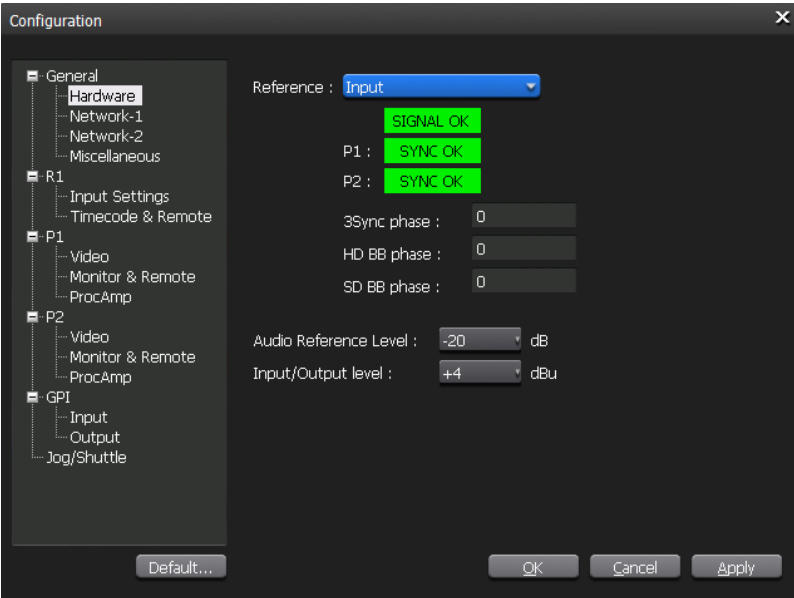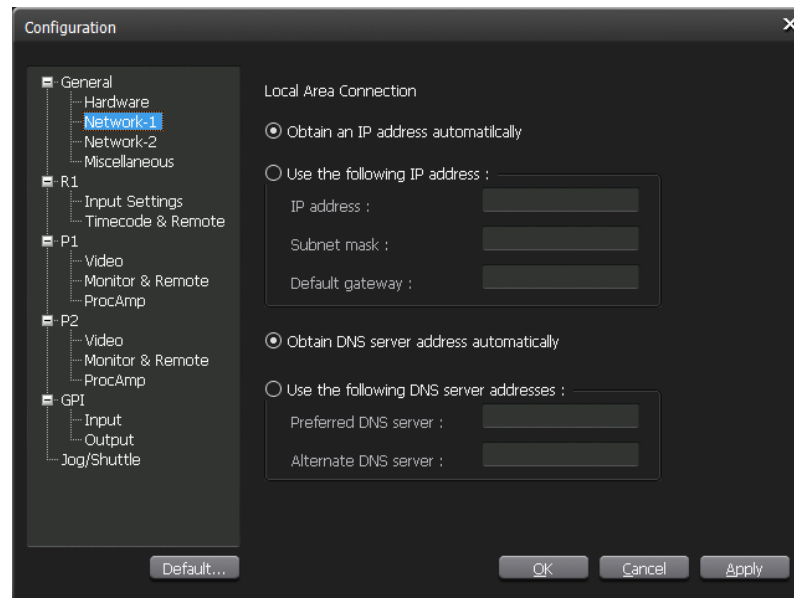

Reference	The options you can choose from for the reference input method are **External**, **Input** and **Internal**. The sync status is displayed in the boxes below this button. **P1** Displays if the P1 channel is synchronized. **P2** Displays if the P2 channel is synchronized. **3Sync phase** To use the HD tri-level REF signal as the HD REF signal, check this box. Enter a value to adjust the REF phase. (Available only for **External**) **HD BB phase** To use the SD Black Burst REF signal as the HD REF signal, check this box. Enter a value to adjust the REF phase. (Available only for **External**) **SD BB phase** To use the SD Black Burst REF signal as the SD REF signal, check this box. Enter a value to adjust the REF phase. (Available only for **External**)
Audio Reference Level	Adjusts the audio reference level (Headroom).
Input/Output level	Adjusts the audio input/output level.

Network-1/Network-2 settings

Obtain an IP address automatically	Check this option to obtain an IP address automatically via DHCP.
Use the following IP address	Establishes a local area connection by specifying an IP address, subnet mask and default gateway. **IP address** Specify an IP address. **Subnet mask** Specify a subnet mask. **Default gateway** Specify a default gateway.
Obtain DNS server address automatically	Check this option to obtain a DNS server address automatically via DHCP.
Use the following DNS server addresses	Establishes a local area connection by specifying addresses for the default DNS server and an alternate DNS server. **Preferred DNS server** Specify a default DNS server address. **Alternate DNS server** Specify an alternate DNS server address.

Miscellaneous settings
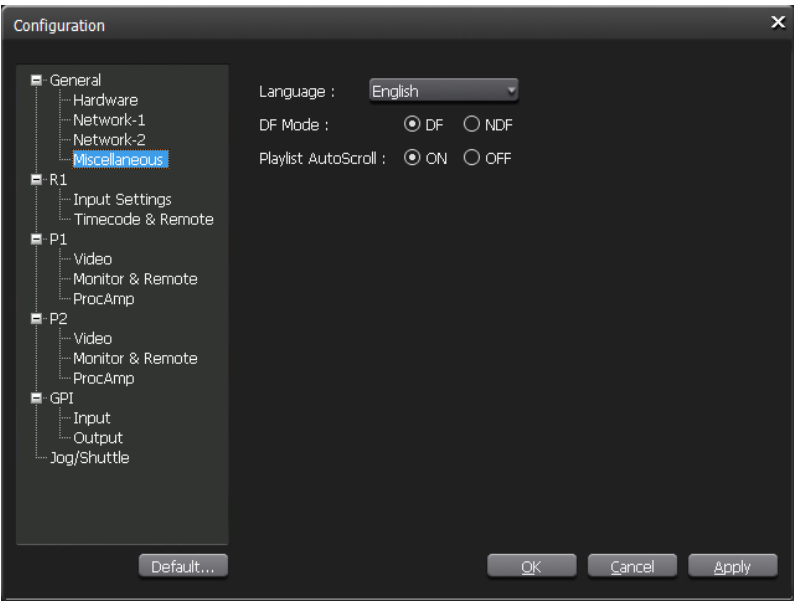
Language	Choose between **English** and **Japanese** for the on-screen language. * Restarting the system is required to apply the setting.
DF Mode	Specify either drop-frame or non-drop frame to be used. **DF** Check this option to use Drop frame. **NDF** Check this option to use Non-drop frame.
Playlist AutoScroll	Specify if you want the Event List of the playlist to automatically scroll.

R1 channel settings

Input Settings
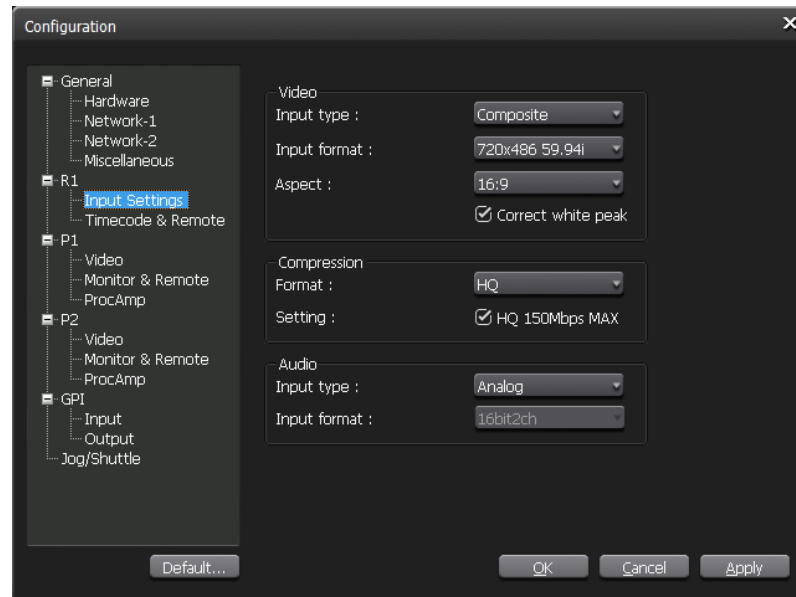
Video	**Input type** Choose a type of video input. **Input format** Choose a format for the video input. **Aspect** Choose the aspect ratio for the SD input. **Correct white peak** Check this option to enable white peak correction.
Compression	**Format** Specify the compression format. **Setting** Check this option to limit the compression rate for the Canopus HQ codec, up to 150Mbps.
Audio	**Input type** Specify the audio input format from **Analog**, **AES/EBU** (digital) and **SDI embedded**. **Input format** Check this option to record in 16bit 2ch.

Timecode & Remote settings
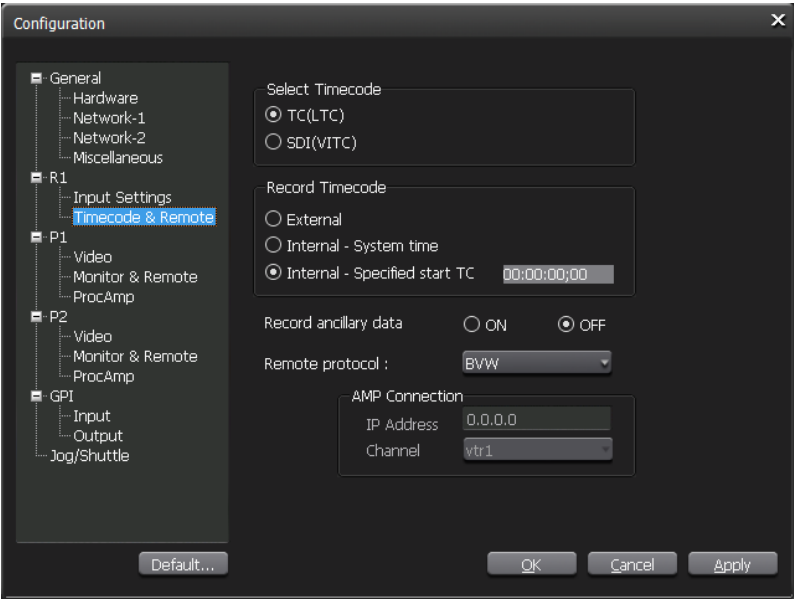
Select Timecode	Specify the format for the timecode from **TC (LTC)** and **SDI (VITC)**.

Record Timecode	Choose the timecode to use for recording.
	
	External
	  Uses the timecode from the external device.
	
	Internal-System time
	  Uses the system clock.
	
	Internal-Specified start TC
	  Specify a value as the beginning timecode.

Record ancillary data	Setting this option to ON will record VANC.
Remote protocol	Choose a REMOTE protocol from **BVW** and **AMP**.
AMP Connection	Specify an IP address and a channel for AMP connection.

P1/P2 channel settings

Video settings
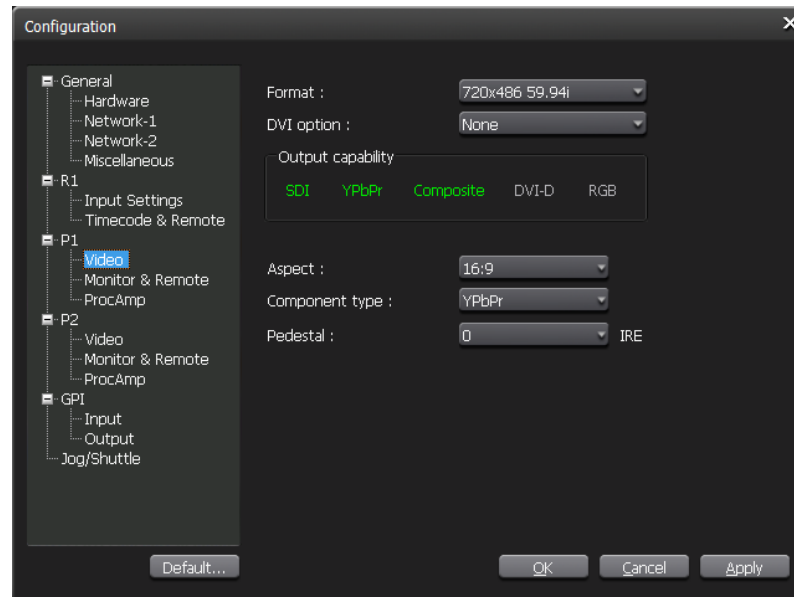
Format	Specify the resolution and the frame rate for the output video.
DVI option	Choose a video resolution to use with DVI/RGB format for output.
Output capability	Displays available format with highlight.
Aspect	Specify the aspect ratio. Choose **4:3** or **16:9** for SD video.
Component type	Choose the type of the analog signal output via DVI-I port.
Pedestal	Choose the setup (black) level in NTSC. Choose **7.5IRE** for North America.

Monitor & Remote settings

Monitor out	Specify the channel to use for monitor out, and specify if OSD (on-screen display) is enabled. **Channel** Specify the channel to use for monitor out. Only **P1** is available for **P1** channel, while **P1** and **P2** for **P2** channel. **OSD** Enables/Disables the on-screen display.
Remote protocol	Choose a REMOTE protocol from **BVW** and **AMP**.

