FOR.A®
INNOVATIONS IN VIDEO
and AUDIO TECHNOLOGY

OPERATION MANUAL

URC-4000

4K Up Converter

URC-40PS

2nd Edition – Rev. 2
(Software Version 1.21 – Higher)

FOR-A COMPANY LIMITED

Edition Revision History

Edit.	Rev.	Date	Description	Section
1	-	2014/10/15	First edition	
1	1	2014/12/17	Test Mode Settings added to “Up Convert” page	4-2-5
2	-	2015/09/30	Color space selection added Timecode switching added	4-2-8, etc. 4-2-11-3
2	1	2015/12/24	Ancillary time code pass through supported LTC IN/OUT Color gamut transformation (BT.709⇔BT.2020)	4-2-11-3 4-2-11-3 4-2-8
2	2	2016/12/01	Up Conversion revised. SNMP description errors corrected.	4-2-6 5

Precautions

Important Safety Warnings

[Power]

 Caution	Operate unit **only** at the specified supply voltage.
	Disconnect the power cord via the power plug only. **Do not** pull on the cable portion.
 Stop	**Do not** place or drop heavy or sharp-edged objects on the power cord. A damaged cord can cause fire or electrical shock hazards. Regularly check the power cord for excessive wear or damage to avoid possible fire / electrical hazards.
 Caution	**Ensure** the **power cord is firmly plugged into** the **AC outlet.**

[Grounding]

 Caution	**Ensure** the unit is properly grounded at all times to prevent electrical shock.
 Hazard	**Do not** ground the unit to gas lines, units, or fixtures of an explosive or dangerous nature.

[Operation]

 Hazard	**Do not** operate the unit under hazardous or potentially explosive atmospheric conditions. Doing so could result in fire, explosion, or other hazardous results.
 Hazard	**Do not** allow liquids, metal pieces, or other foreign materials to enter the unit. Doing so could result in fire, other hazards, or a unit malfunction.
	If a foreign material does enter the unit, turn the power off and **immediately** disconnect the power cord. Remove the material and contact an authorized service representative if damage has occurred.

[Transportation]

 Caution	**Handle with care to avoid impact shock during transit, which may cause malfunction. When you need to transport the unit, use the original or suitable alternative packing material.**

[Circuitry Access]

	**Do not** remove covers, panels, casing, or access the circuitry with power applied to the unit. Turn the power off and disconnect the power cord prior to removal. Internal servicing / adjustment of unit should only be performed by qualified personnel.
 Stop	**Do not** touch any parts / circuitry with a high heat factor. Capacitors can retain enough electric charge to cause mild to serious shock, even after the power has been disconnected. Capacitors associated with the power supply are especially hazardous.
 Hazard	Unit **should not** be operated or stored with cover, panels, and / or casing removed. Operating the unit with circuitry exposed could result in electric shock / fire hazards or a unit malfunction.

[Potential Hazards]

 Caution	If abnormal odors or noises are noticed coming from the unit, immediately turn the power off and disconnect the power cord to avoid potentially hazardous conditions. If problems similar to the above occur, contact an authorized service representative **before** attempting to operate the unit again.

[Rack Mount Brackets, Ground Terminal, and Rubber Feet]

 Caution	To rack-mount or ground the unit, or to install rubber feet, **do not** use screws or materials other than those supplied. Doing so may cause damage to the internal circuits or components of the unit. If you remove the rubber feet that are attached to the unit, **do not** reinsert the screws that secure the rubber feet.

[Consumables]

 Caution	Consumable items that are used in the unit must be periodically replaced. For further details on which parts are consumables and when they should be replaced, refer to the specifications at the end of the Operation Manual. Since the service life of the consumables varies greatly depending on the environment in which they are used, such items should be replaced at an early date. For details on replacing consumable items, contact your dealer.

Upon Receipt

Unpacking

URC-4000 units and their accessories are fully inspected and adjusted prior to shipment. Operation can be performed immediately upon completing all required connections and operational settings. Check your received items against the packing lists below. Check to ensure no damage has occurred during shipment. If damage has occurred, or items are missing, inform your supplier immediately.

ITEM	QTY	REMARKS
URC-4000	1	
AC Cord	1 set	Including AC cord retaining clip
Rack Mount Brackets	1 set	EIA standard type (Including 4 screws)
CD-ROM	1	Windows GUI installation disc (Including operation manual (PDF))
Quick Setup Guide	1	

◆ **Option**

ITEM	QTY	REMARKS
URC-40PS (option)	1 set	Redundant power supply unit (Including AC cord and AC cord retaining clip).

Trademarks

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* All other trademarks are trademarks or registered trademarks of their respective owners.

