grass valley

Turbo™

INTELLIGENT DIGITAL DISK RECORDER

Quick Start Guide

SOFTWARE VERSION 2.1

071-8379-00
03 MAY 2005

the most watched worldwide

Safety Summary

Use Proper Power Cord – To avoid fire hazard, use only the power cord specified for this product.

Ground the Product – This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded.

Do Not Operate Without Covers – To avoid electric shock or fire hazard, do not operate this product with covers or panels removed.

Do Not Operate in Wet/Damp Conditions – To avoid electric shock, do not operate this product in wet or damp conditions.

Do Not Operate in an Explosive Atmosphere – To avoid injury or fire hazard, do not operate this product in an explosive atmosphere.

Avoid Exposed Circuitry – To avoid injury, remove jewelry such as rings, watches, and other metallic objects. Do not touch exposed connections and components when power is present.

Symbols on the Product

The following symbols may appear on the product:

DANGER high voltage

Protective ground (earth) terminal

ATTENTION – refer to manual

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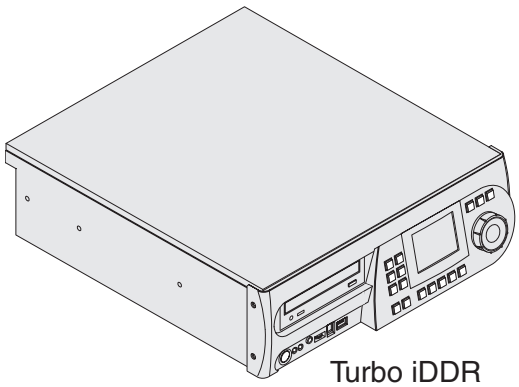
Revision Status

Rev Date	Description
03 May 2005	Final Draft of the Turbo Quick Start Guide — 071-8379-00

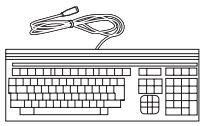
1 Unpack and check contents

Before you begin, unpack and identify the following items:



Turbo iDDR

Power Cord



Keyboard

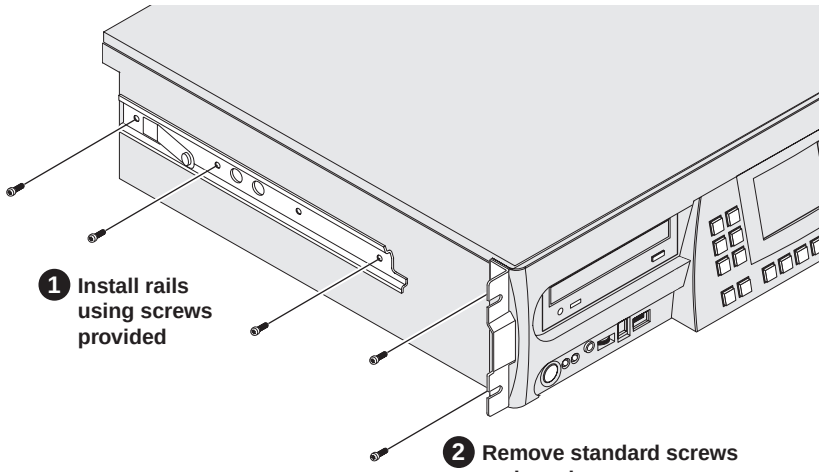
Mouse

Quick Start Guide

System Software CD-ROM
Documentation CD-ROM

2 If desired, mount in an equipment rack

Power-off the Turbo iDDR, and remove the power cord. Rack-mount the Turbo using the ***optional rack-mount kit***. Refer to the *Turbo Rack-Mount Kit Instructions* on the Documentation CD-ROM.



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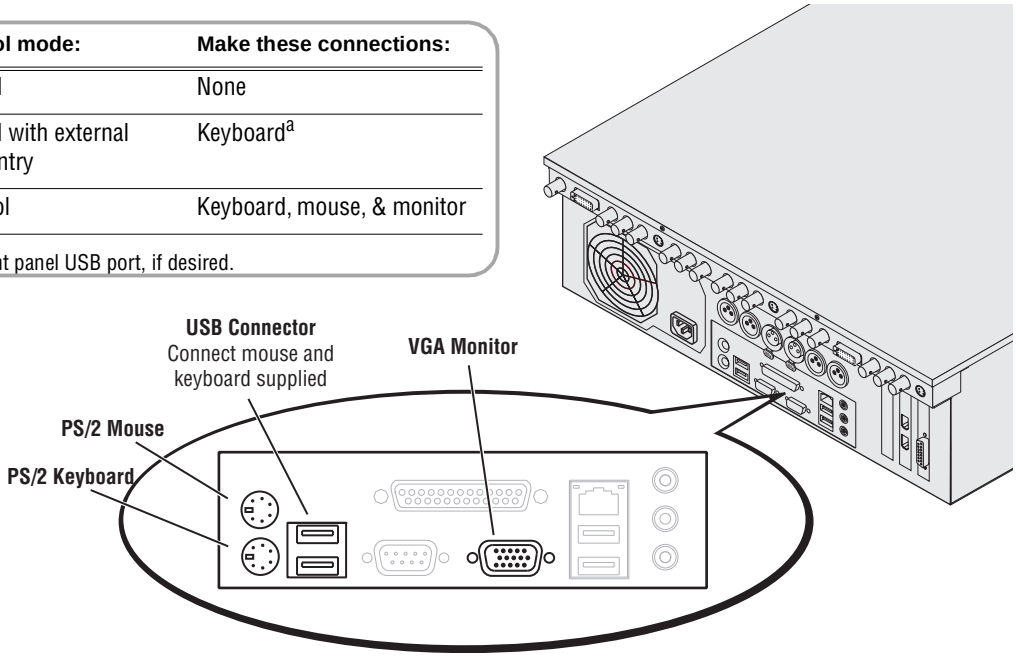
3 Connect mouse, keyboard, & monitor (if desired)

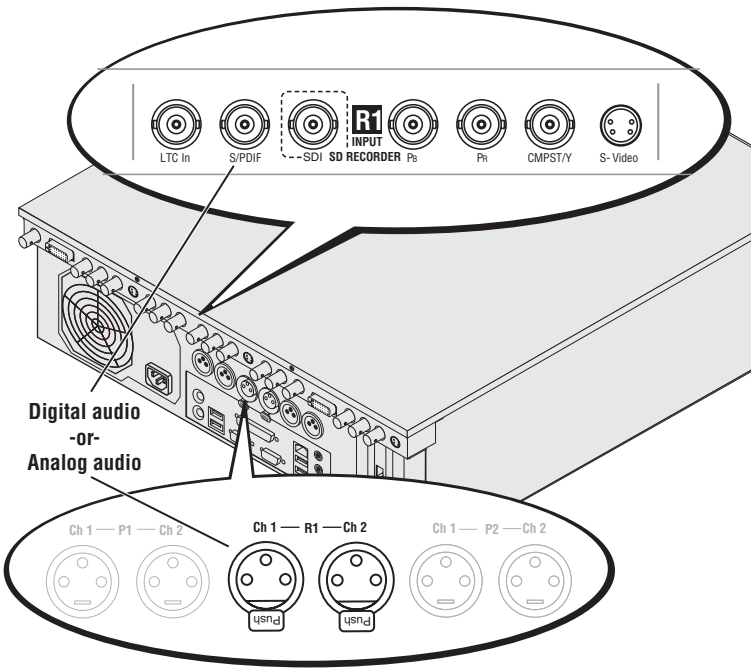
You can operate the Turbo iDDR in Front Panel Control mode or Workstation Control mode. Make connections as described in the following table.

To use this control mode:	Make these connections:
Front Panel Control	None
Front Panel Control with external keyboard for text entry	Keyboard[a]
Workstation Control	Keyboard, mouse, & monitor

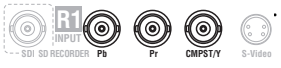
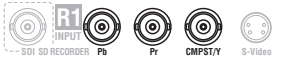
a. You can use the front panel USB port, if desired.



4 Connect Recorder inputs



Supported Video Types[a]

Video Resolutions	720 x 480 I @ 29.97Hz 720 x 576 I @ 25Hz
SDI	
S-Video	
Composite Analog	
Component Analog (VTR)	
Component Analog (DVD)	

a. To select a signal source, see "Modify settings as required" on page 8.