ProcAmp settings
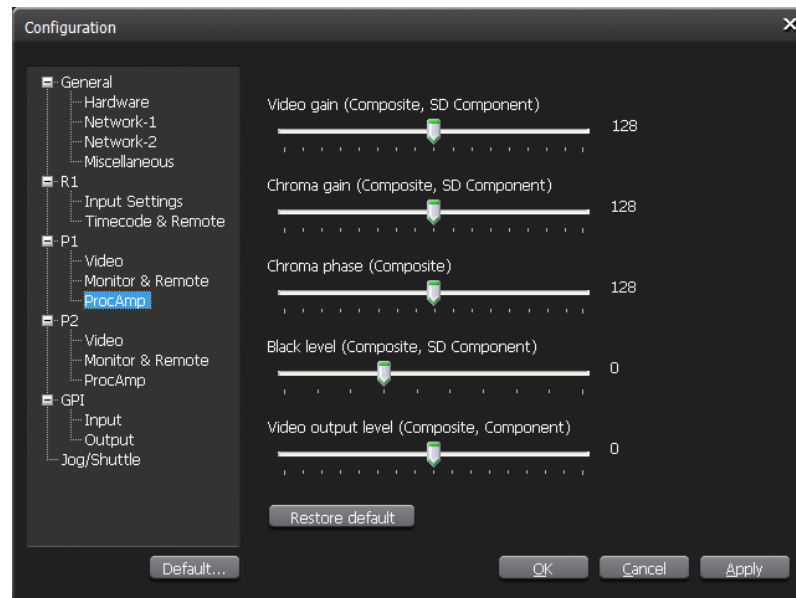
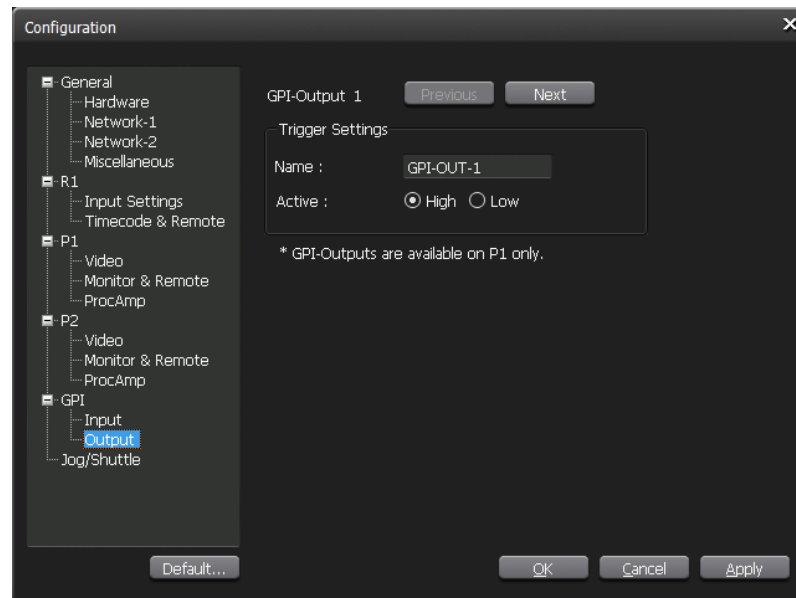| Video gain	Adjusts the Video gain. (Available only for Composite and SD Component)
Chroma gain	Adjusts the Chroma gain. (Available only for Composite and SD Component)
Chroma phase	Adjusts the Chroma phase. (Available only for Composite)
Black level	Adjusts the Black level. (Available only for Composite and SD Component)
Video output level	Adjusts the Video output level. (Available only for Composite and Component)

GPI settings

Input settings

GPI-Input	Use the **Previous** and **Next** buttons to choose the GPI input trigger.
Trigger Settings	Permits specification of the GPI input trigger settings.

Under Trigger Settings:

Channel
  Choose a channel to respond to the GPI input trigger.

Action
Specify the action caused by the trigger.
- Stop .... Stops playback/recording.
- Play .... Plays the clip or playlist loaded to a channel.
- Record .... Starts recording.
- Rewind .... Rewinds. Rewinding stops at the start of the content, or when other action is performed.
- FastFwd .... Executes Fast Forward. Fast Forward stops at the end of the content, or when other action is performed.
- CueStart .... Cues up to the IN point of the content loaded.
- CueEnd .... Cues up to the OUT point of the content loaded.
- Eject .... Unloads the content loaded.
- Preview .... Loads the clip uploaded from the R1 channel onto the P1 channel.
- CueNextEvent .... Cues up to the next event on the playlist loaded.
- CuePrevEvent .... Cues up to the previous event on the playlist loaded.
- VARPlayback .... Plays the content in the speed specified in Variable speed playback mode (see "*Jog/Shuttle settings*").

Active
  Choose the GPI signal to activate from **High** and **Low**.

Output settings

GPI-Output	Use the **Previous** and **Next** buttons to choose the GPI output trigger.
Trigger Settings	Permits specification of the GPI output trigger settings. **Name** Specify the name of the trigger. **Active** Choose the GPI signal to activate from **High** and **Low**.

Jog/Shuttle settings
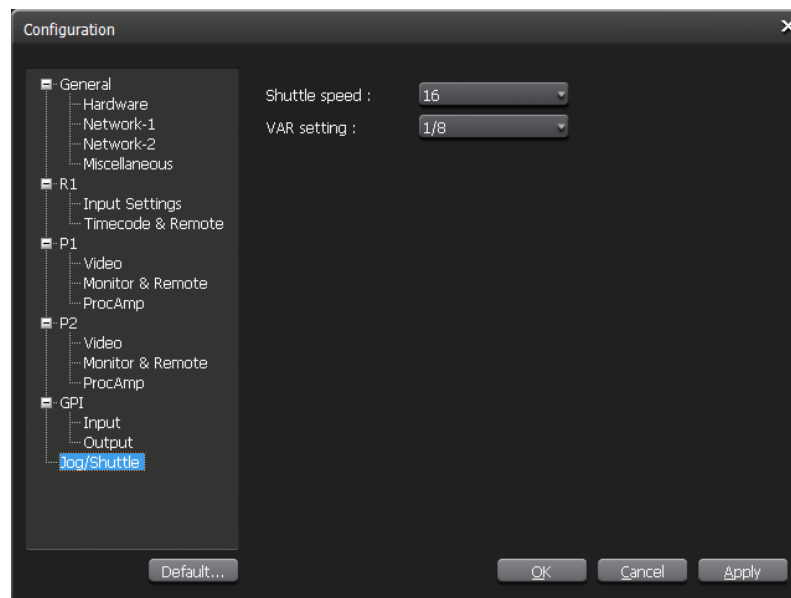
Shuttle speed	Choose the maximum shuttle speed, either **16x** or **32x**.
VAR setting	Choose the playback speed in the Variable speed playback mode, between **1/8**, **1/4** and **1/2**.

Workstation mode

Overview

In the Workstation mode, you can operate the T2 via the display monitor connected to the T2, using the mouse and the keyboard. Touching the touch screen LCD while the T2 is running in the Workstation mode, it's switched to the Front Panel mode.

T2 screen modes and functions

Channel part   Bin/Transfer part

Status bar   Content List part
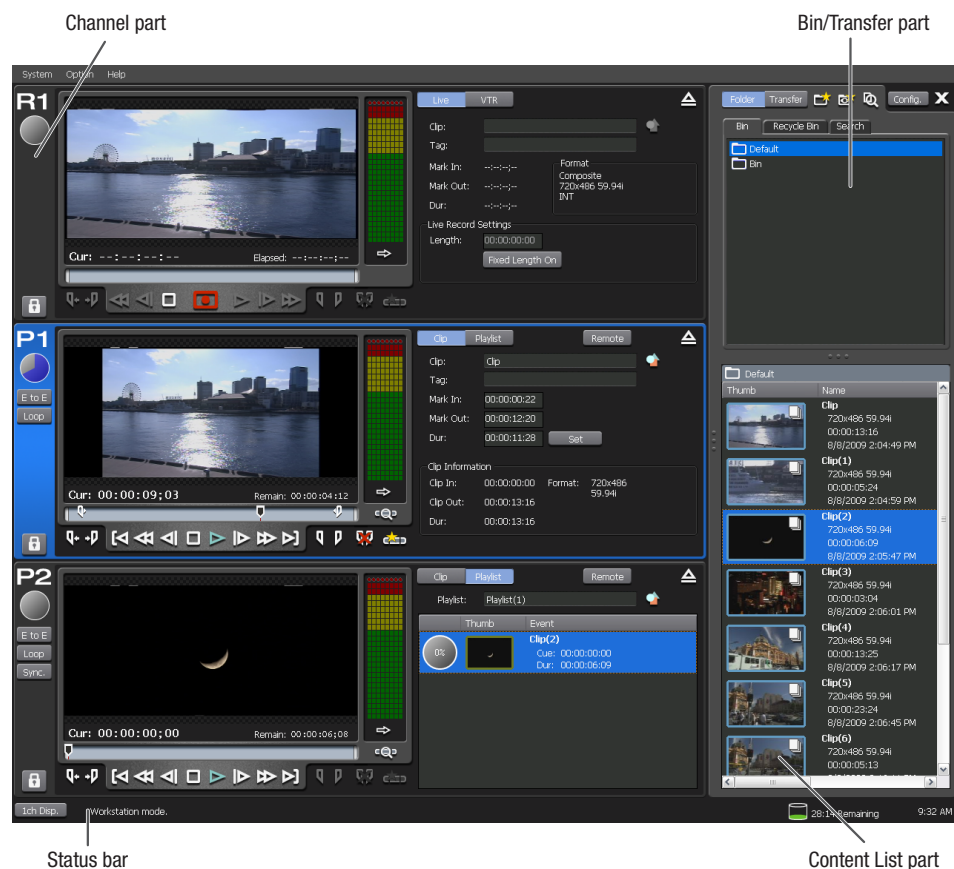
The Workstation screen consists of the following.

- Menu bar
- Status bar
- Bin/Transfer part
- Content List part
- Channel part

Menu bar

| System | Option | Help |

System menu

Switch to Front Panel mode	Choose this option to exit Workstation mode and switch the T2 to Front Panel mode.
Switch to Workstation mode	Choose this option to exit Front Panel mode and switch the T2 to Workstation mode.
Maintenance	Choose this option to switch the T2 to Maintenance mode. Entering a password is required.
Exit	Choose this option to restart or shutdown the T2.

Option menu

Log	Choose this option to specify the log level or to show logs. **Logging level** Opens the dialog to specify the log level. **Show log** Displays the log.
Remove Device	Choose this option to list the removable devices and choose the device to remove.

Help menu

About T2	Displays the application version.

Status bar

Operation mode   Clock

1ch Disp.   Workstation mode.   28:07 Remaining   1:55 PM

Display Mode button   HDD capacity

Display Mode button	Switches the display mode between **3ch Display** and **Full Display** of a channel.
Operation mode	Displays the current operation mode.
HDD capacity	Displays the estimated amount of time for recording.
Clock	Displays the current time.

Bin/Folder part

Bin folder
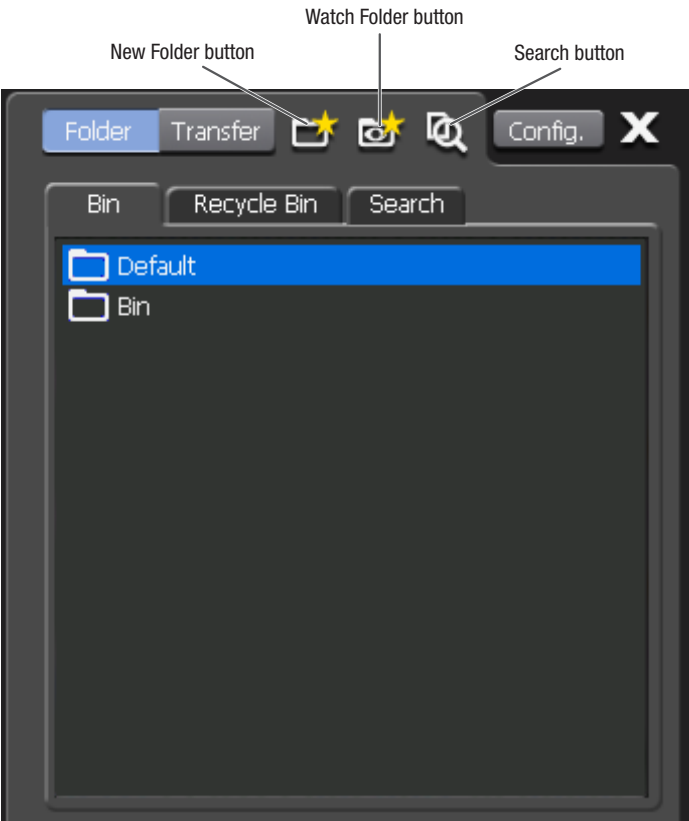
Watch Folder button

New Folder button

Search button

Folder/Transfer button	Switches the screen between Bin folder screen and Transfer screen.
New Folder button	Creates a new Bin folder.
Watch Folder button	Enables/Disables the Watch folder.
Search button	Use this button to search clip or playlist with search keys specified.
Config button	Opens the system settings screen.
Bin tab	Displays the folder that stores clips and playlists.
Recycle Bin tab	Displays the clips and playlists (and their folder) deleted from the Bin folder.
Search tab	Displays the folder hit by the search.

Creating Watch Folder screen

By specifying the folder created on a data drive as a Watch folder, you can share it via FTP. The folder specified as a Watch folder is kept watched, and when media files are added to the folder, they will automatically be added to the Bin. (The media file will be moved to the specified media folder.)

Target Bin	Displays the Bin folder name to be used as a Watch folder.

FTP	Specify the FTP user name and its password.
	User Name
	  Input a user name.
	Password
	  Input the password.