Rack Mounting

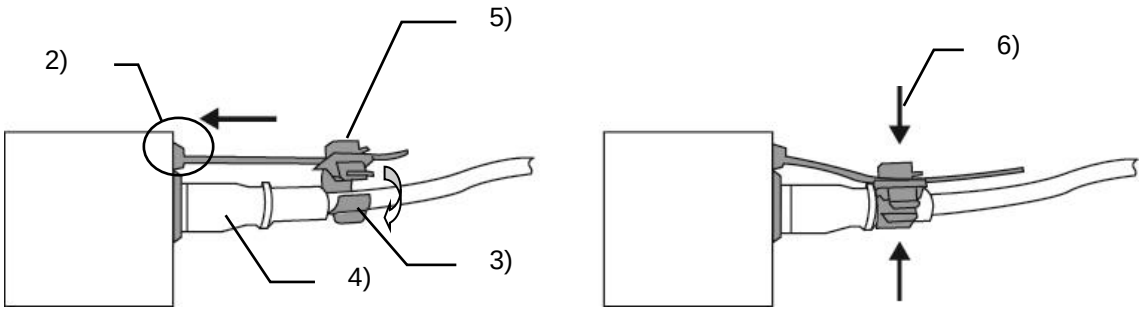
URC-4000 can be mounted to EIA standard rack units. When rack mounting a unit, remove the rubber feet and use the accessory rack mount brackets (rack ears).

Installing the AC Cord Retaining Clip

Secure the AC cord with the supplied ladder strap/retaining clip assembly to prevent accidental removal from the URC-4000.

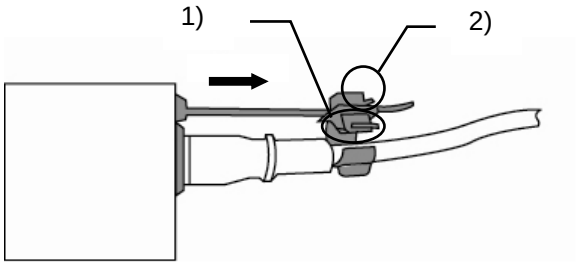
◆ **Installing the clip**

1) Wrap the retaining clip around the AC cord (with the anchor of the ladder strap toward the unit).
2) Insert the anchor into the hole next to the AC IN socket.
3) Lightly fasten the clip around the AC cord.
4) Plug in the power cord.
5) Slide the clip on the ladder strap toward the plug.
6) Fasten the clip tightly.
7) Gently pull on the AC cord to ensure it is secured.



◆ **Unpluging the AC cord**

1) Pull the tab on the retaining clip up to unfasten the clip.
2) Push the tab on the ladder strap up and slide the clip back.
3) Unplug the AC cord.



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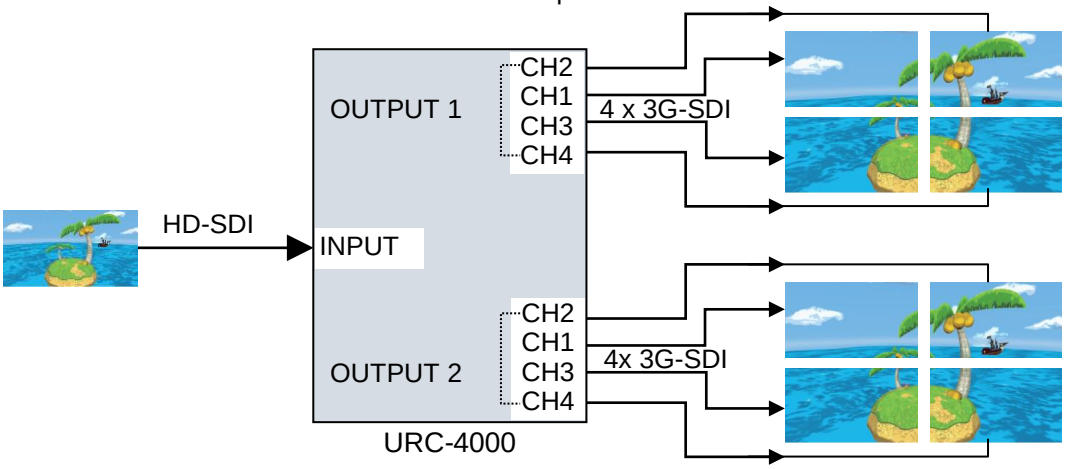
1. Prior to Starting

1-1. Welcome

Congratulations! By purchasing a URC-4000 4K Up Converter you have entered the world of FOR-A and its many innovative products. Thank you for your patronage and we hope you will turn to FOR-A products again and again to satisfy your video and audio needs. FOR-A provides a wide range of products, from basic support units to complex system controllers, which have been increasingly joined by products for computer video-based systems. Whatever your needs, talk to your FOR-A representative. We will do our best to be of continuing service to you.