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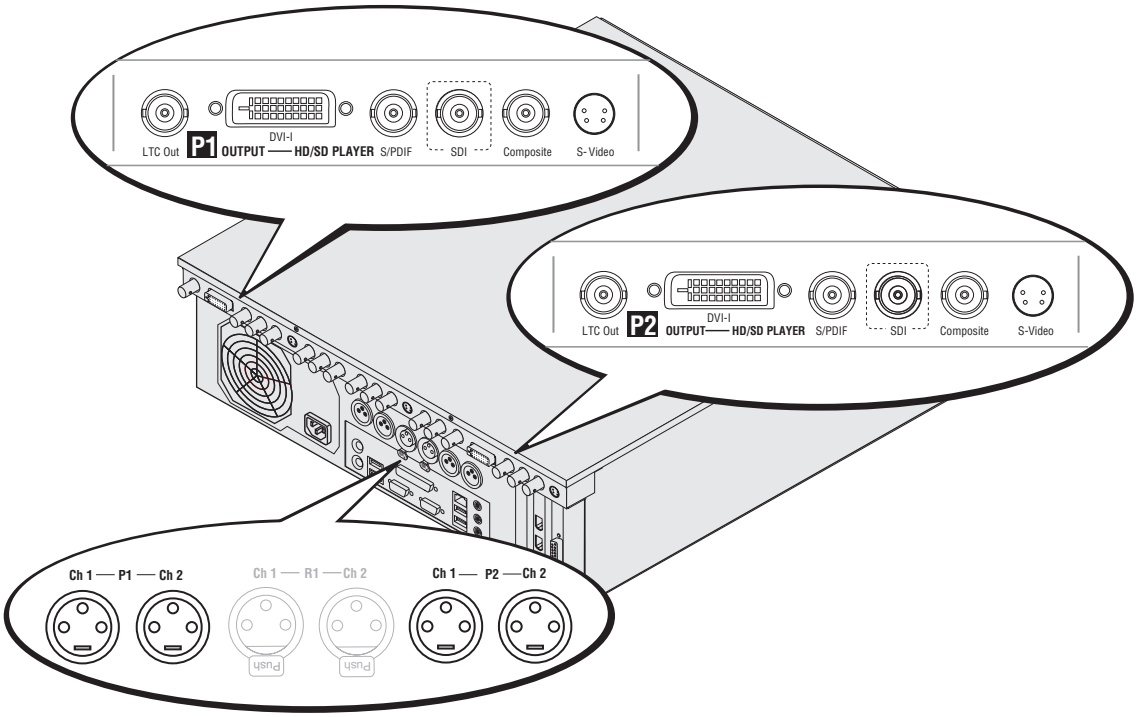
5 Connect Player 1 and 2 outputs

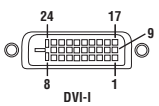


Video output formats and connectors

Play Channel Setting			Video Output Types Available			
Video Type Setting	Resulting Resolution	Aspect Ratio Available[a]	S-Video Composite	SDI	DVI -I	
					Digital	Analog Component[b] *(Selectable)*
NTSC	720 x 480 I	4:3 or 16:9	✓	✓		DVD Player: Y, Pb, Pr
PAL	720 x 576 I		✓	✓		
XGA	1024 x 768 P	4:3 or 16:9 [a]			✓	Computer Monitor (RGBHV) SMPTE 274M (RGB) SMPTE 274M (YUV)
WXGA	1365 x 768 P	16:9			✓	Computer Monitor (RGBHV)
1080i	1440 x 1080i	16:9	monitor[c]	monitor	✓	
	1920 x 1080i		monitor	monitor	✓	

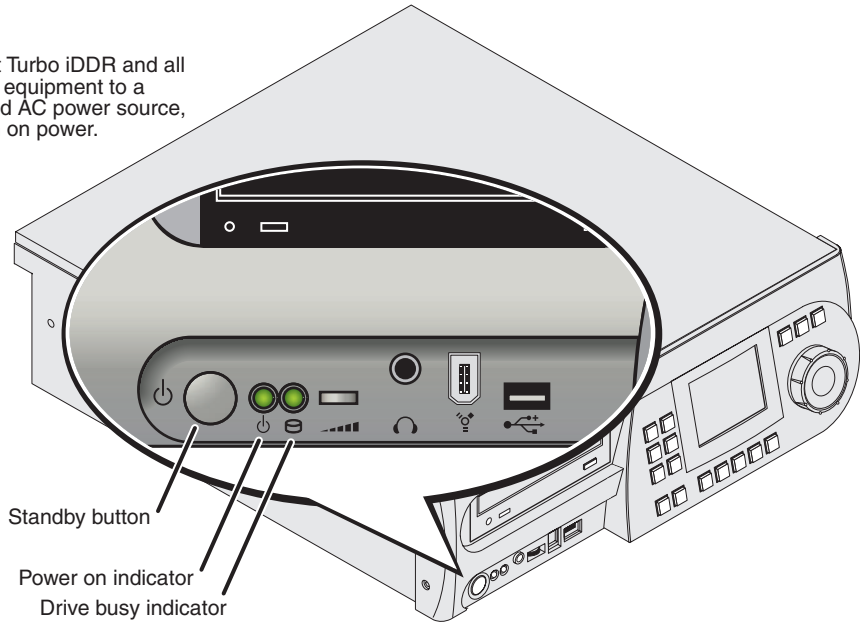
a. Aspect ratio conversion mode is user selectable— bars, crop, or bars & crop.
b. Sync on Y or G when 3-wire formats are used.
c. The monitor output is down-converted and not timed to the reference input. It is provided for monitoring purposes only.

DVI-I Connector



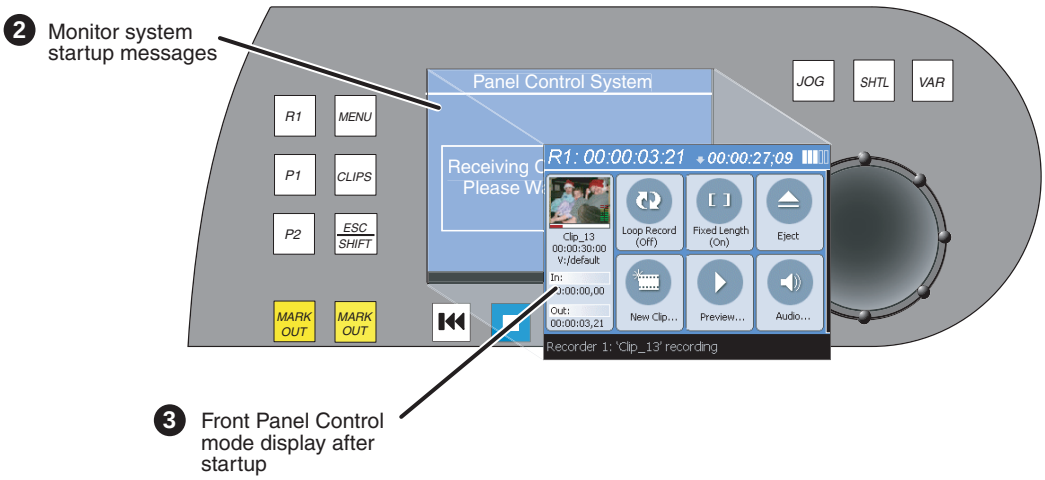
The DVI-I connector provides both digital and component analog output signals at the same time. You must supply a standard DVI-I cable or adapter to make DVI digital and/or component analog video connections. (Optional cable available, contact your Thomson Grass Valley representative.)

6 Connect power and turn power on



Front Panel Features

Standby button	Turns Turbo iDDR on and off.
Power indicator	**ON:** Power is on and the Turbo is operational. **Blinking:** Turbo needs service. Refer to *Turbo Service and Troubleshooting Guide*. **OFF:** Power is in standby mode.
Drive busy indicator	Indicates data is being written or read.



7 Configuration and Operation

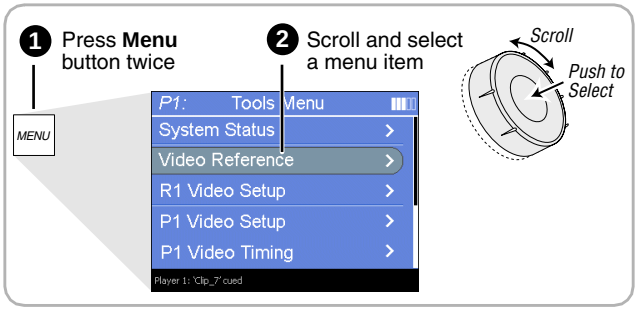
Front Panel Operation: Refer to page 8 to configure and operate the Turbo iDDR using the front panel control mode.

(Keyboard if desired)

AppCenter Workstation Operation: Refer to page 15 to configure and operate the Turbo iDDR using AppCenter Workstation mode.

Modify settings as required

To access Turbo iDDR configuration:



All Channels Settings

Setting	Choices
Reference Standard	NTSC (59.94) or PAL (50Hz)
Time of Day Source	System Clock or LTC Input
Audio Reference Level	0dB, 4dB, 8dB

R1 (Recorder Channel) Settings

Setting	Choices
Compression Format	MPEG
Recording Data Rate	4,8,12,15 Mb/s
Video Noise Reduction	None, Low, Medium, High
Video Input Type	SDI, S-Video, Analog Composite, Analog Component
Audio Input Type	Analog or Digital (S/PDIF)
Audio Input Trim (Analog)	+/-12dB
Audio Input Format (S/PDIF)	16-bit PCM AC-3
Timing Offset	+/-200ms

Panel Setup

Setting	Choices
Jog Speed	-1x to 1x, -1x to 3x
Shuttle Speed	-16x to 16x, -32x to 32x
VAR Setting	0.25x, 0.5x, 0.75x
Always start at VAR preset	Yes or No

P1 and P2 (Player Channels) Settings

Setting	Choices
Video Output Format	NTSC (SD), XGA (1024x768), WXGA (1365x768), 1080i (1920x1080)
Aspect Ratio	Standard or Widescreen
Aspect Ratio Conversion	Bars, Crop, Bars and Crop
Output Component Type	RGB, Y,Pb,Pr
Output Pedestal	On or Off
Still-play Mode	Field (reduce jitter on freeze frame) Frame (enhances still graphics display)
Test Mode (colorbars)	On or Off (generates colorbars/1kHz 4dbu audio tone)
Video Gain	0-255
Chroma Gain	0-255
Chroma Phase	-127 to +128
Black Level	0-15
Sharpness	0-12
Frame Offset	0-1 frames
Line Offset (coarse)	0-524 lines
Sample Offset (fine)	0-1715 samples
Analog Sub-pixel Offset	0-255
Timing Offset	+/-200ms