Search Key options
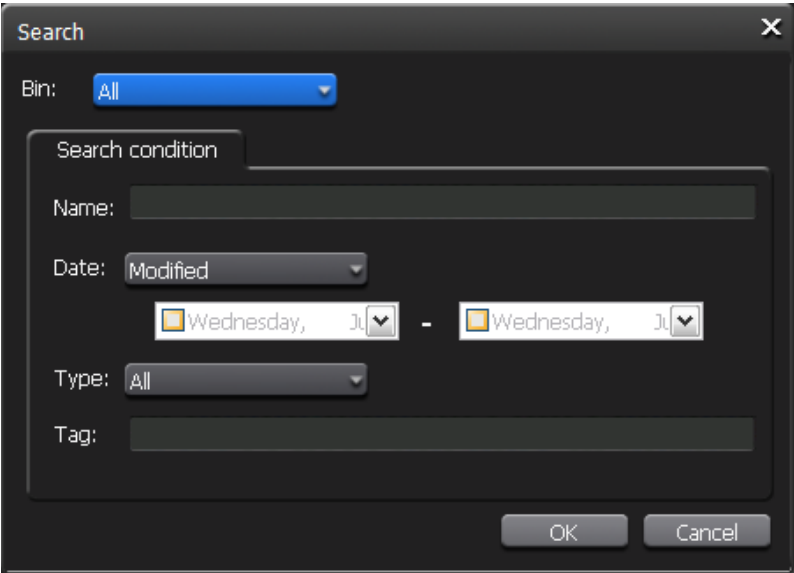
Bin	Specifies the target folder for the search.
Name	Use this option to search by name.
Date	Use this option to search by created date or updated date (A – B, Before A, or After A).
Type	Use this option to search by Standard (HD/SD).
Tag	Use this option to search by TAG (multiple tags, partial match retrieval). * To enter multiple strings, delimit with "." (period).

Bin folder – Right click menu
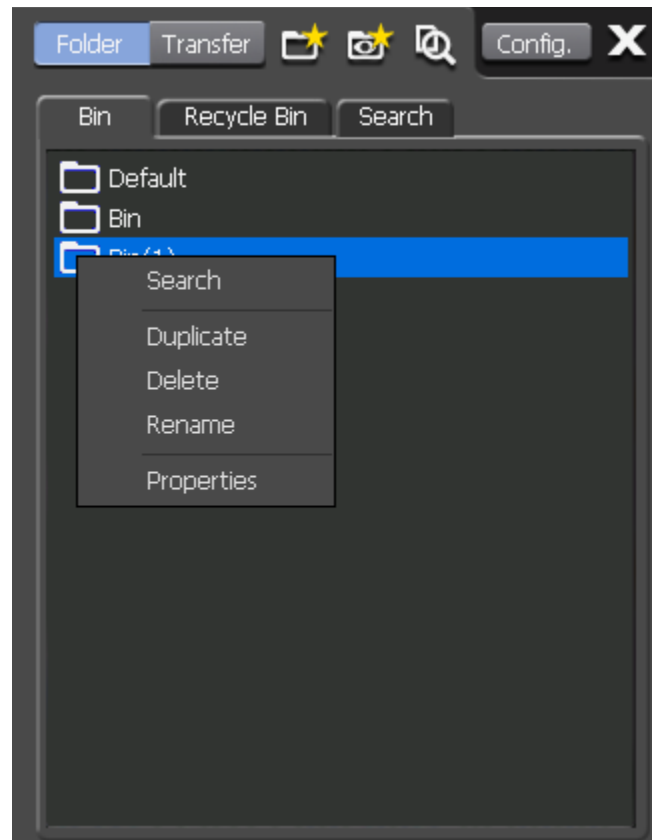
Search	Use this option to search clips or playlists, specifying keys (in the selected folder only).
Duplicate	Duplicates the Bin folder.
Delete	Deletes the selected folder from the Bin and moves them to the Recycle Bin. The contents (clip, playlist) of the folder will also be deleted.
Rename	Renames the selected Bin folder.
Properties	Opens the properties dialog for the selected Bin folder.

RecycleBin – Folder – Right click menu
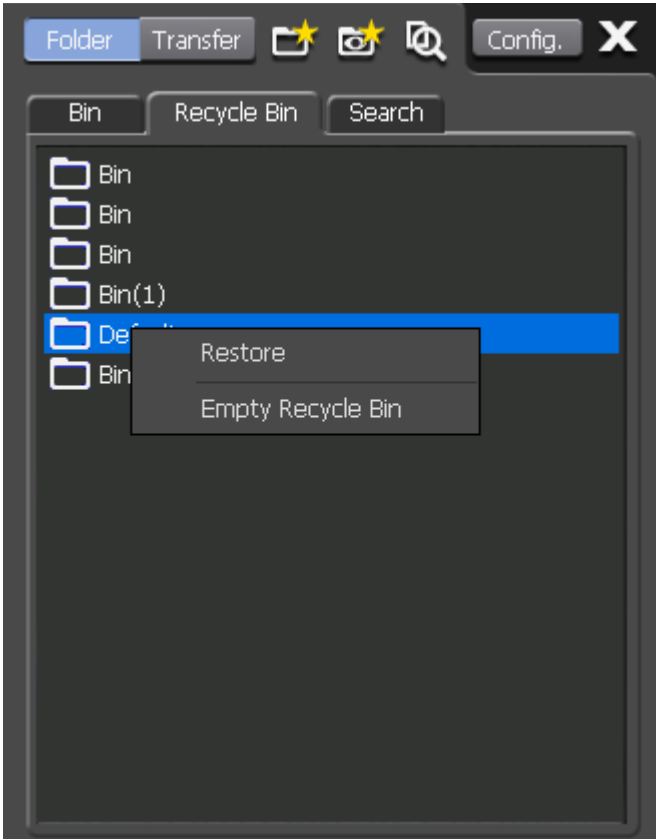
Restore	Restores the folder to the original Bin. When a playlist is restored, if the clips used in the playlist exist in the RecycleBin, the clips will also be restored.
Empty Recycle Bin	Deletes all the contents in the Recycle Bin. Note that the deleted contents cannot be restored.

RecycleBin – Clip/Playlist – Right click menu
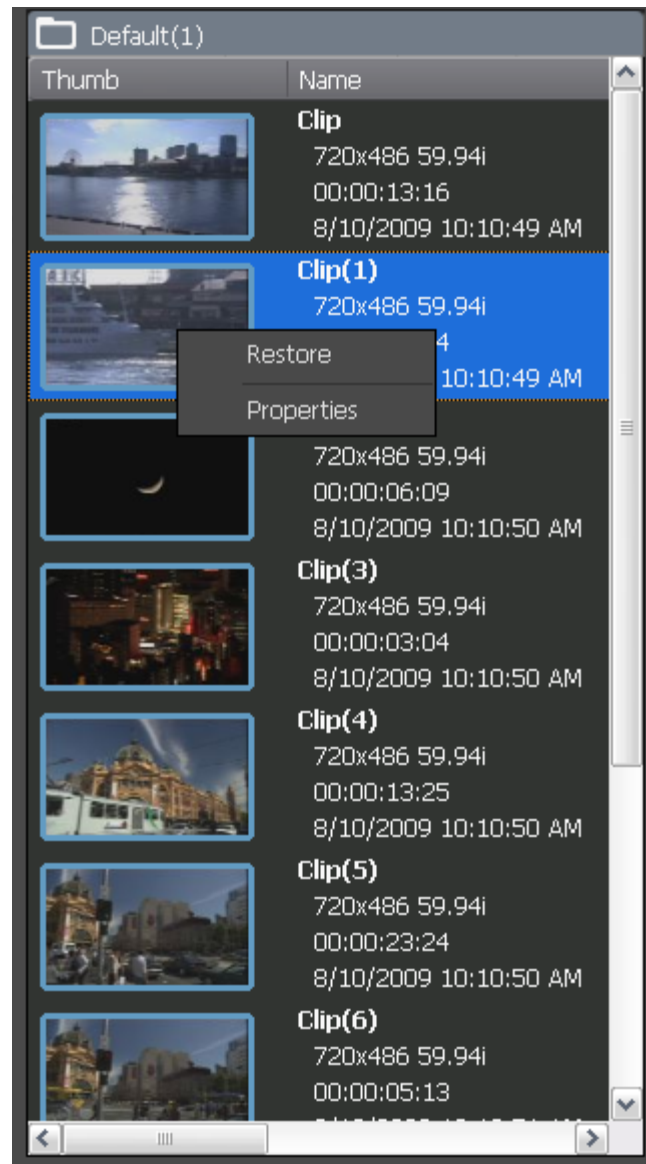
Restore	Restores the item to the original Bin, and then opens the Bin folder. When a playlist is restored, if the clips used in the playlist exist in the RecycleBin, the clips will also be restored.
Properties	Opens the properties dialog for the selected content.

Search – Right click menu
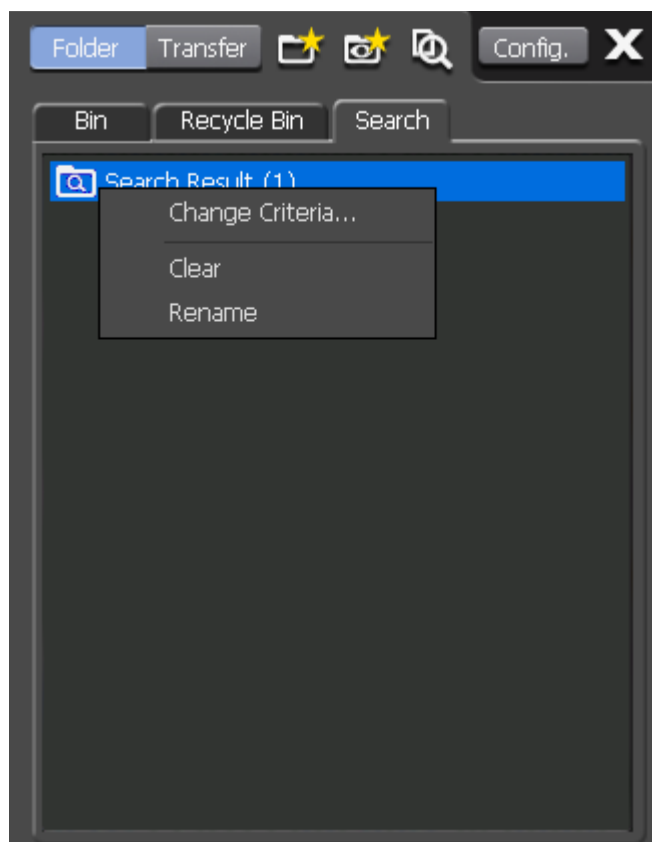
Change Criteria…	Use this option to search with other criteria.
Clear	Use this option to clear the search result.
Rename	Use this option to change the name of the search result.

Transfer screen

Clicking the **Transfer** button at the top of the Bin folder part opens the Transfer screen that displays the transfer status (registered transfer jobs and their status).
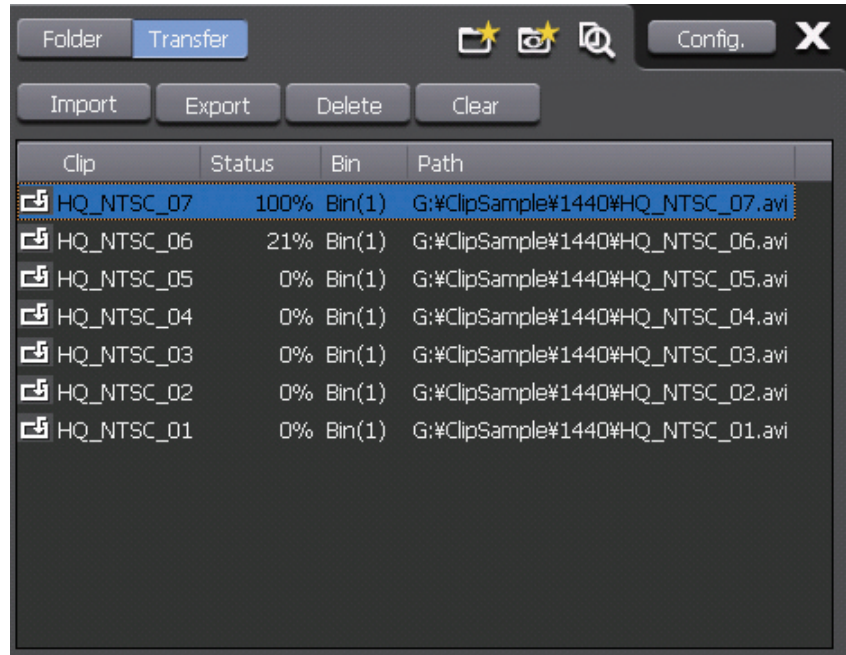
Folder/Transfer button	Switches the screen between Bin folder screen and Transfer screen.
Import button	Displays the Import screen.
Export button	Displays the Export screen.
Delete button	Deletes the selected job. Clicking the button while transferring will stop the transfer.
Clear button	Deletes all jobs on the job list.