1-2. Features

The URC-4000 provides powerful up-conversion, turns HD video into 4K (4 x 3G-SDI) in real time and distributes the video into two identical outputs.



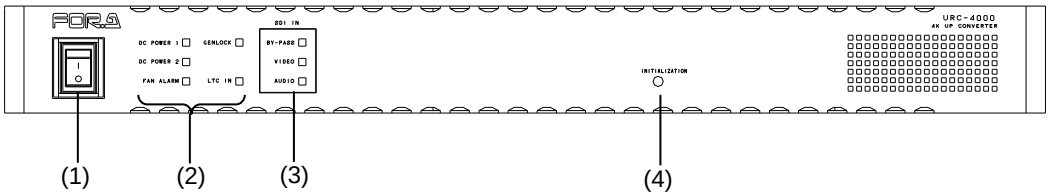
Original I/P and resolution conversion technology that has been developed by FOR-A, unleashes a new era in 4K conversion. Spatiotemporal frame interpolation is performed in which highly precise spatial and temporal changes in images are detected, on a pixel-by-pixel basis. Aliasing from conversion is reduced, and restoring the resolution of still image areas. Resolution is further improved through multi-scale nonlinear enhancement.
Frame synchronizer and color corrector functions come standard. All SDI audio channel remapping is also available.

Standard Features

- Original I/P and resolution conversion using Spatiotemporal frame interpolation
- Multi-scale enhancer
- Color correction
- Color gamut transformation between BT.709 and BT.2020
- Powerful frame synchronizer
- Audio embedding/de-embedding
- 3G-SDI Level-A / Level-B output selection
- Timecode insertion
- Pass-through of ancillary time code
- Other standard features
  - Video/Audio delay
  - Audio remapping
  - Audio down-mixing
  - Monitoring and control via dedicated GUI
  - SNMP monitoring
- Redundant power supply (Option)
- Pass-through of ancillary closed caption data (Future support)

2. Panel Descriptions

2-1. Front Panel

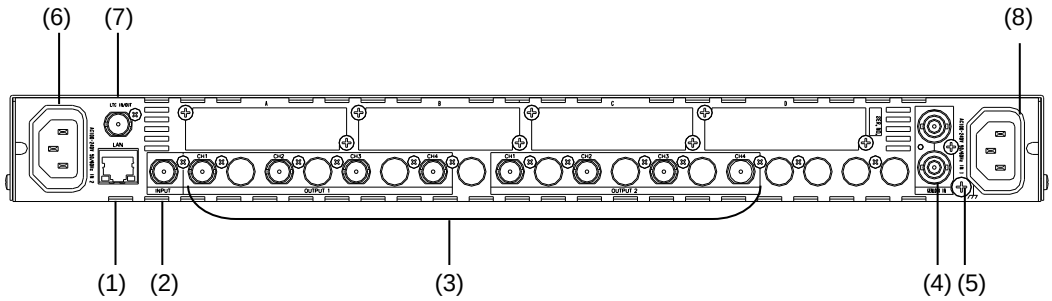


No	Name	Description		
1	Power switch	Used to turn the unit ON / OFF.		
2	Unit status indicator	DC POWER 1/2	Lit green	Power supply is normal.
			Lit red	A power failure has occurred.
		FAN ALARM	Lit green	All fans are operating normally.
			Lit red	One or more fans have failed.
		GENLOCK	Lit green	Genlock signal input is present.
			Unlit	No genlock signal input is present.
		LTC IN	Lit green	LTC input is present.
			Unlit	No LTC input is present.
3	SDI IN status indicator	BY-PASS	Lit green	Input signal is being bypassed.
			Unlit	No signal is being bypassed.
		VIDEO	Lit green	Video signal input is present.
			Unlit	No video signal input is present.
		AUDIO	Lit green	Embedded audio signal is present.
			Unlit	No embedded audio signal is present.
4	INITIALIZATION button	Used to reinitialize the unit. Read the WARNING below before proceeding. To reinitialize the unit, turn the unit on while holding down the INITIALIZATION button.		

IMPORTANT

All setting data will reinitialize in a reinitialization. Back up important settings before executing a reinitialization.