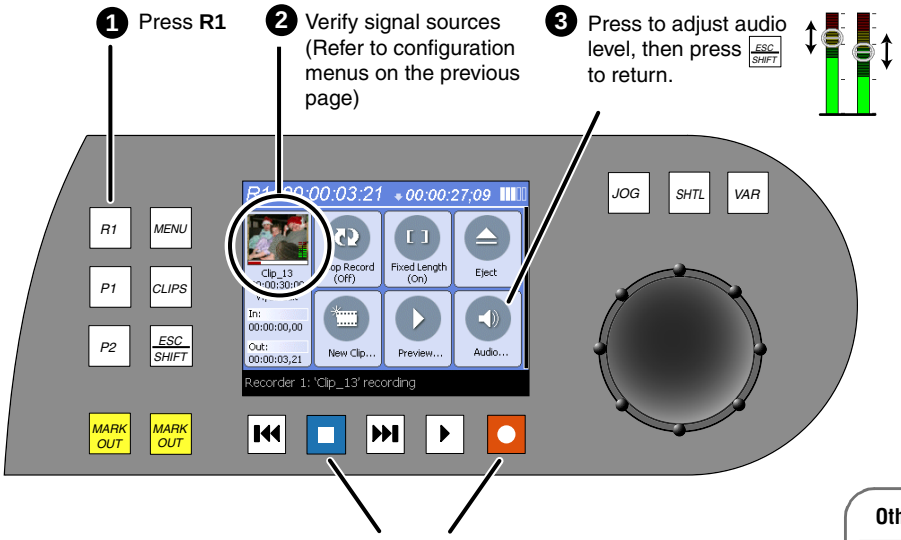
GPI Input Setup

Setting	Choices
Trigger Channels	None, R1, P1, P2
Trigger Action	Play, Record, Stop, Rewind, Fast Forward, Cue Start, Cue End, Eject, Preview, Cue Next Event, Cue Previous Event, VAR Playback
Active	High or Low

GPI Output Setup

Setting	Choices
Channel	None, R1, P1, or P2
Trigger Name	*<User specified name>*
Active	High or Low

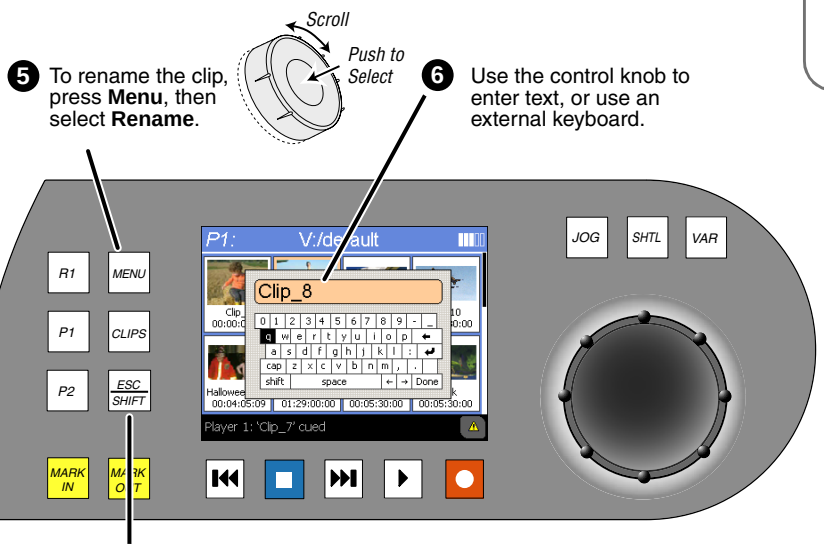
Recording a clip



4 Press ● [or ▶ + ●] to start record, then press ■ to stop.

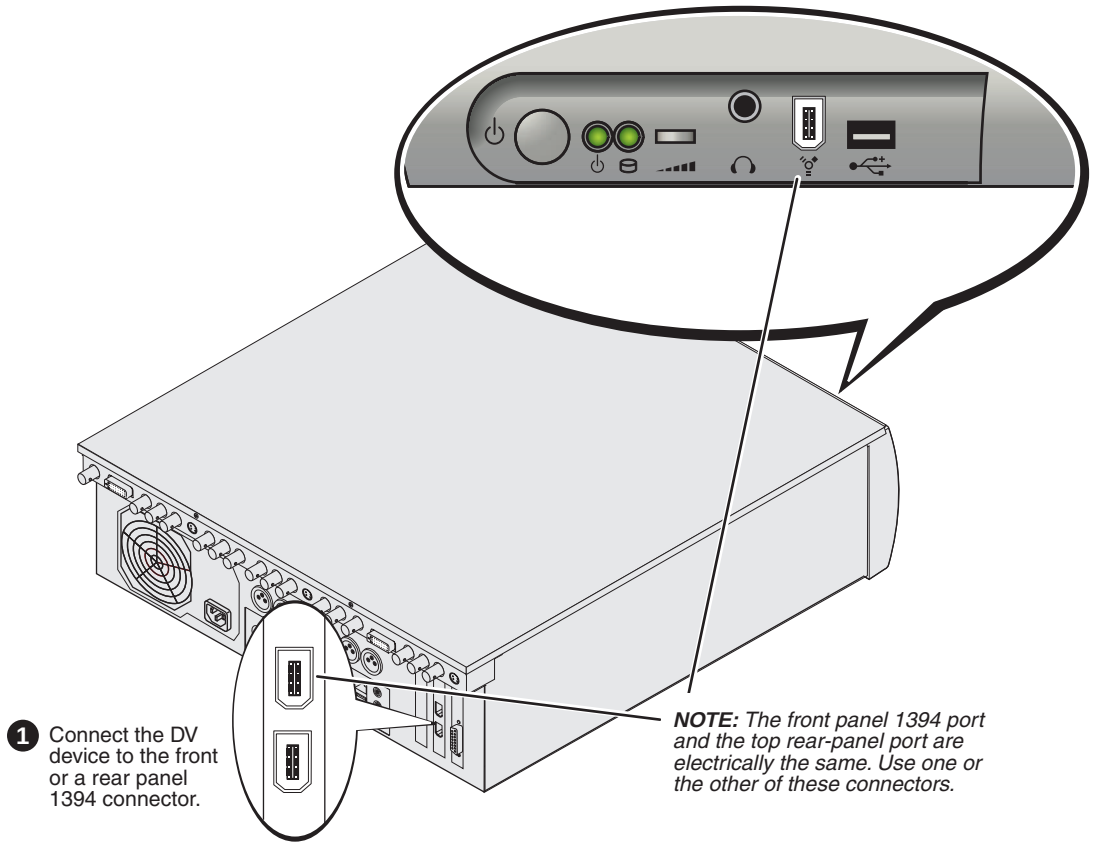
Other Turbo iDDR Record Modes

New Clip...	Touch to name the clip first, then start recording.
Loop Record (On)	Touch to specify a loop length, then start recording. Records a continuous loop. Overwrites oldest unused media.
Fixed Length (On)	Touch to specify clip length, then start recording. Record stops when clip length is reached.



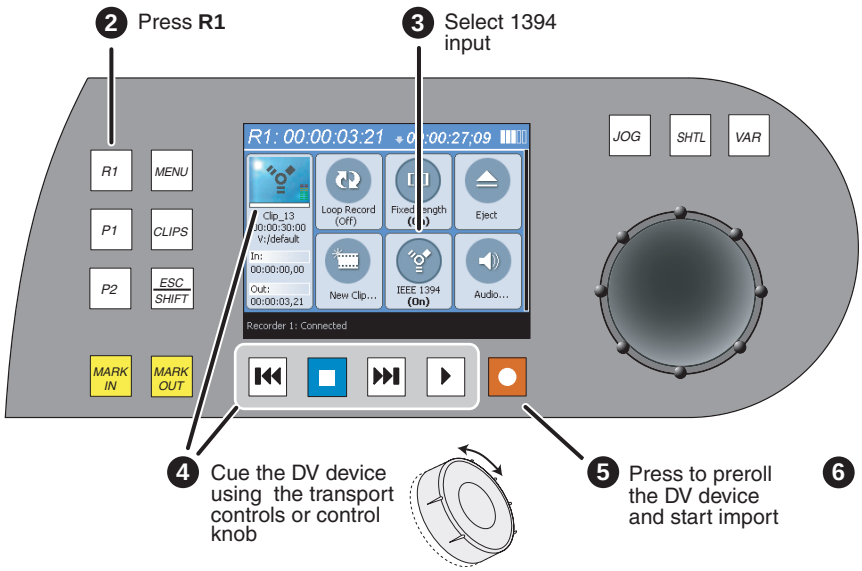
Importing media: 1394 DV Device

The IEEE 1394 interface allows for importing and recording media from a digital recording device that uses DV or MPEG2 format. After connecting the DV device and selecting the IEEE 1394 input for the Record channel, you can use the Turbo transport controls to control the DV device remotely through the 1394 connection.