Import screen

Source folder   Source File list   Destination   Import Clip list
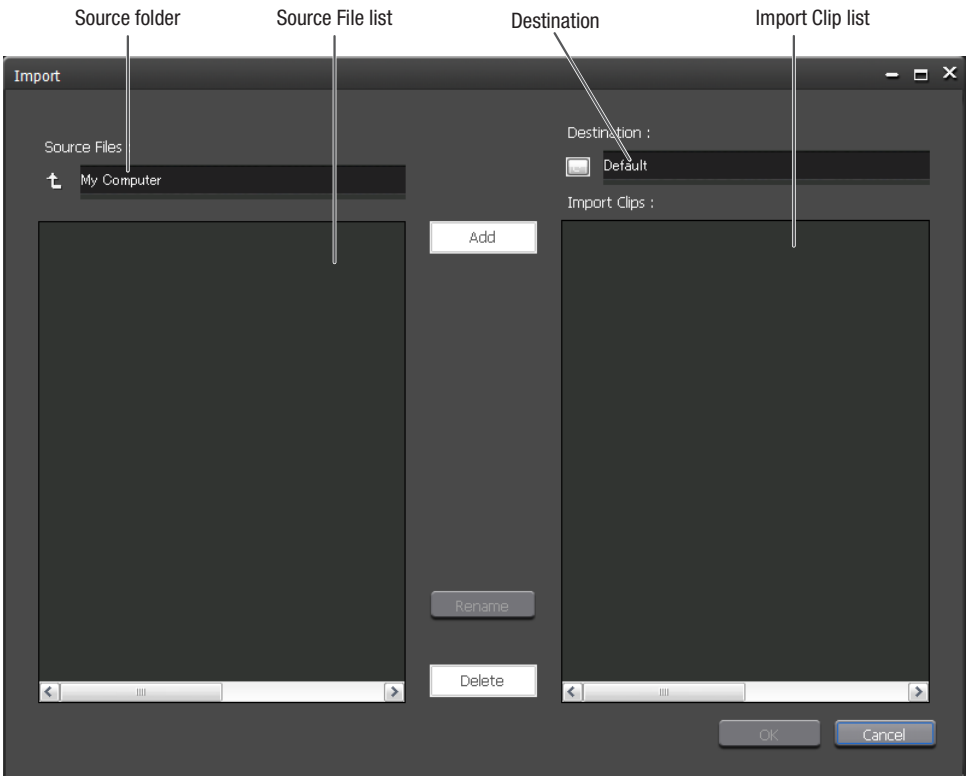
Source folder	Displays the source folder that the contents are imported from. Clicking the button on the left opens the parent folder.
Source File list	Lists the media files (and folders) stored in the source folder.
Destination	Displays the destination Bin folder that the contents are imported to. Clicking the button on the left opens the folder selection dialog to change the destination folder.
Import Clip list	Lists the clips that will be imported.
Add button	Adds the media files selected in the Source File list to the Import Clip list. When the clips are redundant in the destination folder, the clip name will automatically be changed.
Rename button	Renames the selected clips chosen in the Import Clip list. (Only the clips to be imported can be renamed.)
Delete button	Deletes the selected clips chosen in the Import Clip list. (Only the clips to be imported will be deleted.)
OK button	Starts importing according to the Import Clip list registered (ie: Adds jobs to the Transfer screen), and closes the Import screen.
Cancel button	Closes the Import screen.

Export screen

Source Bin folder

Source Clip list

Destination folder

Export File list

| Source Bin folder	Displays the Bin folder that the contents are exported from. Clicking the button on the left opens the Bin selection dialog to change the Bin folder.
Source Clip list	Lists the clips stored in the source Bin folder.
Destination folder	Displays the destination folder that the contents are exported to. Clicking the button on the left opens the parent folder.
Export File list	Lists the clips (file name) to be exported. When the file is redundant in the destination folder, the file name will automatically be changed.
Add button	Adds the clips chosen in the Source Clip list to the Export File list.
Rename button	Renames the clip chosen in the Export File list from the list. (Only the clip to be exported can be renamed.)
Delete button	Deletes the clips chosen in the Export File list from the list. (Only the clips to be exported will be deleted.)
OK button	Starts Exporting according to the Export File list registered (ie: Adds jobs to the Transfer screen), and closes the Export screen.
Cancel button	Closes the Export screen.

Content List part

Displays the Content List. From the right-click menu, the display mode can be switched between **Text mode** and **Icon mode** (Large/Small).

Text mode　　　　　　　　　　　*Icon mode*
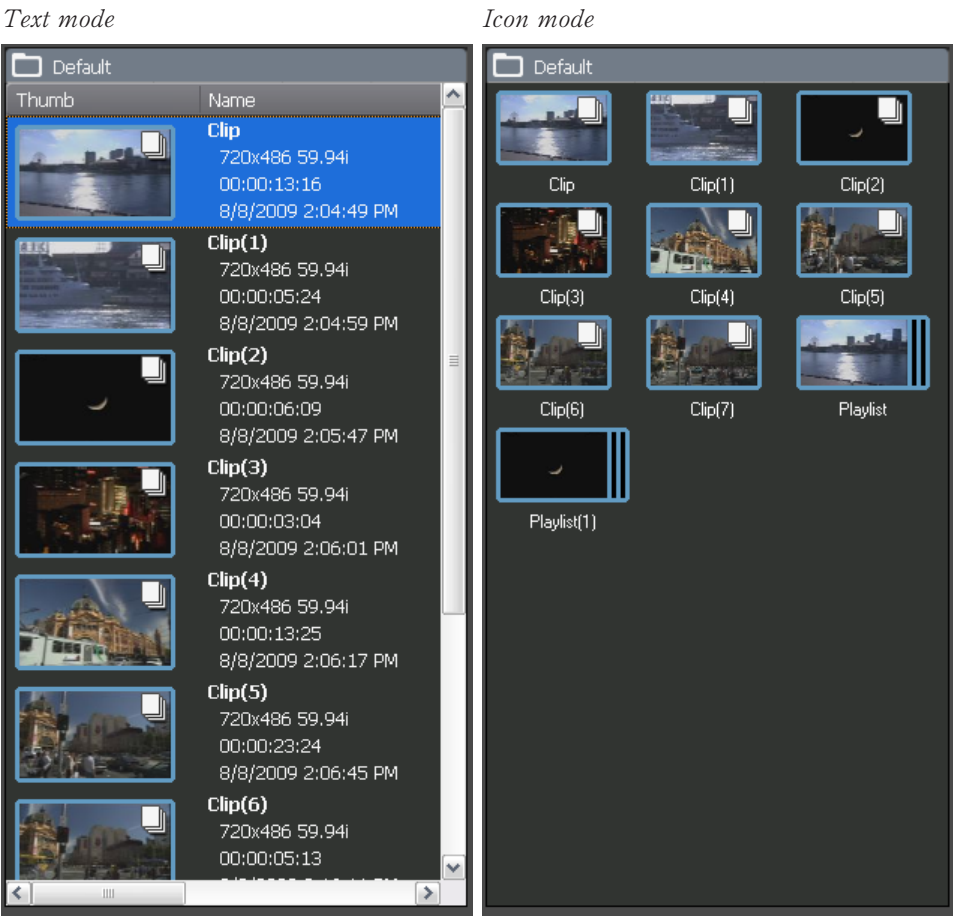
Folder name	Displays the folder name.
Thumbnail	Displays the thumbnail. The color of the frame can be chosen among 5 colors.
Content information	Displays the content information.

Thumbnail icons
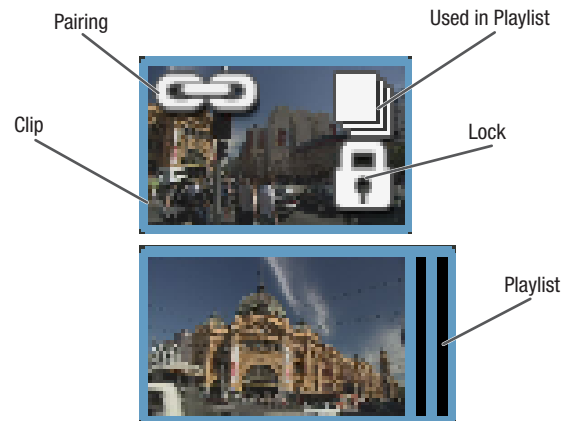
Pairing icon	Displayed on the clips/playlists that have been paired for the Sync mode.
Lock icon	Displayed on the clip/playlist that have been locked.
Used in Playlist icon	Displayed on the clip/playlist that have been used in a playlist.

Selecting contents

Multiple contents (clip, playlist) can be chosen simultaneously with the **Ctrl** key or the **Shift** key pressed.

Controlling contents

Contents can be moved to a folder in the Bin by drag & drop. Also, dragging contents with the **Ctrl** key pressed will duplicated them. When files or clips are duplicated, suffixes are automatically added.

Contents preview

Thumbnails of the contents can be displayed in a six-parted film strip.

Pairing contents (for sync mode)

From the right-click menu, pairing of contents for the sync mode between P1 and P2 channels can be set.

The paired items have Sync icon on their thumbnails.

To cancel the pairing, choose one of the paired items, and choose **Unpairing** from the right-click menu.

Requirements for pairing

- Contents must be of the same type. (clip and clip or playlist and playlist). Combinations between clip and playlist are not available for pairing contents in the Sync mode.

- Video format must be available and loaded on the same profile.

- Audio types do not matter.

Clip/Playlist – Right click menu
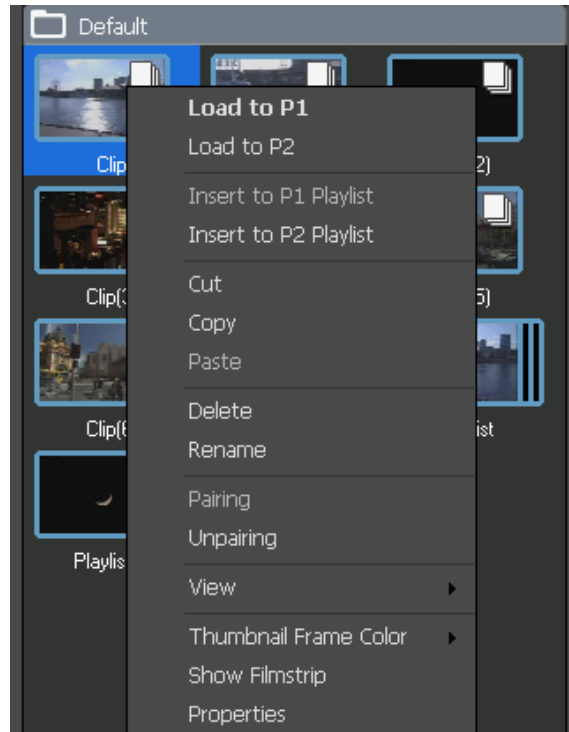
Load to P1	Loads the selected content to the P1 channel. *1
Load to P2	Loads the selected content to the P2 channel. *1
Insert to P1 Playlist	Adds the selected content to the playlist loaded on the P1 channel. *1
Insert to P2 Playlist	Adds the selected content to the playlist loaded on the P2 channel. *1
Cut	Cuts the selected content (copies it to clipboard). *1
Copy	Copies the selected content (copies it to clipboard). *1
Paste	Pastes the content copied to clipboard.
Delete	Deletes the contents and moves them to the RecycleBin.
Rename	Changes the name of the selected content. *1
Pairing	Sets as paired contents for sync mode. *2
Unpairing	Cancels the pairing setting.
View	Switches display mode between Icon mode and Text mode.
Thumbnail Frame Color	Specifies the color of the thumbnail frame.
Show Filmstrip	Displays the preview of the contents with a six-parted film strip. *1
Properties	Displays the properties dialog of the content. *1

*1 Available only when a content is chosen.
*2 Available only when two contents are chosen.

Channel part

The channel part has two display modes: 3ch Display and Full display.

3ch Display
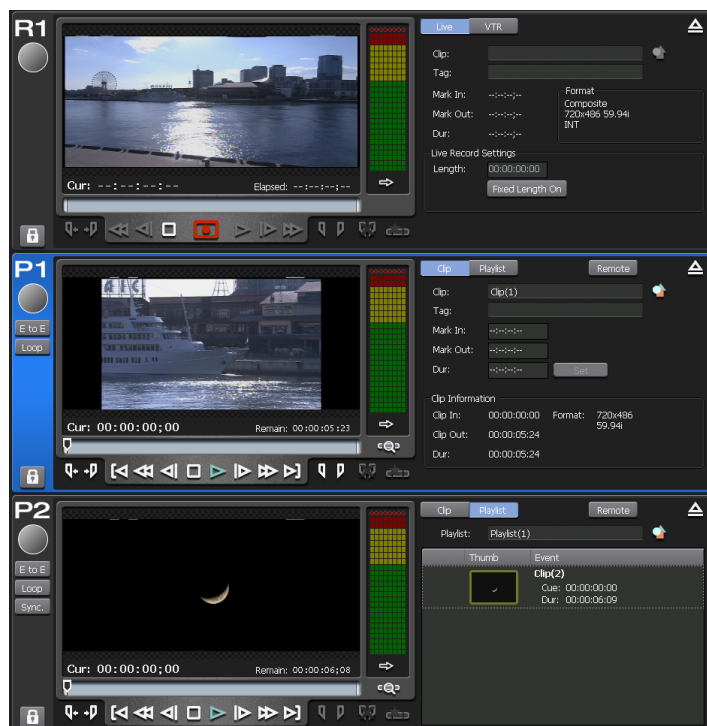
Full Display
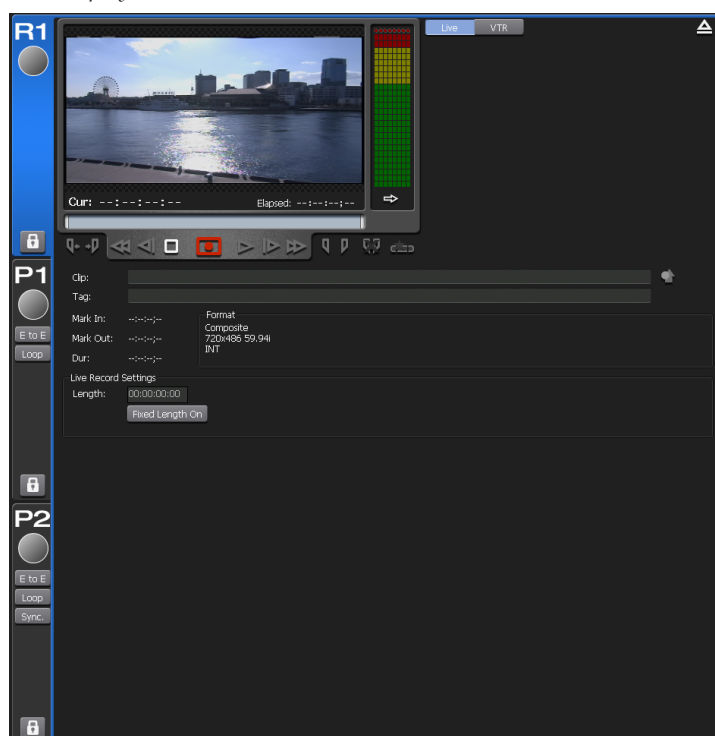
3ch Display

Displays R1, P1 and P2 channels. Clicking of each channel will activate the channel.