2-2. Rear Panel



No	Name	Description	Refer to
1	LAN	100/1000BASE-T Ethernet LAN port. Used to connect to an external remote control unit or transfer data to an external device. (RJ-45)	
2	INPUT	Used for HD-SDI video signal input (BNC x 1)	
3	OUTPUT 1 (CH1-4)	Used for 4K output 1 (4 x 3G-SDI signals) (BNC x 4) CH1 is looped-through output of the input source when By-pass is set to On or the unit power is Off.	4-2-12
	OUTPUT 2 (CH1-4)	Used for 4K output 2 (4 x 3G-SDI signals) (BNC x 4)	
4	GENLOCK IN	Used for genlock signal input (black burst or tri-level sync). The bottom connector is for a loop through feed. Terminate at 75 ohm when not in use. (BNC)	4-2-4
5	Ground Terminal	Used to ground the unit to protect operators from static electricity and electrical shock.	
6	AC IN 2	Used for connection to an AC power source via supplied accessory cord. (AC 100V-240V 50/60Hz) (Optional)	
7	LTC IN/OUT	Time code input/output. (BNC)	
12	AC IN 1	Used for connection to an AC power source via supplied accessory cord. (AC 100V-240V 50/60Hz)	

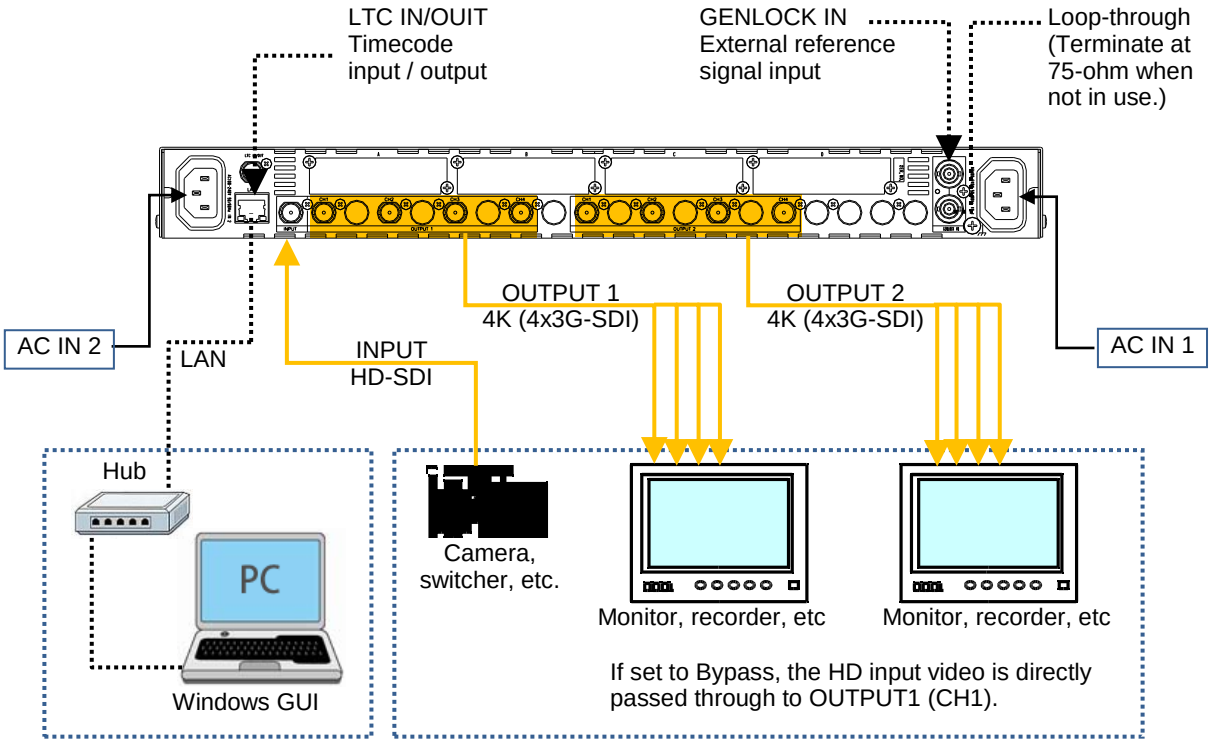
IMPORTANT

Internal cooling fans prevent overheating. Do not block the front, rear or side vents with other equipment or objects.

3. System Setup

3-1. System Configuration

The system example below shows a standard URC-4000 system, which inputs HD video and outputs two 4K (4 x 3G-SDI) video streams by up-converting the input video.



3-2. Power-On

When the URC-4000 is powered on, all LEDs on the front panel, including Alarm indicators, light. Once startup is complete, current status is indicated.

3-2-1. Note on Powering Off

Do not turn the power of the unit off for at least 10 seconds whenever a setting is changed. The setting data may otherwise not save properly.

3-3. Windows GUI Setup

3-3-1. System Requirements

To install Product (software), your computer must meet the following requirements.

OS	Windows® 7, 8 operating system Professional (32/64 bit)
CPU	Intel® Core™2 Duo processor 2 GHz or faster
Memory	2 GB or more
Display	Resolution of 1280 x 1024 pixels or higher recommended Must be capable of full color (24-bit) display
Network port	Ethernet, at least one port 100BASE-TX/1000BASE-T
Network cable	100BASE-TX: Category 5 or better 1000BASE-T: Category 6, or enhanced category 5
Software	Microsoft® .NET Framework 4.0 Windows® Installer 3.1

* Mac OS is not supported.