1 Connect the DV device to the front or a rear panel 1394 connector.

NOTE: *The front panel 1394 port and the top rear-panel port are electrically the same. Use one or the other of these connectors.*



2 Press **R1**

3 Select 1394 input

4 Cue the DV device using the transport controls or control knob

5 Press to preroll the DV device and start import

6 Press ■ to stop record.

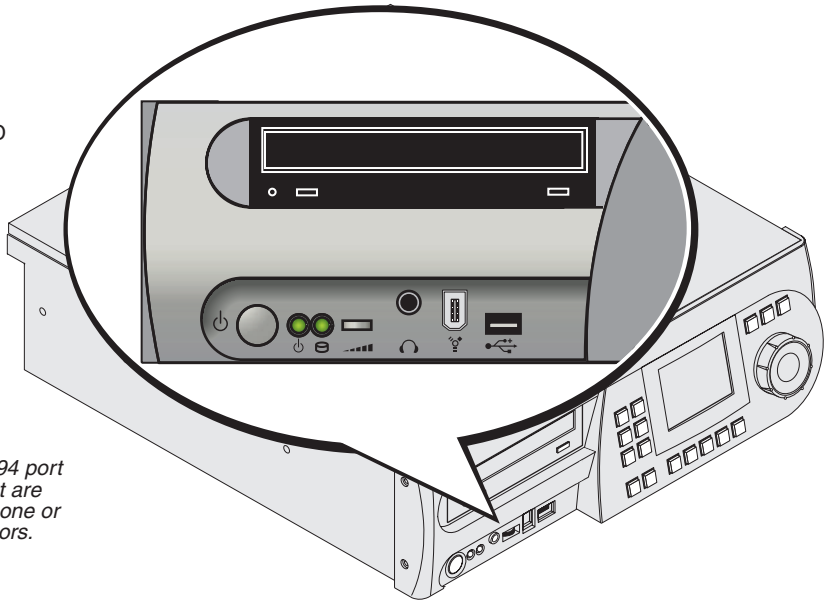
Load and play the clip in a play channel.

Importing media

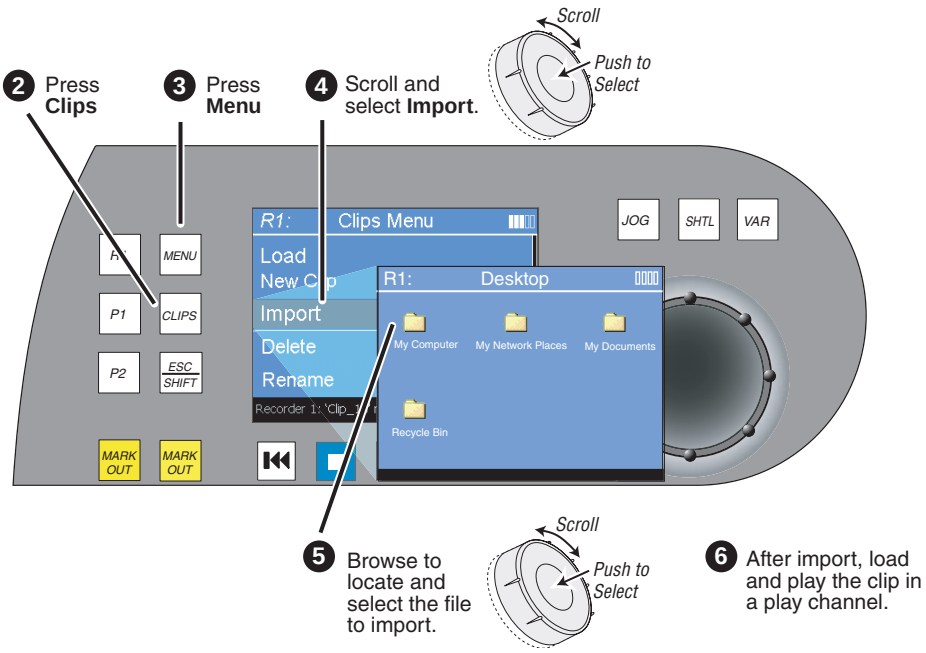
You can import media created on other digital video devices or PCs. The media may be imported from a CD-ROM, DVD, USB flash drive, and external USB or 1394 disk drives.

1 Do one of the following:

- Insert a CD-ROM or DVD
- Connect 1394 external disk drive
- Insert a USB flash drive, or connect an external USB disk drive

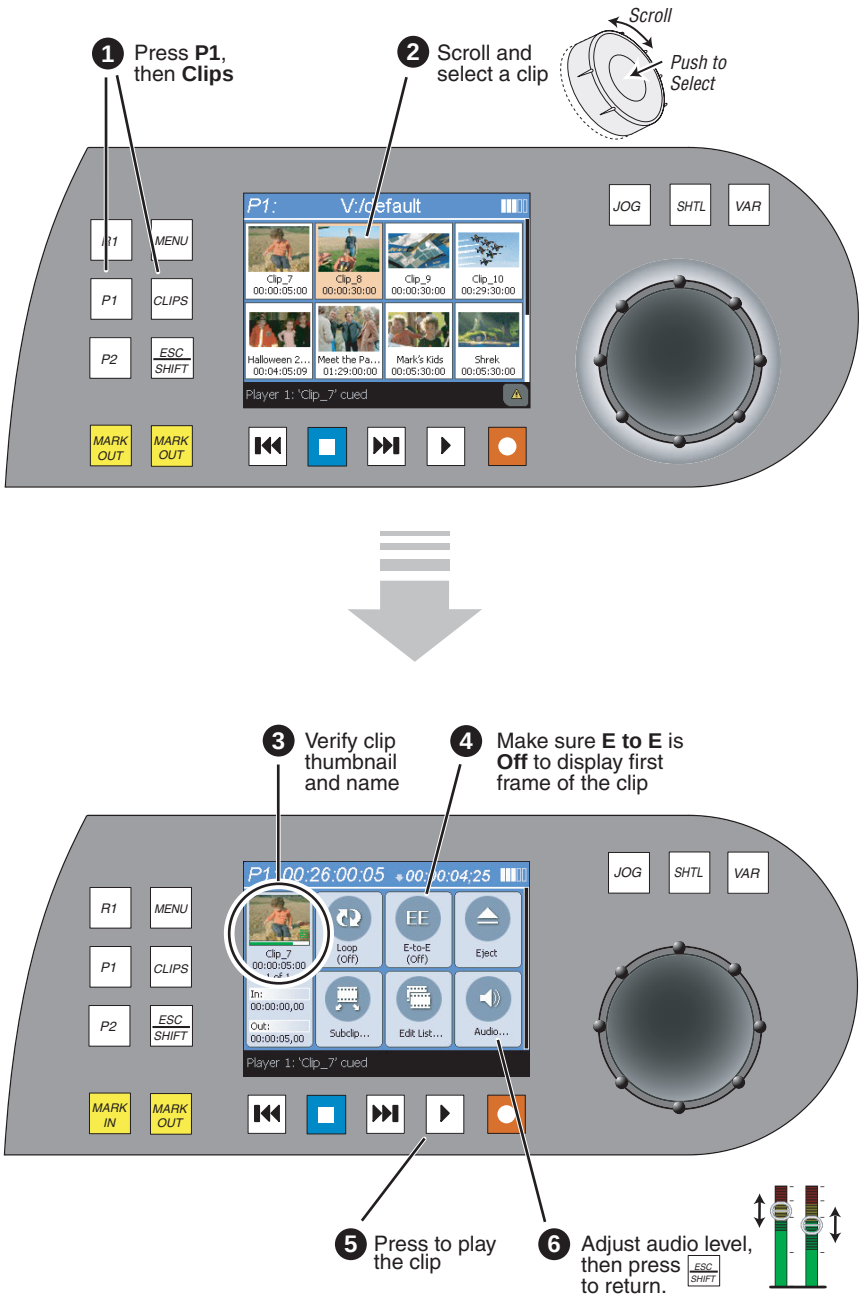


NOTE: *The front panel 1394 port and the top rear-panel port are electrically the same. Use one or the other of these connectors.*



Supported File Formats		
Video File Formats:	DV encoded AVI (.avi) General Exchange Format (.gxf) Quicktime (.qt, .mov) Windows Media (.wmv) MPEG PS (.mpg, .m2v, .m2p, .m2, .mpeg, .vob)	For the supported file formats, all resolutions and frame rates are supported.
Graphic File Formats:	.jpg, .bmp, .tiff, .tga, .gif, .png	Still image files or image sequence files