R1 channel

This channel is used to record the input signal.

For details on the items shown on the screen, see *Full Display – Recorder channel* page.

P1/P2 channel – Clip Player

This channel is used to play a clip.

For details on the items shown on the screen, see *Full Display – Clip Player* page.
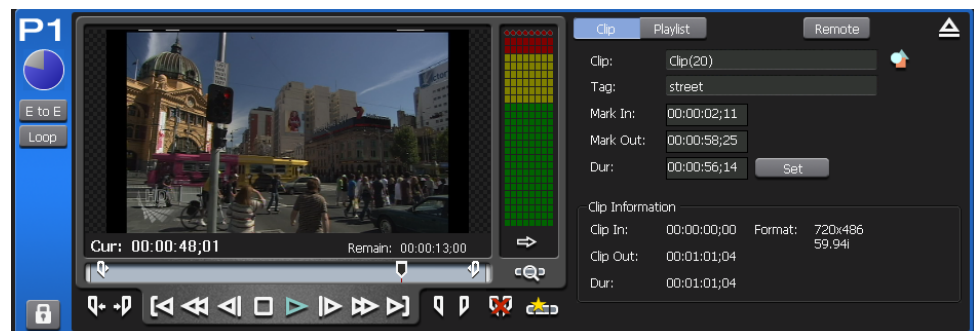
P1/P2 channel – Playlist Player

This channel is used to play a playlist.

For details on the items shown on the screen, see *Full Display – Playlist Player* page.

Full Display - Recorder screen

On this screen, you can modify the settings for recording and/or execute the recording. When the capacity of the HDD becomes low, the HDD icon is displayed in red. In that case, a warning message appears at the beginning of the recording.
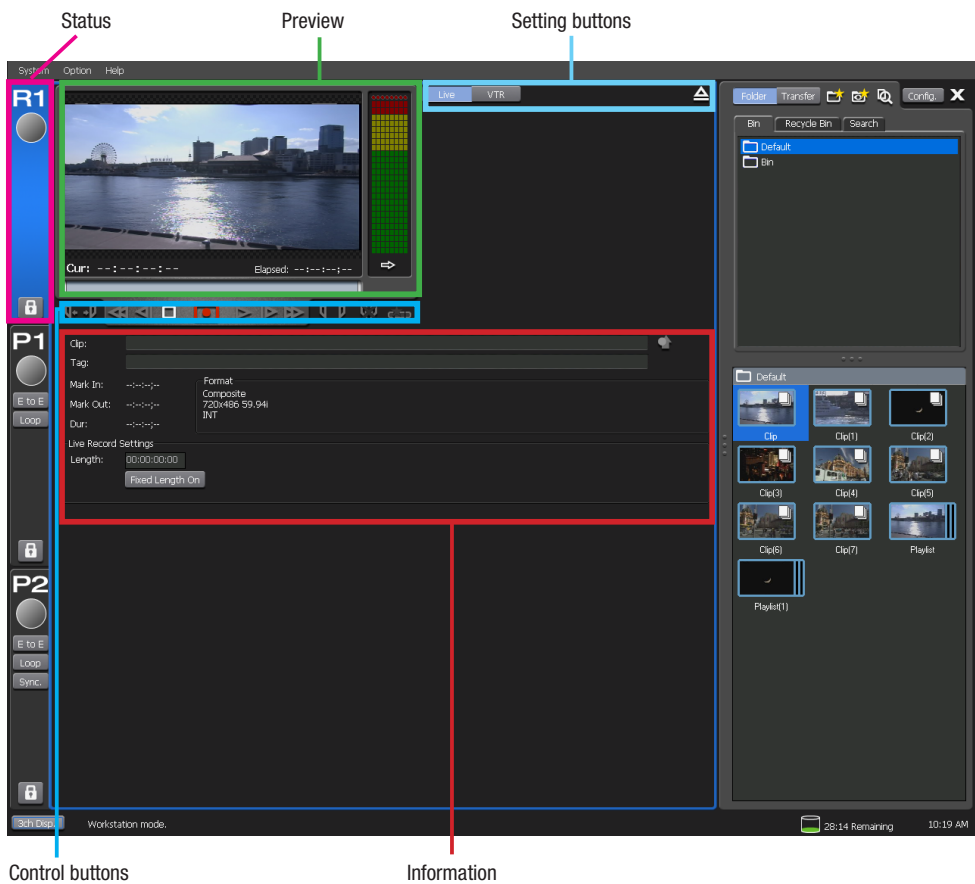
Status
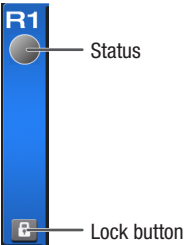
Status	Displays the status of the recording operation with a circular chart.
Lock button	Locks/Unlocks the channel.

Preview

Preview

Audio level

Cur: --:--:--:--   Elapsed: --:--:--;--
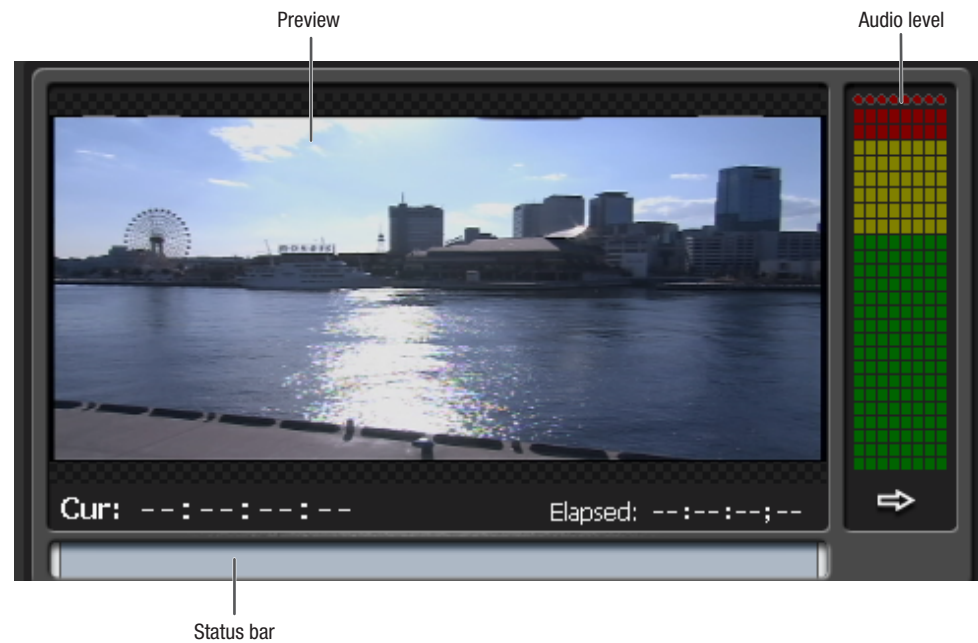
Status bar

Preview	Displays the preview for the input video.
Audio level	Displays the input audio level.
Cur	Displays the current timecode.
Elapsed	Displays the elapsed recording time by timecode.
Status bar	Displays the recording status with a bar.

Setting buttons

Live   VTR   Unload button

Control Mode button	Switches the recording mode between Live and VTR. **Live** Records the video input from an external device as live (stream). Perform operations manually for recording. When the Fixed Length Recording is activated, the recording automatically stops when the specified period of time has passed. **VTR** You can specify the IN/OUT points before starting recording, controlling the external VTR device from T2. To use this mode, connection to an external device via RS-422A is required.
Unload button	Unloads the loaded clip.

Control buttons

Cue (IN)	Cues the VTR to the existing IN point. (Available only in VTR mode)
Cue (OUT)	Cues the VTR to the existing OUT point. (Available only in VTR mode)
Rew button	Rewinds the VTR. (Available only in VTR mode)
Previous Frame button	Moves back frame by frame. (Available only in VTR mode)
Stop button	Stops playback/recording.
Rec button	Starts recording.
Play button	Starts playback. (Available only in VTR mode)
Next Frame button	Moves forward frame by frame. (Available only in VTR mode)
FF button	Fast-forward the VTR. (Available only in VTR mode)
Mark (IN)	Marks the current position as the IN point of the content. Marking an IN point will set the timecode of the IN point in the timecode box.
Mark (OUT)	Marks the current position as the OUT point of the content. Marking an OUT point will set the timecode of the OUT point in the timecode box, as well as the duration of the clip in the Length box.
Clear button	Clears the existing IN/OUT points.

Information

Clip	Input a clip name.
Tag	Input tags.
Format	Displays the information including video size, frame rate, input type, source timecode (TC (LTC) / SDI (VITC) / INT), etc.
VTR In	Displays the timecode at the IN point.
VTR Out	Displays the timecode at the OUT point.
Dur	Displays the duration of the content between the IN-OUT points by timecode.
Length	Displays the duration of the clip in the Fixed Length mode.
Fixed Length On	Click this button to activate the Fixed Length recording mode.

Modes and functions of recording

See the following table for the recording modes and their functions.

	Crash Rec	Fixed Length Rec
VTR	○*1	○*1
Live	○	○

*1   Available only when IN/OUT points are not set.

- In VTR mode, when both IN and OUT points are set, the range between the IN and OUT points will be recorded, controlling the VTR.

- In VTR mode, when only IN point is set, the recording starts from the specified IN point, controlling the VTR. (Recording must be stopped manually.)

- According to the type of the recording, the icon of the **Rec** button differs.

	Crash Rec	This icon indicates that recording must be stopped manually.
	Fixed Length Rec	This icon indicates that the Fixed Length mode is enabled.
	In-Out Rec	This icon indicates that the IN/OUT points are set.

Full Display - ClipPlayer

On this screen, you can modify the settings for clip playback and/or execute the playback.

Status

Status	Displays the status of the playback operation with a circular chart.
Playback mode	**E to E** Displays whether the E to E mode is enabled. When the E to E mode is enabled, the recorder channel audio and video inputs are switched to the player channel audio and video outputs when the player channel is in stop mode or when there is no clip loaded. * The video format for the channel specified to **E to E mode** must be same as that of the R1 channel. **Loop** Displays whether the Loop mode is enabled. **Sync.** Displays whether the Sync mode is enabled. (Available only on P2 channel.)
Lock button	Locks/Unlocks the channel.

Preview

Preview

Audio level

Scrub bar   Playback speed   Zoom button

Preview	Displays the video preview.
Audio level	Displays the output audio level.
Cur	Displays the current timecode.
Playback speed	Displays the current playback speed (ratio).
Remain	Displays the remaining time by timecode.
Scrub bar	Displays the current position and the IN/OUT points.
Zoom button	Changes the display scale on the scrub bar (Zoom On / Off). **Zoom On** Displays the section between the IN-OUT points of the clip as a whole scale of the scrub bar. Moving the current point out of the IN-OUT range is not available. **Zoom Off** Displays the entire media clip in a complete scale of the scrub bar. In the normal playback operations, the current position can be moved between the IN-OUT points. To move out of the existing IN-OUT range, perform FF, Rew, Jog/Shuttle operations after CueUp.

Setting buttons

Unload button

Switch mode button	Switches the player mode between **Clip player** and **Playlist player**.
Remote button	Click this button to enable remote controls from the external device connected.
Unload button	Unloads the loaded clip.

Control buttons

Cue (IN)	Cues to the existing IN point.
Cue (OUT)	Cues to the existing OUT point.
Top button	Cues to the top of the loaded content.

Rew button	While playing a clip
	   Moves to the previous IN/OUT point, or the top of the clip.
	
	While playing a playlist
	   Moves to the previous event.

Previous Frame button	Moves back frame by frame.
Stop button	Stops playback.
Play button	Starts playback.
Next Frame button	Moves forward frame by frame.

FF button	While playing a clip
	   Moves to the next IN/OUT point, or the end of the clip.
	
	While playing a playlist
	   Moves to the next event.