3-3-2. Network Settings

Change PC network settings for the URC-4000 connection.
From the Startup menu, go to Local Area Connection > General > Internet Protocol (TCP/IP) > General > Properties, then set the IP address and Subnet mask settings as shown below.

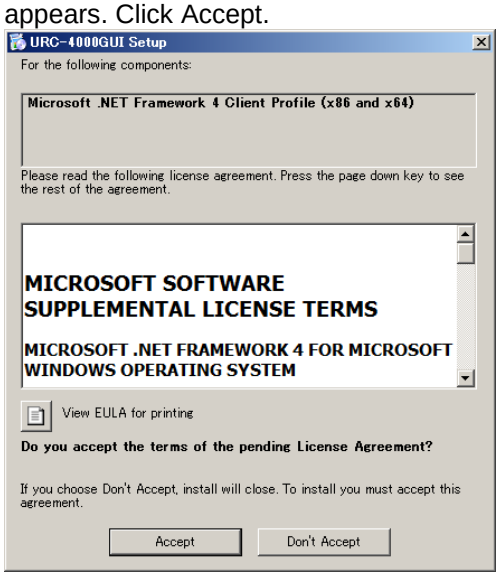
PC IP address	192.168.0.xxx (xxx is any number from 1 to 254 except for the number set for the URC-4000 unit and the gateway number.)
Subnet mask	255.255.255.0

* The default URC-4000 IP address is 192.168.0.10.

3-3-3. Installing the URC-4000GUI

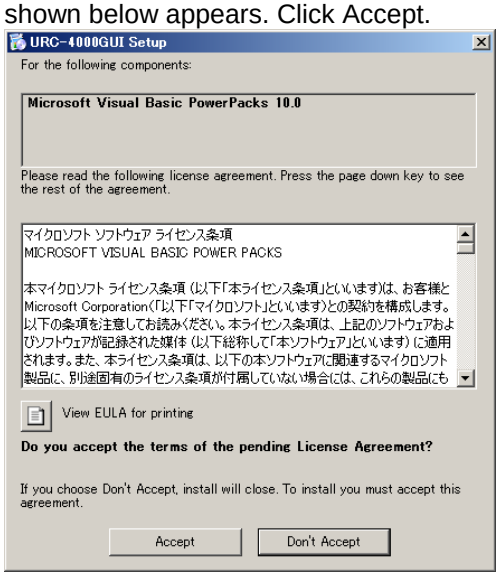
(1) Open the CD-ROM, and the URC-4000GUI folder.
Double-click the Setup icon to start the setup wizard.

(2) If “Microsoft .NET Framework 4” is not installed on your PC, the screen as shown below appears. Click Accept.



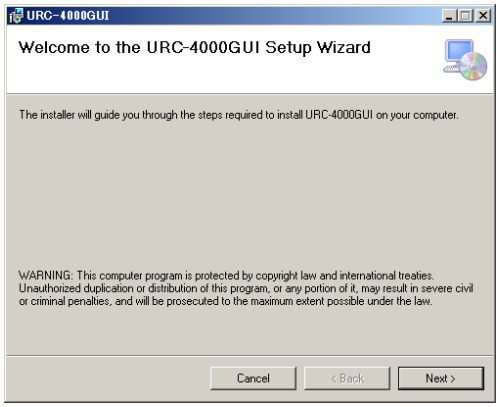
* If “Microsoft .NET Framework 4” is already installed on your PC, the screen will not appear.

(3) If “Microsoft Visual Basic Power Packs 10.0” is not installed on your PC, the screen as shown below appears. Click Accept.

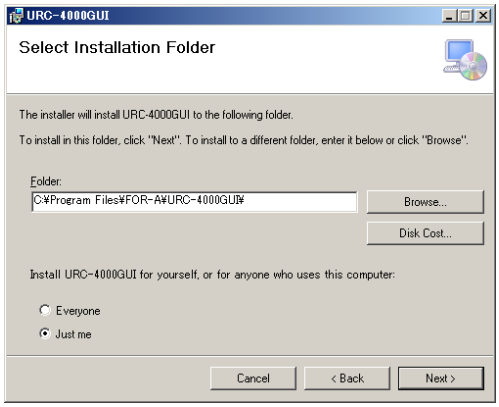


* If “Microsoft Visual Basic Power Packs 10.0” is already installed on your PC, the screen will not appear.