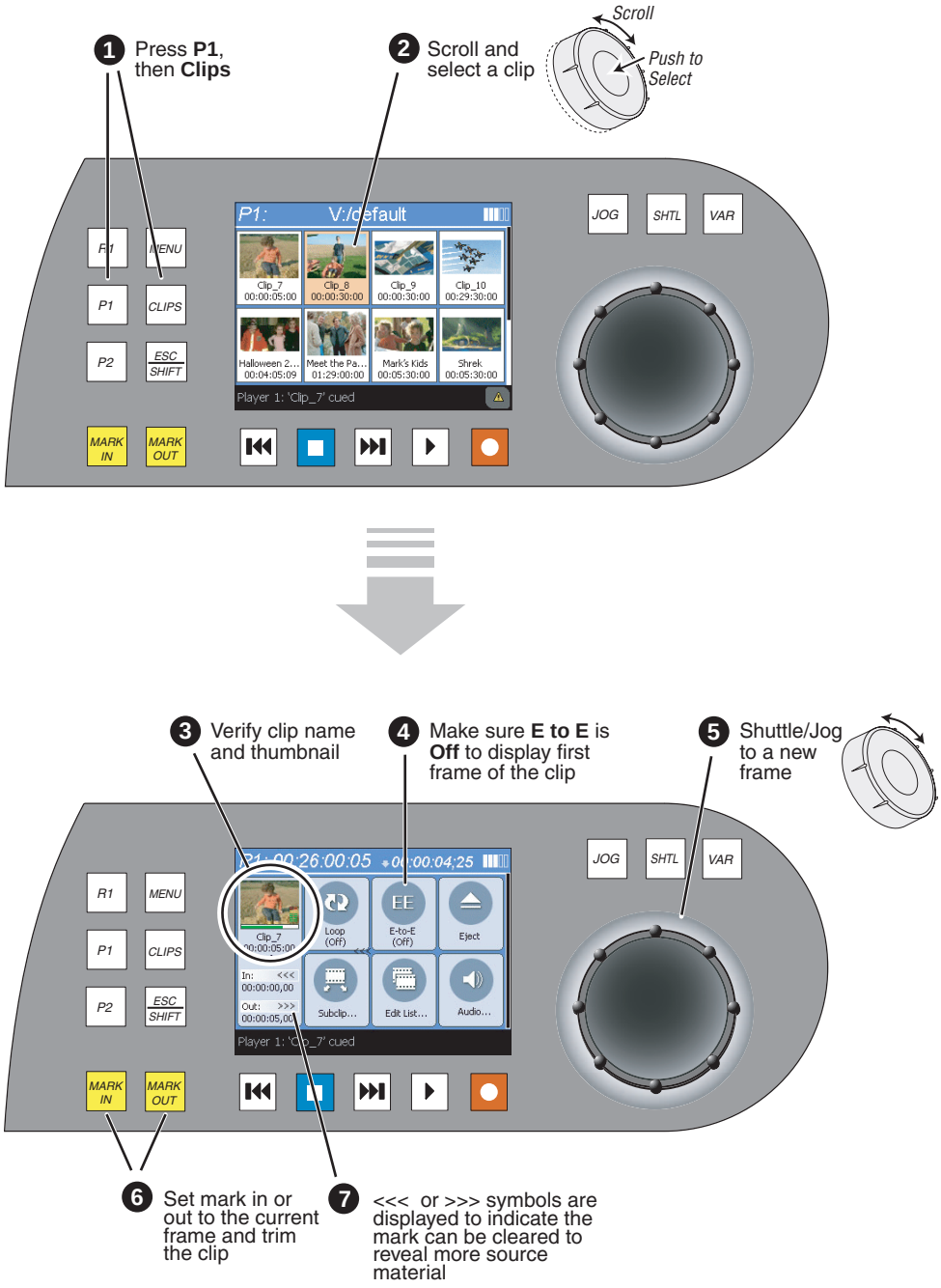
Playing a clip



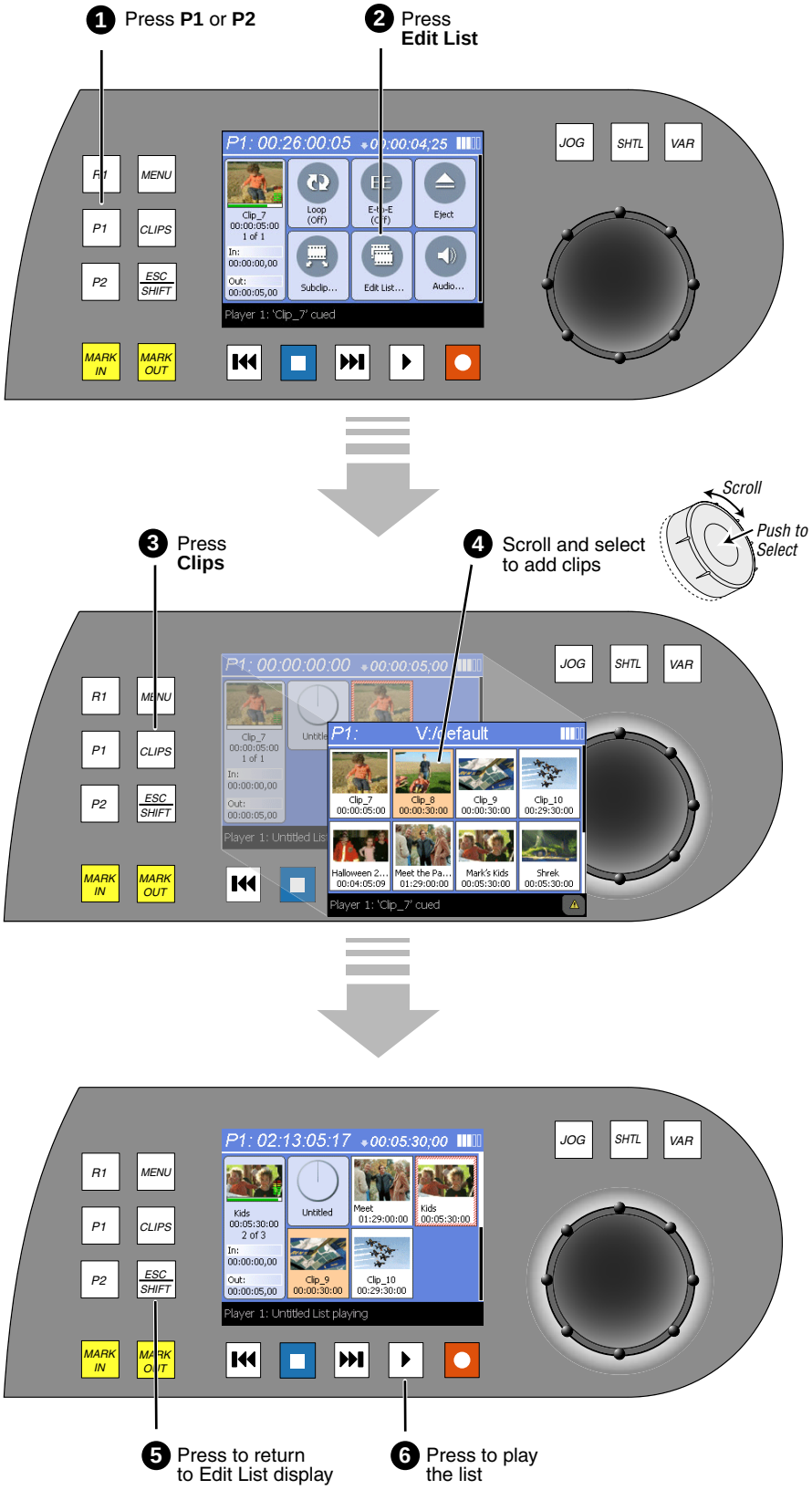
Other Turbo Player Modes

EE E-to-E (Off)	To output black when the play channel is stopped, make sure **E-to-E** is **Off**.
	To output the record channel input signal when the play channel is stopped, touch **E-to-E** to turn **On**.
Loop (Off)	To play the clip repeatedly, touch **Loop** to turn **On**; touch again to turn **Off**.

Trimming a clip



Creating a simple playist



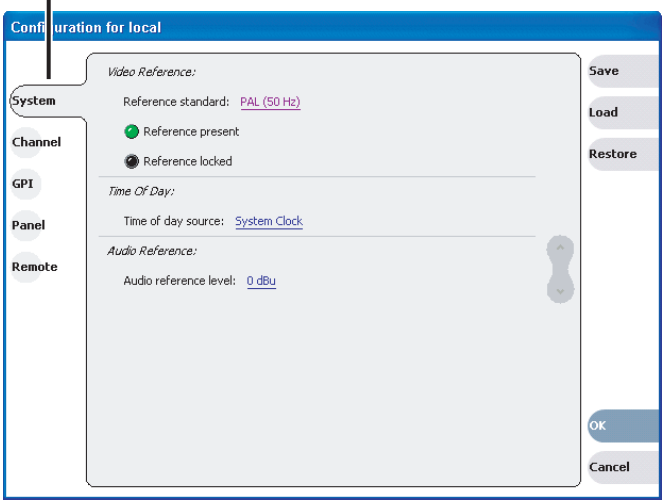
Using AppCenter Workstation

Modify settings as required

To access Turbo iDDR configuration:

1 Select **System**, then **Configuration**

2 Click a tab and select menu items



System Settings

Setting	Choices
Reference Standard	NTSC (59.94) or PAL (50Hz)
Time of Day Source	System Clock or LTC Input
Audio Reference Level	0dB, 4dB, 8dB

R1 (Recorder Channel) Settings

Setting	Choices
Compression Format	MPEG
Recording Data Rate	4,8,12,15 Mb/s
Video Noise Reduction	None, Low, Medium, High
Video Input Type	SDI, S-Video, Analog Composite, Analog Component
Audio Input Type	Analog or Digital (S/PDIF)
Audio Input Trim (Analog)	+/-12dB
Audio Input Format (S/PDIF)	16-bit PCM AC-3
Timing Offset	+/-200ms
Display Audio Meters	Yes or No

Panel Setup

Setting	Choices
Jog Speed	-1x to 1x, -1x to 3x
Shuttle Speed	-16x to 16x, -32x to 32x
VAR Setting	0.25x, 0.5x, 0.75x
Always start at VAR preset	Yes or No

GPI Input Setup

Setting	Choices
Trigger Channels	None, R1, P1, P2
Trigger Action	Play, Record, Stop, Rewind, Fast Forward, Cue Start, Cue End, Eject, Preview, Cue Next Event, Cue Previous Event, VAR Playback
Active	High or Low