End button	Cues to the end of the loaded content.
Mark (IN)	Marks the current position as the IN point of the content. Marking an IN point will set the timecode of the IN point in the timecode box.
Mark (OUT)	Marks the current position as the OUT point of the content. Marking an OUT point will set the timecode of the OUT point in the timecode box, as well as the duration of the clip in the Length box.
Clear button	Clears the existing IN/OUT points.
Creating sub-clip button	Generates a sub-clip according to the existing IN/OUT points.

Information

Clip	Displays the name of the loaded clip.
Tag	Displays tags. You can also input tags.
Mark In	Displays the timecode at the IN point.
Mark Out	Displays the timecode at the OUT point.
Dur	Displays the duration of the content between the IN-OUT points by timecode.
Set button	Click the **Set** button to update the IN/OUT points of the content according to the existing IN/OUT points.
Clip In	Displays the timecode at the IN point of the clip.
Clip Out	Displays the timecode at the OUT point of the clip.
Dur	Displays the duration of the clip by timecode.

Preview – Right click menu

Set Thumbnail Frame	Choose this option to use the current frame as a thumbnail.

Loading clip from Bin

To load a clip from the Bin, perform drag & drop, use the Bin menu, or double-click on a clip.

Loading clip which is being recorded (Follow-up playback)

To Load the clip which is being recorded on the R1 channel onto one of the playback channels, perform the loading operation on the clip registered to the Bin once a recording starts.

Adjusting IN/OUT points

Cue to the Mark IN/OUT points, and perform moving frame/FF/Rew operations to go out of the current IN-OUT range (The duration of the clip will be extended.)

Sync mode

In the Sync mode, the clips that have been specified as **paired clips** in the Bin, can be loaded to the player channel. When a clip that has been paired is loaded onto the P1 channel, the other clip of the pair will automatically be loaded to the P2 channel.

When the Sync mode is activated, if the output settings of the P1 and P2 channels differ, the settings on the P2 channel are automatically changed so as to match those of the P1.

The E to E mode cannot be simultaneously activated.

In the Sync mode, only playback operations are available. Marking IN/OUT points or creating sub-clips is not available.

* If the duration of the contents differs between P1 and P2 channels, the playback operations will be performed according to the P1 channel. (P1 channel is the master channel.) When the content loaded on the P2 channel is shorter, the final frame remains displayed.

Full Display - PlaylistPlayer

In this screen, you can modify the playback settings for the playlist and/or execute the playback. The Event List will be automatically scrolled so that the clip being played is shown on screen. To enable/disable the auto-scroll for the Event List, click the **Config** button, open the **Miscellaneous** tab and change the **Playlist AutoScroll** setting (Default: ON).

Operation buttons   Preview   Setting buttons   Information

Status   Event List

Status

Status	Displays the status of the playback operation with a circular chart.
Playback mode	**E to E** Displays whether the E to E mode is enabled. When the E to E mode is enabled, the recorder channel audio and video inputs are switched to the player channel audio and video outputs when the player channel is in stop mode or when there is no playlist loaded. * The video format for the channel specified to **E to E mode** must be same as that of the R1 channel. **Loop** Displays whether the Loop mode is enabled. **Sync.** Displays whether the Sync mode is enabled. (Available only on the P2 channel)
Lock button	Locks/Unlocks the channel.

Preview

Preview   Audio level

Scrub bar   Playback speed   Zoom button

|	
Preview	Displays the video preview.
Cur	Displays the current timecode.
Playback speed	Displays the current playback speed (ratio).
Remain	Displays the remaining time by timecode.
Scrub bar	Displays the current position and the IN/OUT points.
Zoom button	Changes the display scale on the scrub bar (Zoom On / Off). **Zoom On** Displays the section between the IN-OUT points of the clip as a whole scale of the scrub bar. Moving the current point out of the IN-OUT range is not available. **Zoom Off** Displays the entire media clip in a complete scale of the scrub bar. In the normal playback operations, the current position can be moved between the IN-OUT points. To move out of the existing IN-OUT range, perform FF, Rew, Jog/Shuttle operations after CueUp.

Setting buttons

| Clip | Playlist | Remote | ⏏ ——— Unload button |

Switch Mode button	Switches the player mode between **Clip player** and **Playlist player**.
Remote button	Click this button to enable remote controls from the external device connected.
Unload button	Unloads the loaded playlist.

Operation buttons

Cue (IN)	Cues to the top frame of the current event.
Cue (OUT)	Cues to the end frame of the current event.
Previous Event button	Cues to the previous event (IN point).
Rew button	Rewinds the loaded content.
Previous Frame button	Moves back frame by frame.
Stop button	Stops playback.
Play button	Starts playback.
Next Frame button	Moves forward frame by frame.
FF button	Fast-forward the loaded content.
Next Event button	Cues to the next event (IN point).
Mark (IN)	Marks the current position as the IN point of the content. Marking an IN point will set the timecode of the IN point in the timecode box. (Available only while editing)
Mark (OUT)	Marks the current position as the OUT point of the content. Marking an OUT point will set the timecode of the OUT point in the timecode box, as well as the duration of the clip in the Length box. (Available only while editing)
Clear button	Clears the existing IN/OUT points. (Available only while editing)
Set button	Click the **Set** button to update the IN/OUT points of the content according to the existing IN/OUT points. (Available only while editing)

Information
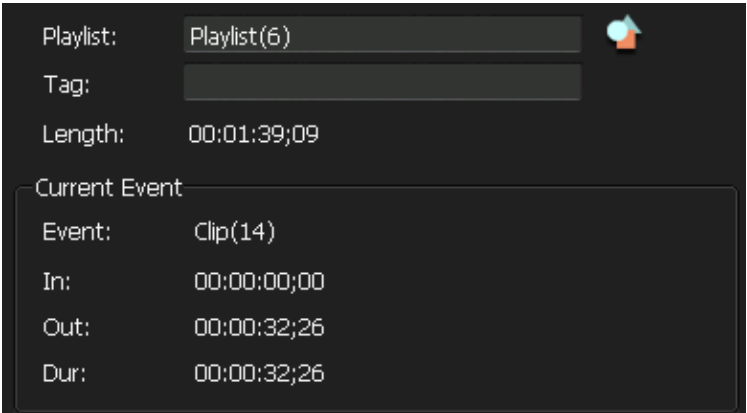
Playlist	Displays the name of the loaded playlist.
Tag	Displays tags. You can also input tags.
Length	Displays the total length o the playlist.
Event	Displays the name of the event being played.
In	Displays the timecode at the IN point of the event being played.
Out	Displays the timecode at the OUT point of the event being played.
Dur	Displays the duration of the content between the IN-OUT points by timecode.

Event List

Displays the list of the registered events and the playback status.
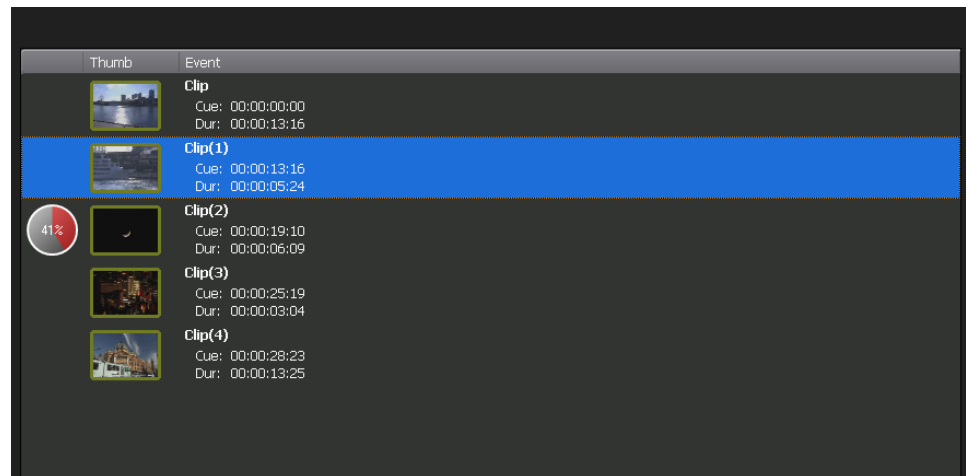
Event List	Lists the events on the playlist. On the thumbnail of each event, icons for identifying its effect are displayed, if any.

* If the End Effect (Pause, Loop) is set on the final event of the playlist, the loop setting on the channel is ignored, and the specified End Effect takes precedence.

Event List – Right click menu
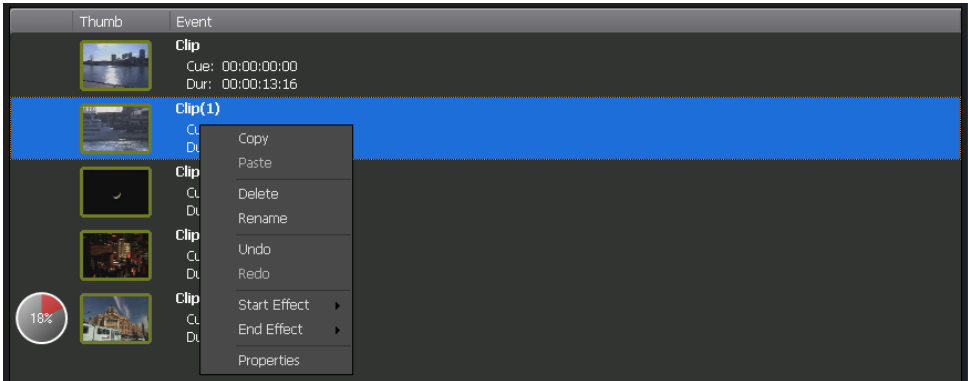
Copy	opies the selected event (copies it to clipboard).
Paste	Pastes the content copied to clipboard.
Delete	Deletes the events from the Event List.
Rename	Changes the name of the selected event.
Undo	Undoes the previous editing operation.
Redo	Redoes the undo editing operation.
Start Effect	Specifies the Start Effect of the selected event.
End Effect	Specifies the End Effect of the selected event.
Properties	Displays the properties dialog of the selected event.

Preview – Right click menu

Set Thumbnail Frame	Choose this option to use the current frame as the thumbnail of the current event.

Thumbnail icons
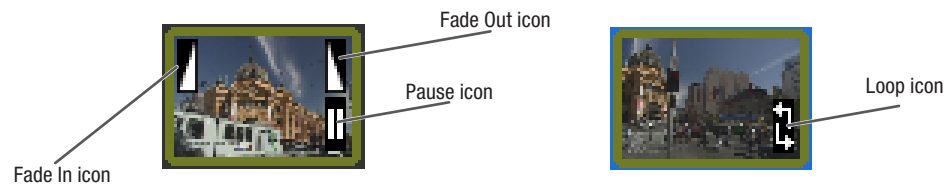
Fade in icon	Displayed on the contents where Fade In is set.
Fade out icon	Displayed on the contents where Fade Out is set.
Pause icon	Displayed on the contents where Pause is set for the End Effect.
Loop icon	Displayed on the contents where Loop is set for the End Effect.

Creating a playlist

To create a playlist, drag & drop clip/playlist from the Bin to the Event List.

Cut, Copy, Paste and Delete operations are available on the Event List.

To change the order of the events on the playlist, drag & drop events on the Event List.

* Up to 1000 events can be registered to a playlist. Note that at least one event is required on a playlist.

* Double-clicking on an event will cue to the event.

Sync mode

In the Sync mode, the playlists that have been specified as **paired playlists** in the Bin, can be loaded to the player channel. When a playlist that has been paired is loaded onto the P1 channel, the other playlist of the pair will automatically be loaded to the P2 channel.

When the Sync mode is activated, if the output settings of the P1 and P2 channels differ, the settings on the P2 channel are automatically changed so as to match those of the P1.

The **E to E mode** cannot be simultaneously activated.

In the Sync mode, only playback operations are available. Marking IN/OUT points or creating sub-clips is not available.

* If the duration of the contents differs between P1 and P2 channels, the playback operations will be performed according to the P1 channel. (P1 channel is the master channel.) When the content loaded on the P2 channel is shorter, the final frame remains displayed.

Audio Level

Clicking on the audio level area (arrow symbol) opens the Audio Level meter.
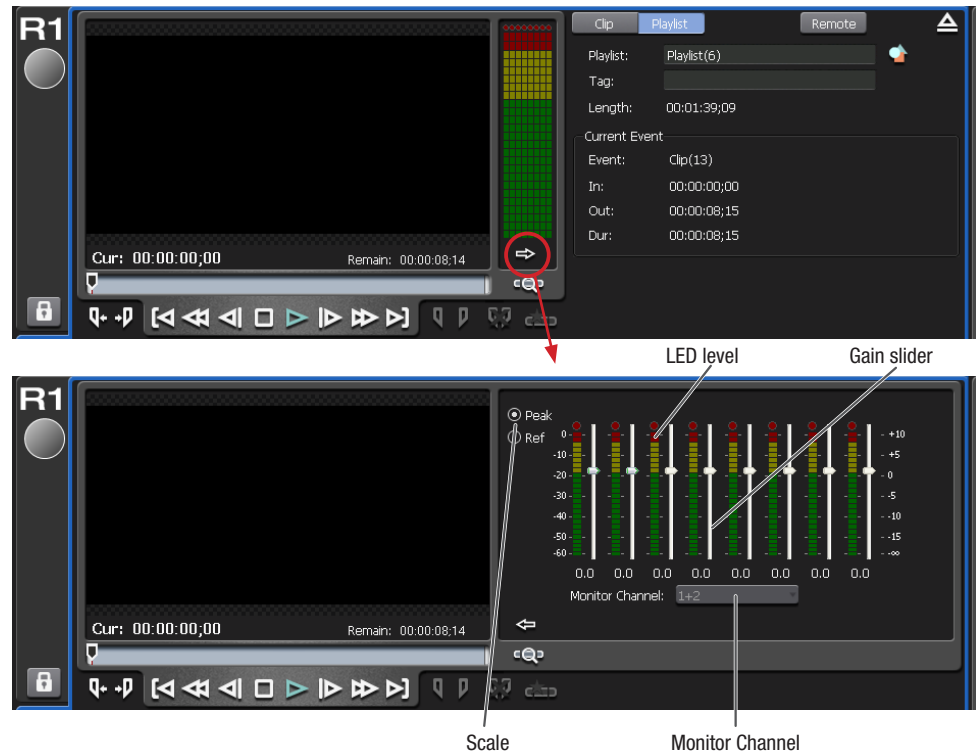
Scale	Switches the display scale.
	  PEAK0 : -60dB to 0dB (Displays so that the maximum volume as 0dB: dBFS)
	  REF0 : -40dB to +20dB (Displays the standard level (Headroom) as 0dB)

LED level	Displays the audio level (peak meter).
Gain slider	Adjust the gain for each channel. (Only ANA is available on the R1 channel) Range : − ∞ to + 10dB
Monitor Channel	Choose a monitor channel for headphone jack. 1+2 / 3+4 / 5+6 / 7+8 are available for each R1/P1/P2 channel.