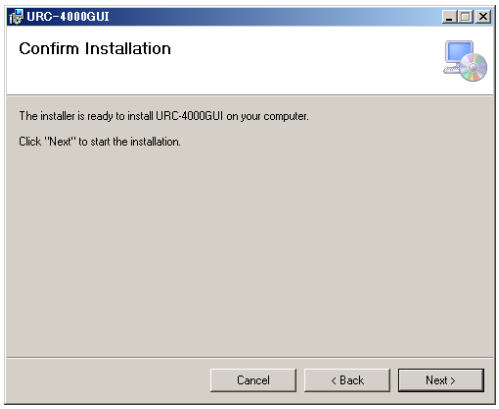
(4) Once the URC-4000GUI setup wizard starts, the screen as shown below appears. Click Next to continue the setup.



(5) Select the installation directory, then click **Next**.

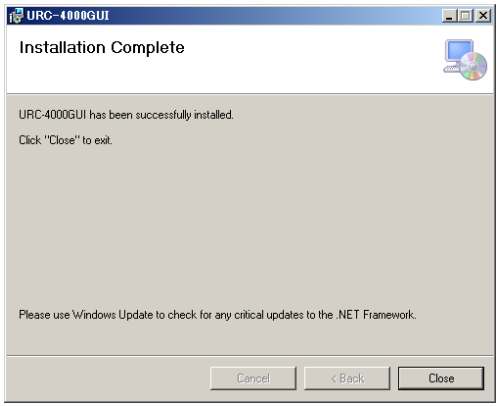


(6) A confirmation screen will appear. Click **Next** to start the installation.



(7) The user Account Control screen will appear. Click **Yes** to continue the installation.

(8) When installation is completed, the screen as shown below appears. Click Close to quit the setup wizard.

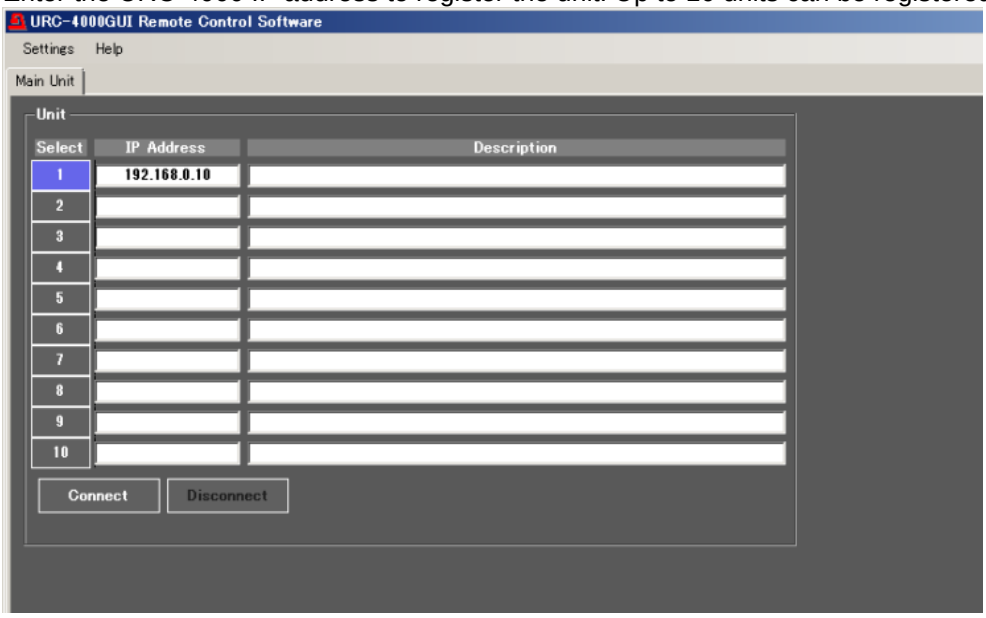


3-3-4. Connecting to URC-4000

This section explains how to connect the URC-4000GUI to a URC-4000 unit.
URC-4000GUI connects to URC-4000 via LAN.

◆ **Registering URC-4000 units**

When the URC-4000 GUI starts up, the page as shown below opens.
Enter the URC-4000 IP address to register the unit. Up to 10 units can be registered.



◆ **Connecting to a URC-4000 unit**

(1) Select a unit to connect under **Select**.
(2) Click **Connect**. A menu page opens.

* Simultaneous connections with multiple units are not possible.