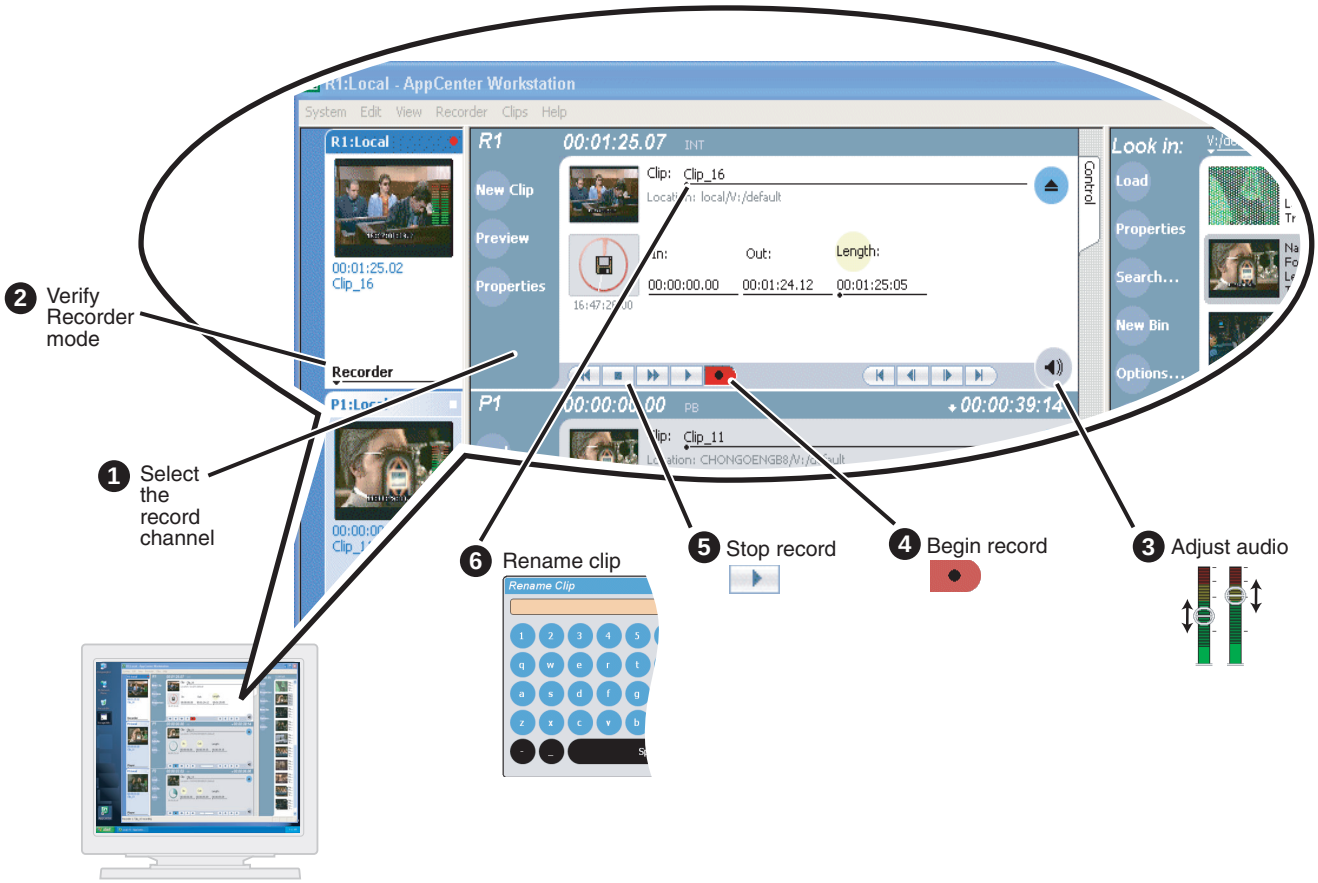
GPI Output Setup

Setting	Choices
Channel	None, R1, P1, or P2
Trigger Name	*<User specified name>*
Active	High or Low

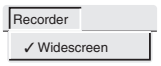
P1 and P2 (Player Channels) Settings

Setting	Choices
Video Output Format	NTSC (SD), XGA (1024x768), WXGA (1365x768), 1080i (1920x1080)
Aspect Ratio	Standard or Widescreen
Aspect Ratio Conversion	Bars, Crop, Bars and Crop
Output Component Type	RGB, Y,Pb,Pr
Output Pedestal	On or Off
Still-play Mode	Field (reduce jitter on freeze frame) Frame (enhances still graphics display)
Test Mode (colorbars)	On or Off (generates colorbars/1kHz 4dbu audio tone)
Video Gain	0-255
Chroma Gain	0-255
Chroma Phase	-127 to +128
Black Level	0-15
Sharpness	0-12
Frame Offset	0-1 frames
Line Offset (coarse)	0-524 lines
Sample Offset (fine)	0-1715 samples
Analog Sub-pixel Offset	0-255
Timing Offset	+/-200ms
Display Audio Meters	Yes or No

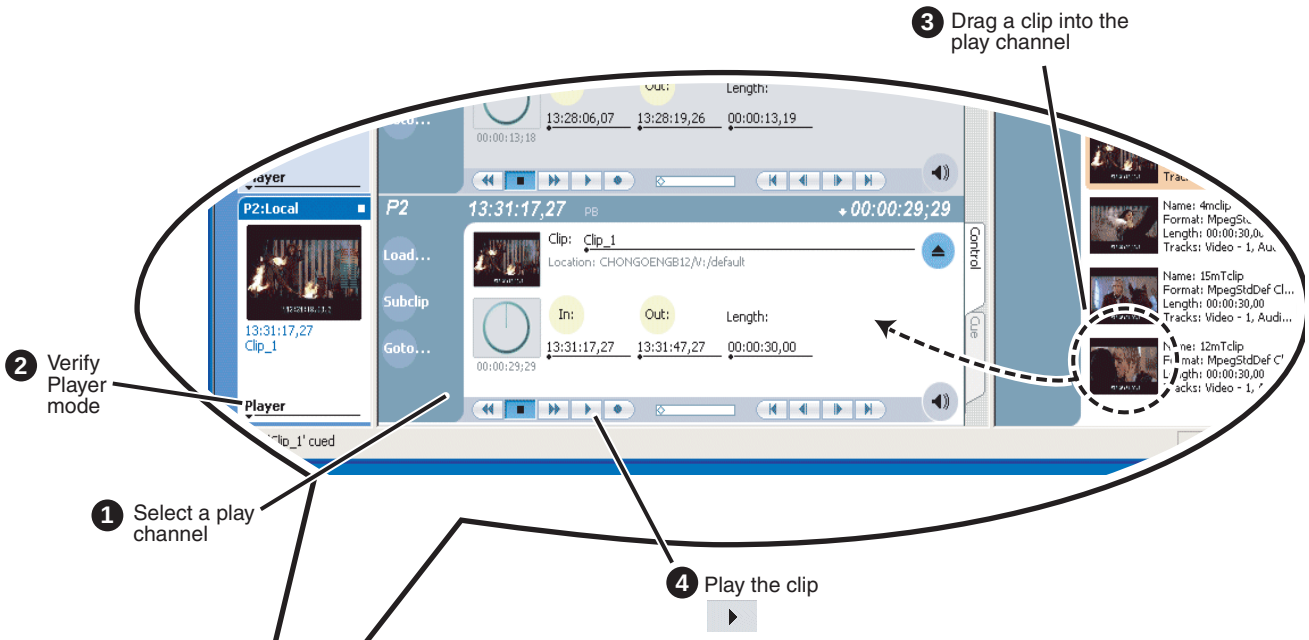
Record a clip



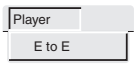
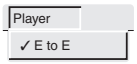
Related operations

To change the timecode source, click **Recorder | Options**, select your timecode source, and click **OK**.	
If video source is widescreen format (16:9), click **Recorder | Widescreen.**	
To enable Loop record mode, click the Time Dome, then choose **Continuous Record** in the pop-up menu.	

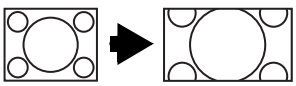
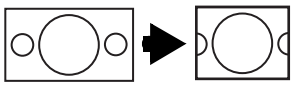
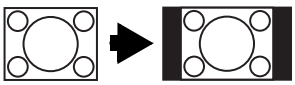
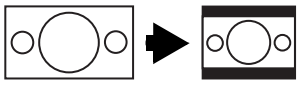
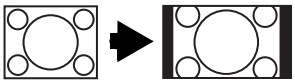
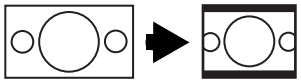
Play a clip