Properties screen

Clip properties

Clip Info tab
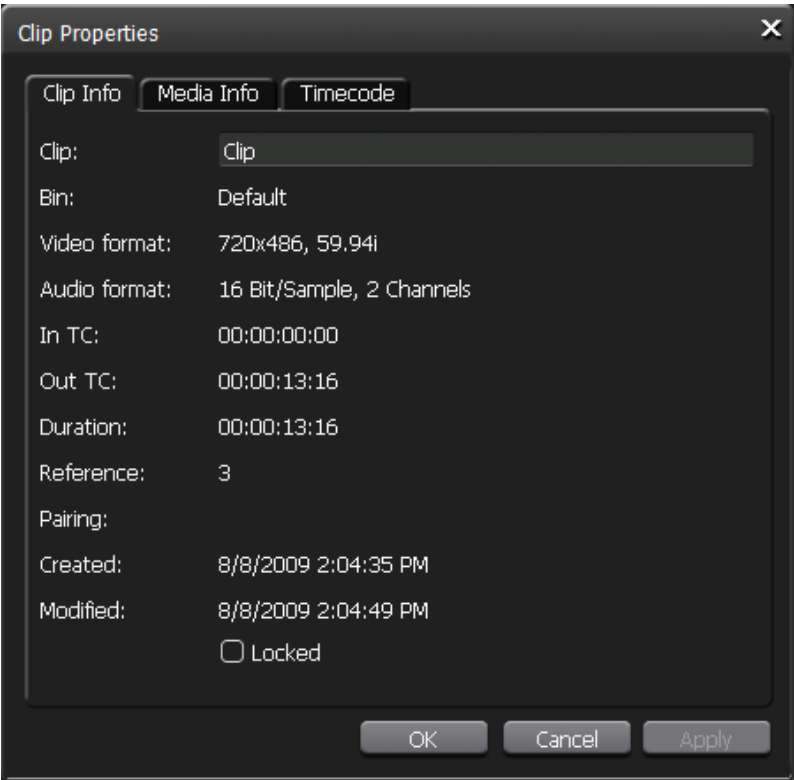
Clip	Displays the clip name. The clip name can be changed in this screen.
Bin	Displays the name of the Bin folder where the clip is registered.
Video Format	Displays the video format.
Audio Format	Displays the audio format.
In TC	Displays the timecode at the IN point.
Out TC	Displays the timecode at the OUT point.
Duration	Displays the duration of the clip.
Reference	Displays the number of the playlists that refer to the clip.
Pairing	Displays the clip name that is paired with this clip for the Sync mode.
Created	Displays the timestamp when the clip was created.
Modified	Displays the timestamp when the clip was updated.
Locked	Check this option to lock the clip.

Media Info tab
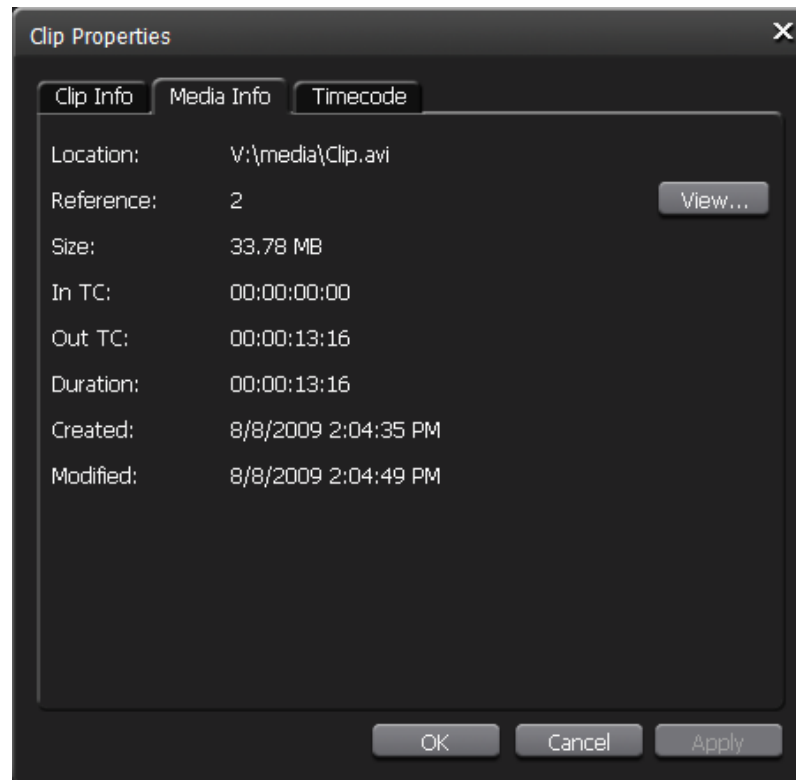
Location	Displays the file name and the file path for the media file.
Reference	Displays the number of the playlists that refer to the media file. Click the **View** button to display the clips/playlists that refer to the media file.
Size	Displays the size of the media file.
In TC	Displays the timecode at the IN point.
Out TC	Displays the timecode at the OUT point.
Duration	Displays the duration of the media file.
Created	Displays the timestamp when the clip media file was created.
Modified	Displays the timestamp when the clip media file was updated.

Timecode tab
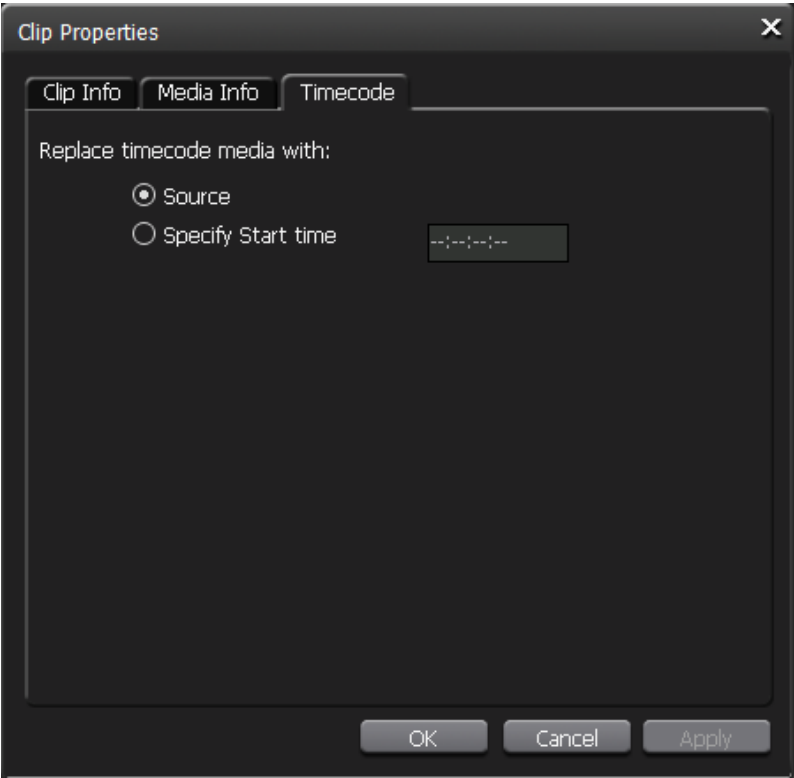
	Specifies the method to change the timecode.
Replace timecode media with	**Source** Check this option to replace with the timecode for the source. **Specify Start Time** Check this option to specify the starting timecode, and specify the value.

Playlist properties

Playlist Info tab
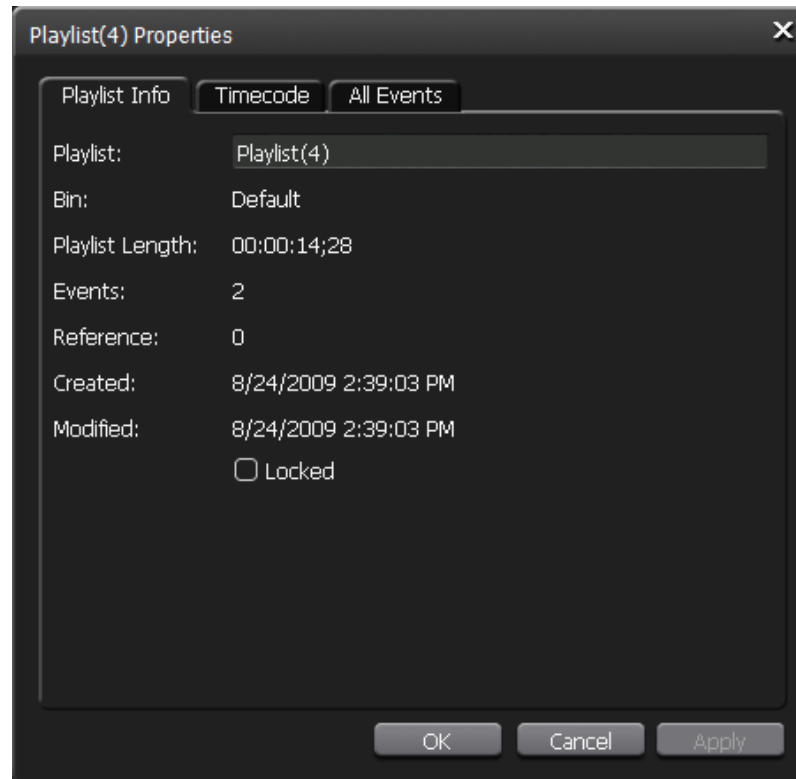
Playlist	Displays the playlist name. The playlist name can be changed on this screen.
Bin	Displays the name of the Bin folder where the playlist is registered.
Playlist Length	Displays the duration of the playlist.
Events	Displays the number of events registered on the playlist.
Reference	Displays the number of the playlists that refer to this playlist.
Created	Displays the timestamp when the playlist was created.
Modified	Displays the timestamp when the playlist was updated.
Locked	Check this option to lock the playlist.

Timecode tab
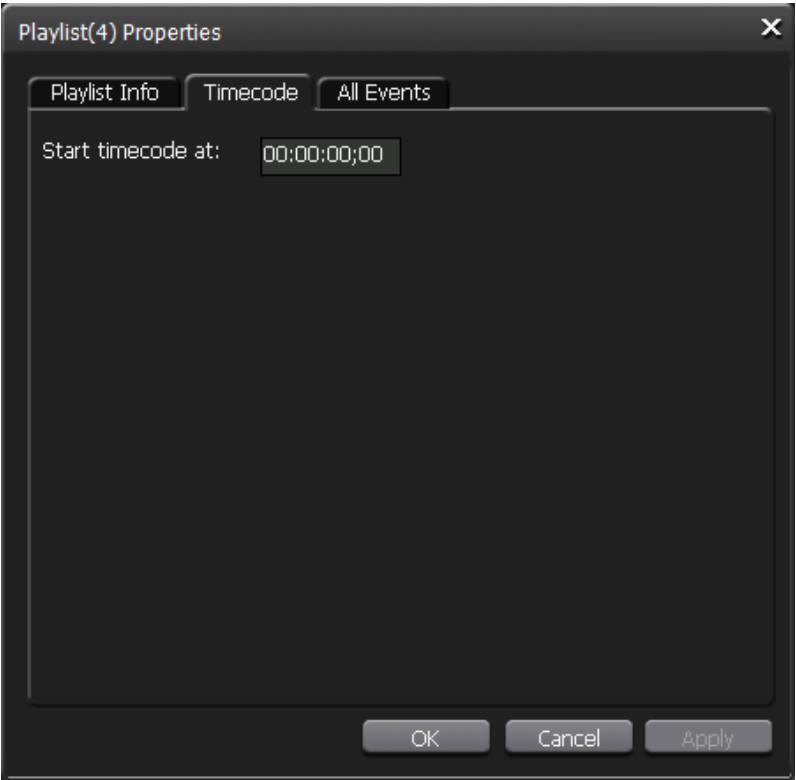
Start timecode at	Check this option to specify the starting timecode, and specify the value.

All Events tab

In this tab, the settings for all the events registered on the playlist can be modified globally.