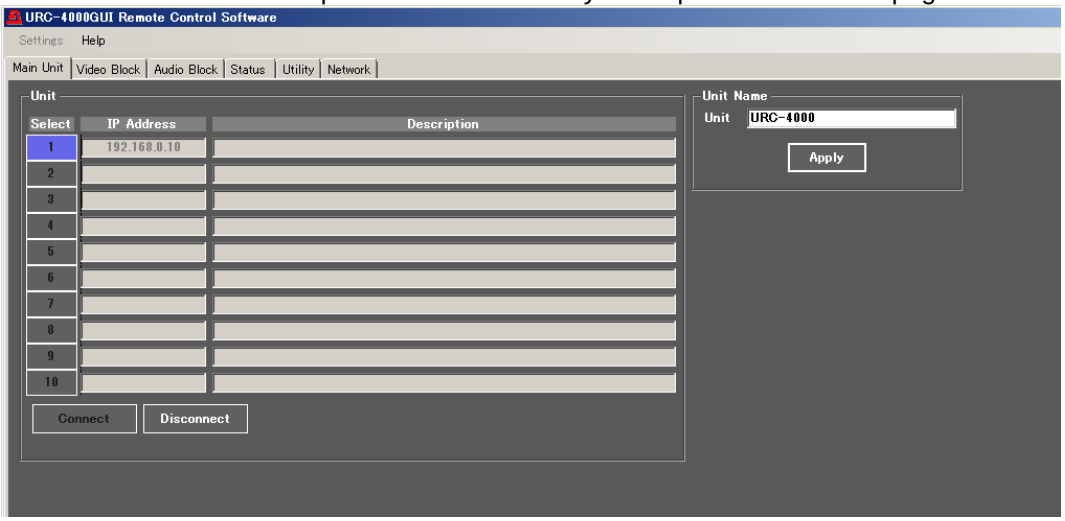
Item	Description
Select	Allows you to select a URC-4000 to connect to.
IP Address	Allows you to enter the IP address of each URC-4000 unit.
Description	Allows you to enter a note.

Button	Description
Connect	Allows you to establish a connection with the selected URC-4000.
Disconnect	Allows you to release the connection.
Abort	Allows you to cancel the connection. This button is displayed in a pop-up dialog during connection.

4. URC-4000 GUI

4-1. Main Unit

The **Main Unit** tab at the top of the screen allows you to open the Main Unit page as shown below.



The GUI allows you to register up to 10 URC-4000 units with different unit names.

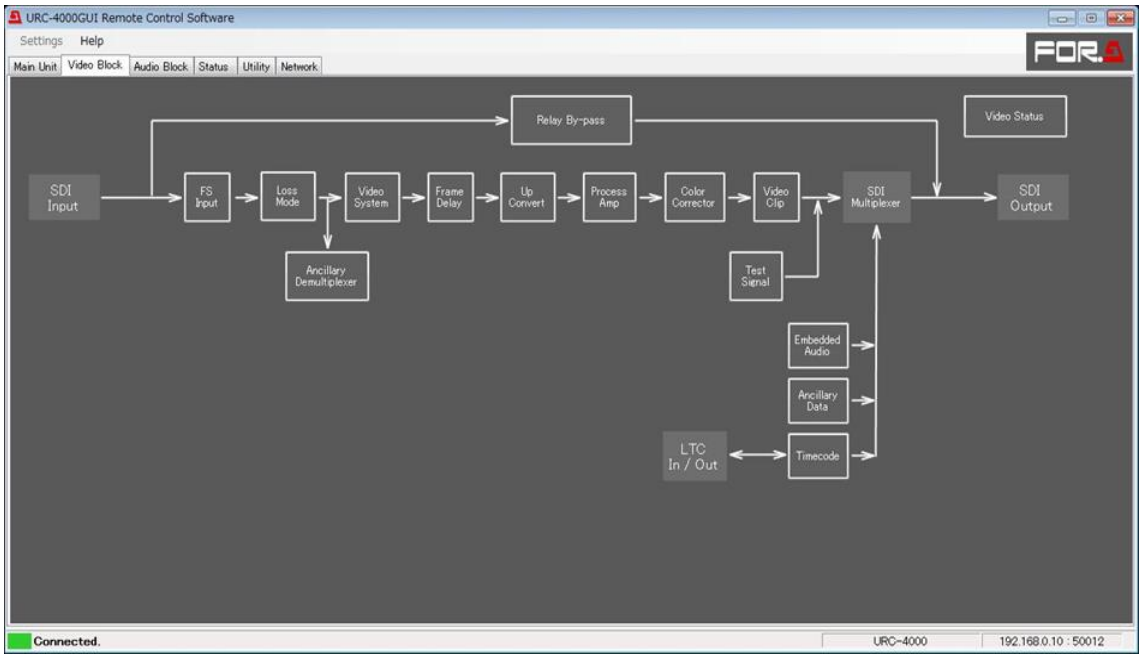
Item	Description
Select	Allows you to select a URC-4000 to connect to or change unit settings. A URC-4000 unit selection cannot be changed while one unit is connected.
IP Address	Allows you to enter the IP address. The IP address cannot be changed while the unit is connected.
Description	Allows you to enter a note. Cannot be amended during connection.