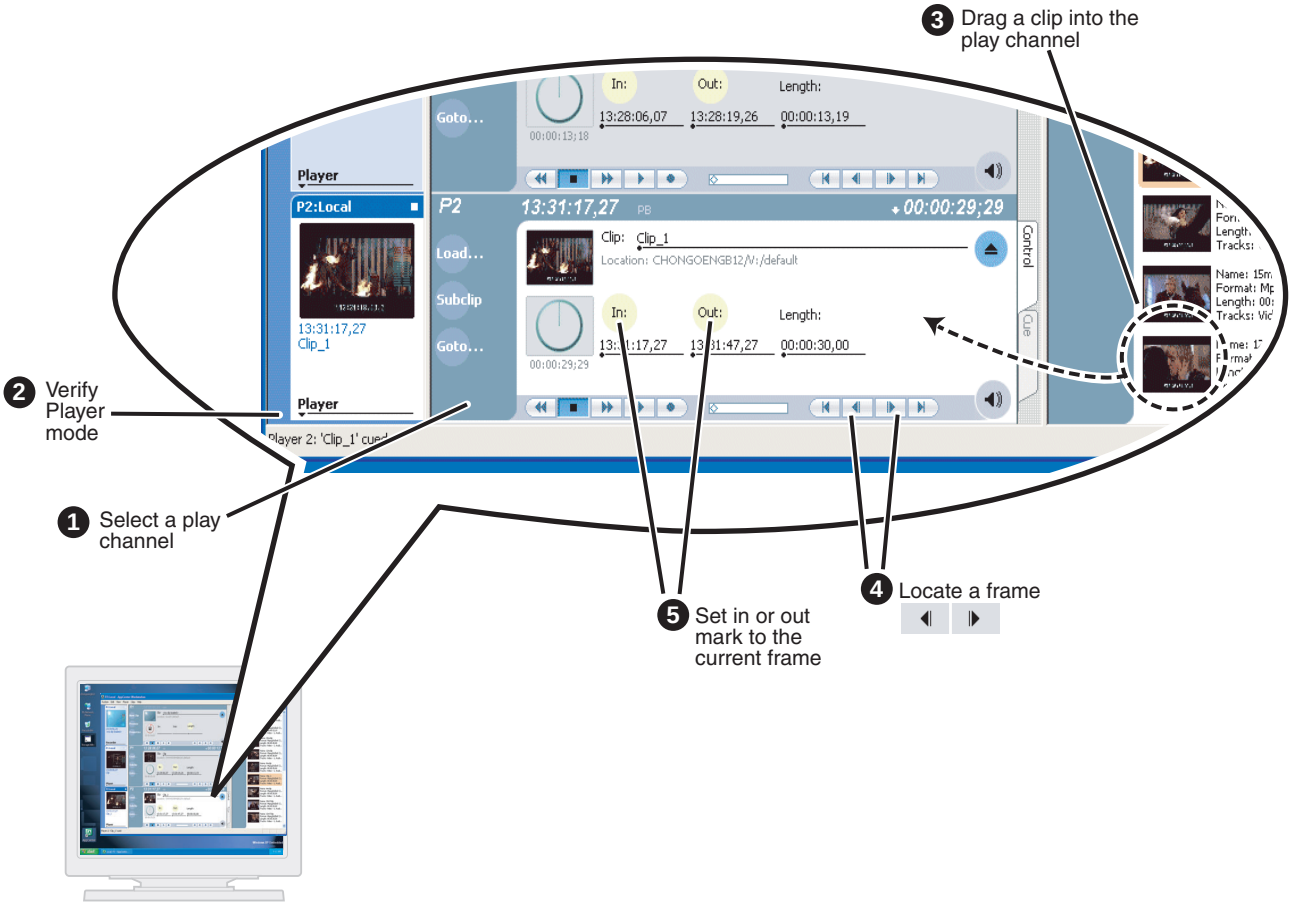
Related operations

To output black when the play channel is stopped, open the **Player** menu and uncheck **E-to-E**.	
To output the record channel input signals when the play channel is stopped, open the **Player** menu and check **E-to-E**.	
To play the clip repeatedly, click the Time Dome, then choose **Loop Mode** in the pop-up menu.	

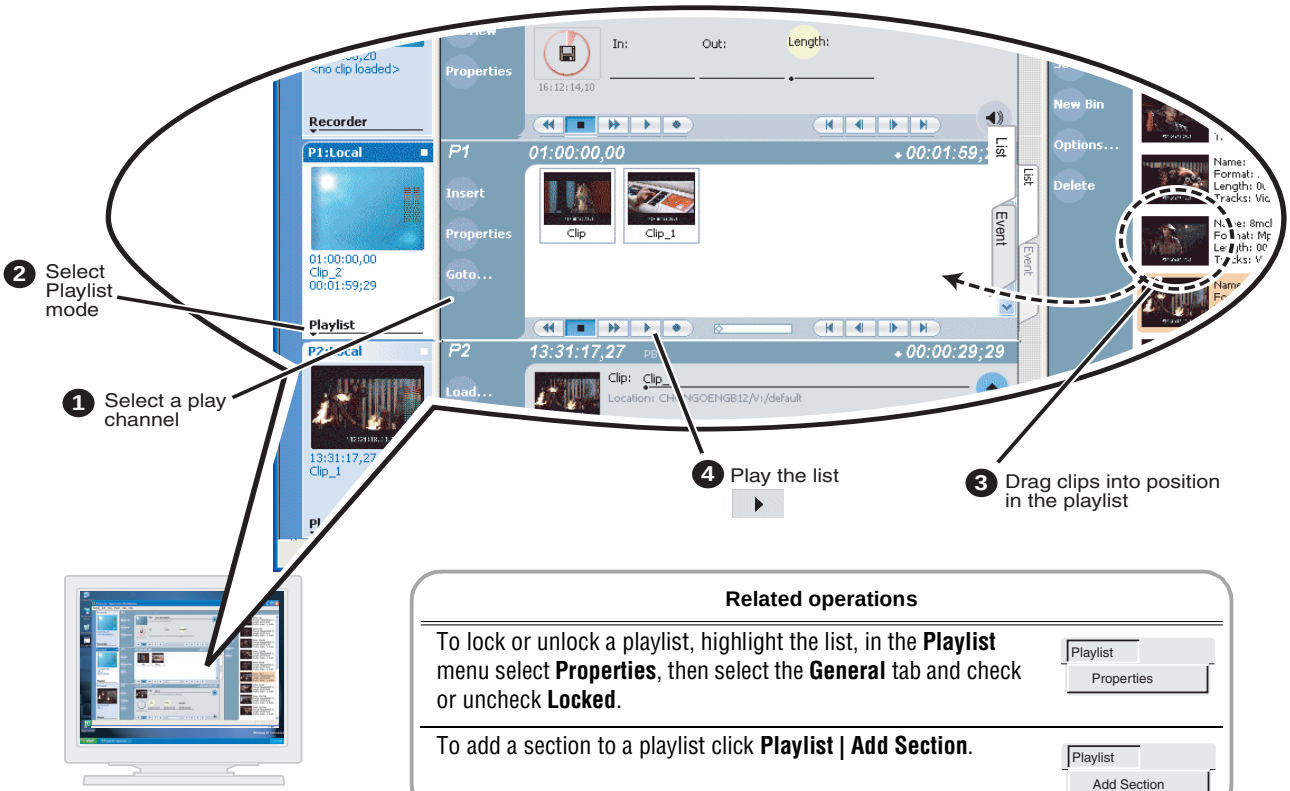
The clip aspect ratio is converted to match the play channel aspect ratio using the conversion setting you choose. To change the conversion method, refer to "Modify settings as required" on page 15.

Setting	Description	Standard to Widescreen	Widescreen to Standard
Crop	**Crop picture to fit**		
Bars	**Pad picture with bars**		
Bars & Crop	**Crop and pad picture with bars**		

Trim a clip


3 Drag a clip into the play channel
2 Verify Player mode
1 Select a play channel
5 Set in or out mark to the current frame
4 Locate a frame
Player
P2:Local
13:31:17,27
Clip_1
Player
Goto...
Load...
Subclip
Goto...
In:
Out:
Length:
13:28:06,07
13:28:19,26
00:00:13,19
00:00:13;18
P2
13:31:17,27
PB
00:00:29;29
Clip: Clip_1
Location: CHONGOENGB12/V:/default
In:
Out:
Length:
00:00:30,00
00:00:29;29
Control
Clip

Create a playlist

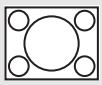
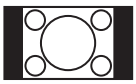
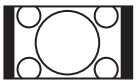
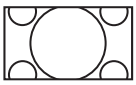
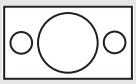
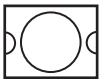


Related operations

To lock or unlock a playlist, highlight the list, in the **Playlist** menu select **Properties**, then select the **General** tab and check or uncheck **Locked**.

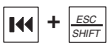
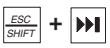
To add a section to a playlist click **Playlist | Add Section**.

The Turbo iDDR can play clips with different aspect ratios in a single playlist. How the media is displayed is determined by the play channel widescreen setting and clip aspect ratio. The play channel determines the event aspect ratio by examining the source clip aspect ratio attribute set when the clip was recorded. The following table describes how the Turbo iDDR displays mixed aspect ratios. Refer to "Modify settings as required" on page 15 to select aspect ratio conversion method.

Source Clip Aspect Ratio	Play Channel Widescreen Setting and conversion Method	
	Standard (4:3)	**Widescreen (16:9)**
Standard (4:3) 	No conversion	Bars (Pillarbox)  Bars & Crop (Half-Pillarbox)  Crop (zoom) 
Widescreen (16:9) 	Bars (Letterbox)  Bars & Crop (Half-letterbox)  Crop 	No conversion

Front Panel Controls

The following table describes clip playout using front panel transport controls.