Playlist(4) Properties ✕

| Playlist Info | Timecode | All Events |

☑ Change start effects:
  ⦿ Remove all start effects
  ○ Add start effect to every event
    ☐ Fade In   Fade in (from black) ▾
        Fade Time   1.0 sec (1.0 - 5.0)

☑ Change end effects:
  ⦿ Remove all end effects
  ○ Add end effect to every event
    ☐ Fade Out   Fade out (to black) ▾
        Fade Time   1.0 sec (1.0 - 5.0)

  ☐ Action   Pause (show black) ▾

[OK] [Cancel] [Apply]

	Check this option to change the start effect of the events.
	Remove all start effects Removes the start effects from all the events.
	Add start effect to every event Adds start effects to all the events.

Change start effects	**Fade In**
	Adds fade in to all the events.
	  • Fade in (from black) ....Adds the fade in starting from a black screen.
	  • Fade in (from white) ....Adds the fade in starting from a white screen.

	Fade Time Specify the duration between the beginning and the end of the fade in.

Change end effects	Check this option to change the end effect of the events. **Remove all end effects** Removes the end effects from all the events. **Add end effect to every event** Adds end effects to all the events. **Fade Out** Adds fade out to all the events. • Fade out (to black) ....Adds the fade out ending with a black screen. • Fade out (to white) ....Adds the fade out ending with a white screen. **Fade Time** Specify the duration between the beginning and the end of the fade out. **Action** Check this option to specify the action when the playback ends. • Pause (show black) ....Pauses the playback with a black screen displayed. • Pause (show white) ....Pauses the playback with a white screen displayed. • Pause (last frame) ....Pauses the playback with the last frame displayed. • Pause (next event)....................Pauses the playback with the first frame of the next event displayed. • Pause (show E to E)..................Displays the video input to the R1 channel with active through. • Loop.......................................Playbacks the selected event in loop.

Event properties

Event Info tab

Event	Displays the event name. The event name can be changed on this screen.
Event In	Displays the timecode at the IN point.
Event Out	Displays the timecode at the OUT point.
Duration	Displays the duration of the event.
Type	Displays the type of event (Clip or Playlist).
Source Name	Displays the clip name or the playlist name that the event refers to.

GPI tab
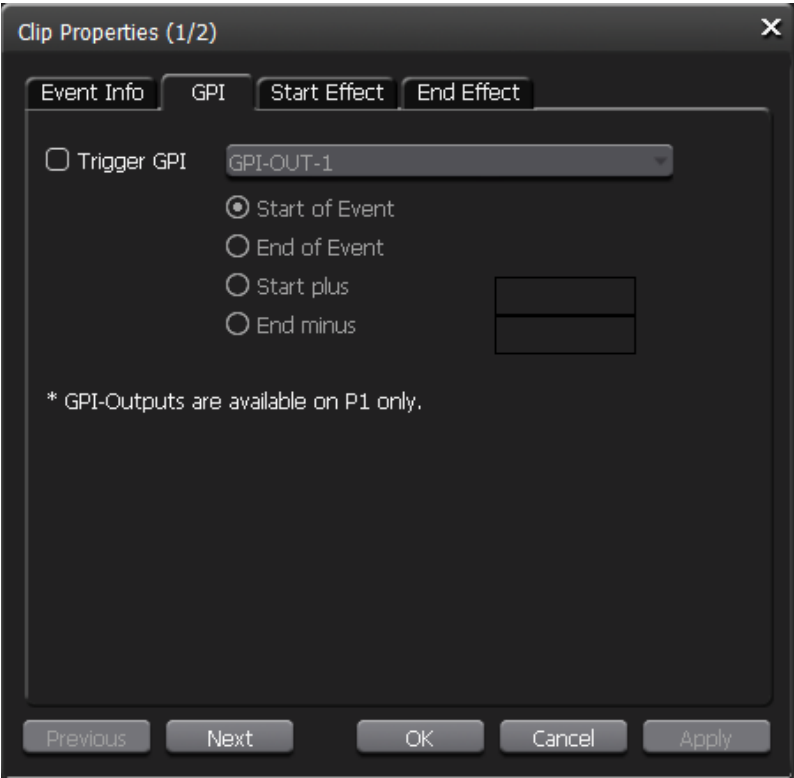
Trigger GPI	Choose the GPI trigger to specify setting.
Start of Event	Check this option to set the start of an event as a trigger.
End of Event	Check this option to set the end of an event as a trigger.
Start plus	Check this option to set a certain point from the top of an event as a trigger, and then specify the value.
End minus	Check this option to set a certain point before the end of an event as a trigger, and then specify the value.

Start Effect tab

Fade In	Check this option to add the fade in effect to the chosen event, and choose the effect. • Fade in (from black)................ Adds the fade in starting from a black screen. • Fade in (from white)................ Adds the fade in starting from a white screen.
Fade Time	Specify the duration between the beginning and the end of the fade in.

End Effect tab

Fade Out	Check this option to add the fade out effect to the chosen event, and choose the effect. • Fade out (to black).................. Adds the fade out ending with a black screen. • Fade out (to white).................. Adds the fade out ending with a white screen.
Fade Time	Specify the duration between the beginning and the end of the fade out.
Action	Specify the action when the event comes to an end. • Pause (show black).................. Pauses the playback with a black screen displayed. • Pause (show white).................. Pauses the playback with a white screen displayed. • Pause (last frame) .... Pauses the playback with the last frame displayed. • Pause (next event) .... Pauses the playback with the first frame of the next event displayed. • Pause (show E to E)................ Displays the video input to the R1 channel with active through. • Loop...................................... Playbacks the selected event in loop.

Log Level Setting

Select a log level on this screen.

	Choose the type of the operation log.

Operation Log	**Error**
	  Only error logs are output.
	
	Warning + Error
	  Warning and error logs are output.
	
	Information + Warning + Error
	  Information, warning and error logs are output.
	
	All
	  All the logs are output.

Process Log	Choose the type of the process log.
	
	Error
	  Only error logs are output.
	
	Warning + Error
	  Warning and error logs are output.
	
	Information + Warning + Error
	  Information, warning and error logs are output.
	
	All
	  All the logs are output.

Log

This screen displays the logs.

Switch Log buttons

Operation/Process list   Log list
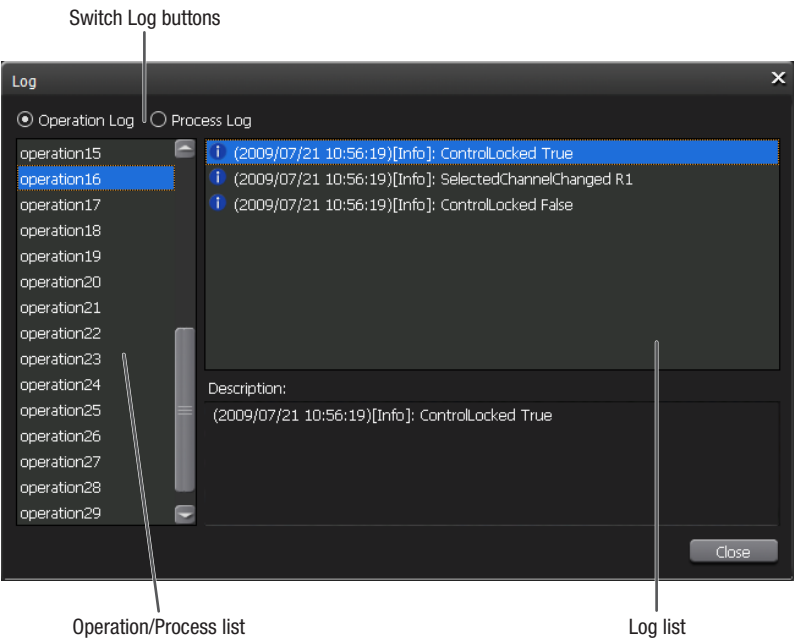
Switch Log buttons	Choose the log to display between **Operation Log** and **Process Log**.
Operation/Process list	Lists the operations/processes.
Log list	Lists the logs.
Description	Displays the description of the log.

APPENDIX

T2   Hardware specifications

PC interface USB	USB	USB2.0 x2 (front), x6 (rear)
	IEEE1394	IEEE1394a x1 (front), x1 (rear), Up to 12V , 1A of bus power (total for both ports)
	PS/2	Mini DIN 6pin x2
	Display	Analog RGB D-SUB 15pin x1
	Serial	RS232C D-SUB 9pin x1 (Not used)
	LAN	RJ-45 Network connector x2, 10BASE-T/100BASE-TX/1000BASE-T
	Sound	Stereo mini jack x6 (Not used)
Removable media		DVD-ROM x1
		2.5 inched removable drive bay x1 (RAID/SSD model)
Video signal	Input	SDI	1 line, BNC x2 (Active through x1)
		DVI-I	1 line, DVI-I x1. The analog sections are also for YPbPr. (DVI-D does not support HDCP.)
		Composite	1 line, BNC x1
	Output	SDI	2 lines, BNC x2
		DVI-I	2 lines. The analog sections are also for RGB/YPbPr.
		Composite	2 lines, BNC x2
		Monitor	Composite, 2 lines, BNC x2
Audio signal	Input	Balanced audio	1 line, XLR-3-31 x2, Up to 24dBu
		Digital audio	1 line, AES/EBU BNC x1
	Output	Balanced audio	2 lines, XLR-3-32 x4
		Digital audio	1 line, AES/EBU, 2 lines, BNC x2
		Headphones	Stereo jack x1
		Monitor line	Stereo mini jack x1
Timecode	Input	LTC	1 line, BNC x1
	Output	LTC	2 lines, BNC x2
REF in			HD tri-level, BB compatible, BNC x2 (throughout x1)
Remote	GPI I/O		D-SUB 15pin x1, 6 input, 6 output pins.
	RS422		3 lines, D-SUB 9pin x3 (each one of the lines correspond to the R1, P1 or P2 channel)
Power supply			AC 100V - 240V, 50/60Hz
Power consumption			2.5A - 1.1A
Dimensions			430(W) x 132(H) x 550.8(D) (Projecting parts not included)
Weight			15kgf approximately
Operating temperature			+5 to +35 degrees C
Operating humidity			10% to 80% (Without condensation)

Supported resolutions

Profile	Available format for loading	Available video port	Conversion mode for PC		Output to monitor	R1 input, REF input signal for Sync mode
			DVI-D	DVI-A (RGB)		
720×486 59.94i	720×486 59.94i 720×480 59.94i (DVD) 720×480 59.94i (DV)	SDI Component Composite	×	×	NTSC	720×480 59.94i
720×576 50i	720×576 50i (DV) 720×576 50i (DVD)	SDI Component Composite	×	×	PAL	720×576 50i
1920×1080 59.94i	1920×1080 59.94i 1440×1080 59.94i 1280×1080 59.94i	SDI Component DVI-D *1	PC	PC	NTSC	720×480 59.94i, 1920×1080 59.94i
1920×1080 50i	1920×1080 50i 1440×1080 50i	SDI Component DVI-D *2	PC	PC	PAL	720×576 50i, 1920×1080 50i
1920×1080 24psf	1920×1080 24p 1440×1080 24p	SDI Component DVI-D(24p)	PC	PC	×	1920×1080 24psf (REF in only)
1920×1080 23.98psf	1920×1080 23.98p 1440×1080 23.98p 1280×1080 23.98p	SDI Component DVI-D (23.98p)	PC	PC	×	1920×1080 23.98psf (REF in only)
1920×1080 24p	1920×1080 24p 1440×1080 24p	SDI Component DVI-D	PC	PC	×	1920×1080 24p (REF in only)
1920×1080 23.98p	1920×1080 23.98p 1440×1080 23.98p 1280×1080 23.98p	SDI Component DVI-D	PC	PC	×	1920×1080 23.98p (REF in only)
1280×720 59.94p	1280×720 59.94p 960×720 59.94p	SDI Component DVI-D	PC	PC	NTSC	720×480 59.94i *3
1280×720 50p	1280×720 50p 960×720 50p	SDI Component DVI-D	PC	PC	PAL	720×576 50i *3
1280×720 24p	960×720 24p	SDI Component	×	×	×	1280×720 24p (REF in only)
1280×720 23.98p	1280×720 23.98p 960×720 23.98p	SDI Component	×	×	×	1280×720 23.98p (REF in only)

*1   Can be specified to 1920 x 1080p 59.94.

*2   Can be specified to 1920 x 1080p 50.

*3   As the playback of channels is synchronized with paired frames, the sync mode is not available in 3Sync phase

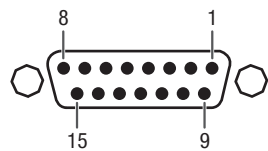PC   Can be specified to VGA, SVGA, XGA, or SXGA.

Note 1   Component and DVI-A (RGB) cannot be used simultaneously.

Note 2   DVI-I and DVI-A outputs in PC conversion mode cannot be used for Sync mode.

Note 3   When the aspect ratios of the source and the profile differ, a black bar is added to the top/bottom or left/right sides.

Note 4   The DVI/RGB signal is output with a certain delay from the SDI/YPbPr output.

GPI I/O connector pinouts

Pin	Signal		Pin	Signal
1	Output 1		9	Input 1
2	Output 2		10	Input 2
3	Output 3		11	Input 3
4	Output 4		12	Input 4
5	Output 5		13	Input 5
6	Output 6		14	Input 6
7	NC		15	NC
8	Common Ground		SHELL	Common Ground

Note T2 iDDR software supports outputs 1-6 and inputs 1-6 only. Pin 7 and Pin 15 are not used.