Front Panel Control	Task	Customized Operation
	**Record** – Press REC.	You can change to PLAY + REC (hold down Play, then press Record)
	**Stop** – Press STOP to stop Record/Play.	
	**Play** – Press PLAY to start playback.	
	**Rewind** – Hold down REW, then release the button to cause the clip to return to the previous mode.	Selectable rewind speed.
	**Fast Forward** – Hold down FF, then release the button to cause the clip to return to the previous mode.	
	**Cue to beginning and stop playout** – Hold down STOP, then press REW.	
	**Cue to beginning and continue playout** – Hold down SHIFT, then press REW.	
	**Cue to end and stop playout** – Hold down STOP, then press FF.	
	**Cue to end and continue playout** – Hold down SHIFT, then press FF.	
	**Frame advance** – Tap and release the FF button (in stop mode).	
	**Frame reverse** – Tap and release the REW button (in stop mode).	
Jog/Shuttle/ Selection Knob[a]	**Jog** – Press JOG, then turn knob. Playback corresponds to the direction and rotational speed of the knob.	Range of jog speeds can be set for ±1x or ±3x.
	Shuttle – Press SHTL, then rotate the knob for -32x to +32x normal playback speed.	Range of shuttle speeds ±16x or ±32x.
	Variable Speed Play – (slo-mo) Press VAR. Off-speed play begins. You can rotate the knob to set the play speed (RANGE: ±1x normal playback speed), otherwise, speed remains at the preset play speed or the last variable play speed used. Variable play speed is implemented using interpolated line and field smoothing.	Preset can be set to .25x, .5x or .75x. Initial play speed can be set to start at either the preset speed, or the last play speed set by the Jog/Shuttle knob.
	Selection - Rotate the control knob to scroll through menus and options displayed in the front panel control mode. Push in on the knob to make selections.	The control knob is back-light LEDs are on when in selection mode.
Headphone Jack & Level Control	Used to monitor the audio of the selected channel.	

a. Scrub audio is provided at Shuttle/Jog speeds between +3x to -3x. Outside this range, audio defaults to burst audio at a fixed window size similar to audio CD behavior.

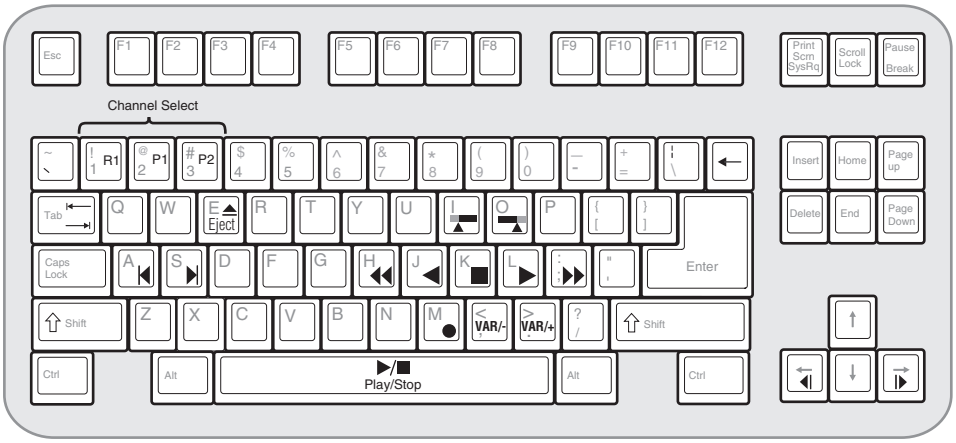
Front Panel Controls: List playout

While playing a list, you can perform the following operations using the Turbo iDDR front panel transport controls and touch screen.

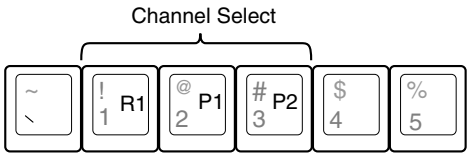
To:	Do this:
Continue playout after a pause in the list	Select the **Play** button.
Play the next event	Press the **Play** and **FF** buttons (stops playout). -or- Press the **Shift** and **FF** buttons (playout continues)
Play the previous event	Press the **Play** and **REW** buttons (stops playout). -or- Press the **Shift** and **REW** buttons (playout continues).
Play the next section	Press the **Play** button and hold down the **FF** button.
Play the previous section	Press the **Play** button and hold down the **REW** button.
Skip playback to any event or section in the list	First, press and hold the **Play** button, then select the event or section using the touch screen.

Keyboard shortcuts

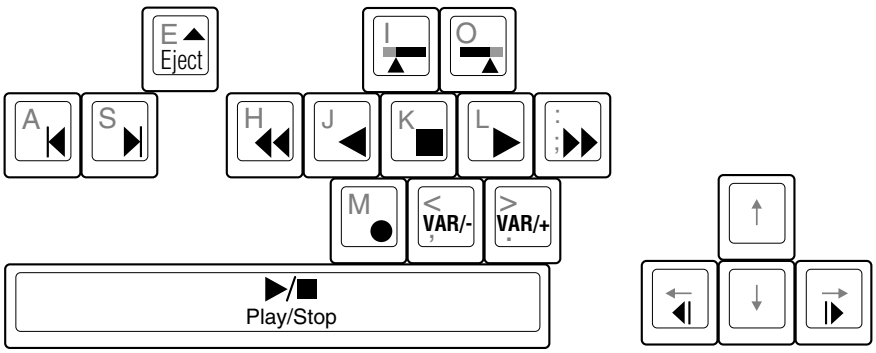
A keyboard can be connected and used in Front Panel control mode or AppCenter Workstation mode to control the Turbo iDDR. The following describes the keyboard shortcuts available. Keyboard shortcuts are disabled when text entry dialog boxes are open.



Channel select



Basic transport controls



If you have a problem

If you have trouble recording or playing, verify basic configuration using the following checklist.

Verify these settings	Control Mode	
	Front Panel	Workstation
☐ Video Reference Standard (50Hz/59.9Hz)	page 8	page 15
☐ Video Record channel input selection	page 8	page 15
☐ Record channel widescreen mode enabled if video input is 16:9	page 8	page 15
☐ Audio input selection (Analog or S/PDIF)	page 8	page 15
☐ Timecode source selection (LTC/Internal)	page 8	page 15
☐ Verify play channel DVI output video type selection. Selection must match the display device. Recorded media is converted if needed to match the selected play channel video output type. (See page 18.)	page 8	page 15
☐ Verify play channel video output aspect ratio and conversion mode (bars, crop, bars & crop)	page 8	page 15

Solving specific problems

The following table provides corrective action for some common record/play problems. Search the table for the problem you are experiencing, then try the corrective action.

Problem	Possible Cause	Corrective Action
Play channel video output is periodically unstable in E-to-E mode.	Video reference is not connected.	If E-to-E mode is used, you must connect a video reference signal.
The channel output is black in E-to-E, but playback is fine.	Loss of input signal.	Verify that you have a valid input signal.
Audio level too high or too low	Record or play channel audio level adjusted too low.	1. Use the audio level in recorder to adjust audio level. See “Recording a clip” on page 9 or page 17. 2. Use audio level adjust in player to adjust audio output level. See “Playing a clip” on page 12 or page 18.
Audio level indicators are not displayed in clip thumbnail in Record channel monitor.	Wrong audio input selected, or invalid audio input signal.	Verify valid audio input, and audio input selection. See “Recording a clip” on page 9 or page 17.
Distorted audio or no audio	Wrong incoming digital audio coding format selected.	Verify the input audio format is set correctly (AC-3 Dolby). See “Recording a clip” on page 9 or page 17. If the SPDIF input is used, verify that the input material is not copy protected.
Compression artifacts are present in the output.	Video data rate setting is too low for your program material.	Select higher video data rate. See “Recording a clip” on page 9 or page 17.
Picture image is too soft or colors are pastel in appearance.	Too much noise reduction used on video input.	Reduce noise reduction used. See “Recording a clip” on page 9 or page 17.
Digital video display device does not display properly.	Wrong video output type selected for the Play channel.	Verify and select video output type required by the display device (see display device manuals). If component analog is used, verify the correct component analog video format is selected.

Finding more information

Other documentation

- Turbo iDDR Documentation CD-ROM
- Online Help in AppCenter Workstation

Web Technical Support

- World Wide Web: http://www.thomsongrassvalley.com/support/
- Technical Support E-mail Address: gvgtechsupport@thomson.net

Contacting Grass Valley Support

Before placing a call

- Review the setup instructions in this Quick Start Guide.
- Follow instructions in the *Service and Troubleshooting Guide* located on the Documentation CD-ROM.

Phone Support

Use the following information to contact product support by phone during business hours. Afterhours phone support is available for warranty and contract customers.

United States	(800) 547-8949 (Toll Free)	France	+33 (1) 34 20 77 77
Latin America	(800) 547-8949 (Toll Free)	Germany	+49 6155 870 606
Eastern Europe	+49 6155 870 606	Greece	+33 (1) 34 20 77 77
Southern Europe	+33 (1) 34 20 77 77	Hong Kong	+852 2531 3058
Middle East	+33 (1) 34 20 77 77	Italy	+39 06 8720351
Australia	+61 1300 721 495	Netherlands	+31 35 6238421
Belgium	+32 2 3349031	Poland	+49 6155 870 606
Brazil	+55 11 5509 3440	Russia	+49 6155 870 606
Canada	(800) 547-8949 (Toll Free)	Singapore	+656379 1390
China	+86 106615 9450	Spain	+ 34 91 512 03 50
Denmark	+45 45968800	Sweden	+46 87680705
Dubai	+ 971 4 299 64 40	Switzerland	+41 (1) 487 80 02
Finland	+35 9 68284600	UK	+44 870 903 2022