Button	Description
Connect	Allows you to establish a connection with the selected URC-4000.
Disconnect	Allows you to release the current connection to connect to another URC-4000 unit.
Apply	Allows you to apply changes to the unit.

* **Unit Name** is displayed and able to be changed only when a URC-4000 is being connected.

4-2. Video Block

Click the **Video Block** tab at the top of the page. The video block diagram will be displayed. Each block in the diagram lets you go to the corresponding windows or dialog boxes that allow you to change various settings.

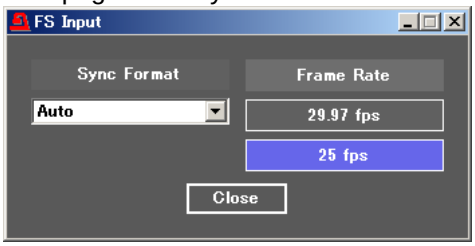


Menu block	Description	Refer to
Video Status	Displays SDI input and reference signal formats.	-

Menu block	Description	Event save	Refer to
FS Input	Allows you to select the video input format.	Available	4-2-1
Loss Mode	Allows you to select a video signal loss mode.	Available	4-2-2
Ancillary Demultiplexer	Allows you to displays the detected ancillary data status.	Unavailable	4-2-3
Video System	Allows you to change frame synchronization settings: Sync Mode, System Phase, Video Position, Freeze Mode and 3G-SDI Output.	Available	4-2-4
Frame Delay	Allows you to add video delay.	Available	4-2-5
Up Convert	Allows you to adjust various 4K 3G-SDI conversion levels.	Available	4-2-6
Process Amp	Allows you to adjust video signal levels.	Available	4-2-7
Color Corrector	Allows you to adjust color correction settings.	Available	4-2-8
Video Clip	Allows you to adjust the color space range.	Available	4-2-9
Test Signal	Allows you to output a video test signal.	Available	4-2-10
SDI Multiplexer	Allows you to select whether to embed audio signals. Audio signals should be set in the Audio Block menu.	Available	4-2-11
Relay By-pass	Allows you to directly output unprocessed input.	Unavailable	4-2-12

4-2-1. FS Input

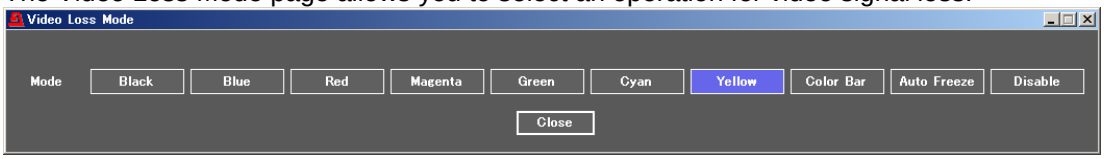
This page allows you to select the video input signal format.



Item	Default	Setting range		Description
Frame Rate	29.97 fps	29.97 fps 25 fps		Allows you to specify the video input signal frame rate.
Sync Format	Auto	If 29.97 fps is selected:	Auto 1080/59i 1080/59p(Level-A) 1080/59p(Level-B)	Selects the TV standard. **Auto**: Automatically selects the TV standard depending on the frame rate selection.
		If 25 fps is selected:	1080/50i 1080/50p(Level-A) 1080/50p(Level-B)	

4-2-2. Video Loss Mode

The Video Loss Mode page allows you to select an operation for video signal loss.

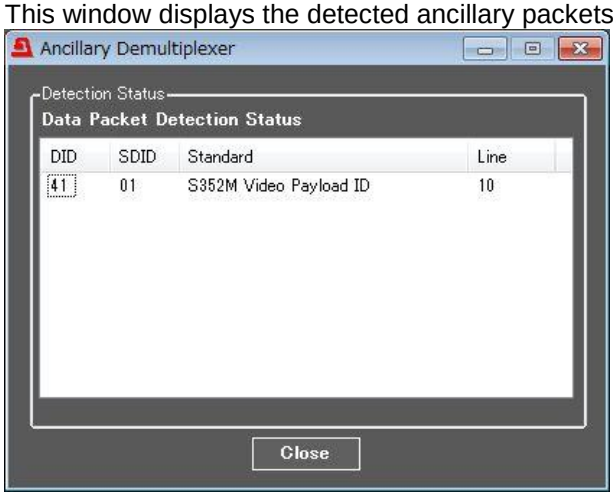


Item	Default	Setting range	Description
Mode	Black	Black Blue Red Magenta Green Cyan Yellow Color Bar Auto Freeze Disable	Allows you to select a video input loss operation. Black – Yellow: Outputs the selected back color. Color Bar: Outputs a color bar. Auto Freeze: Continues to output the image from one frame before the point of input signal loss. Disable: No signal output.

4-2-3. Ancillary Demultiplexer

◆ **Detection Status**

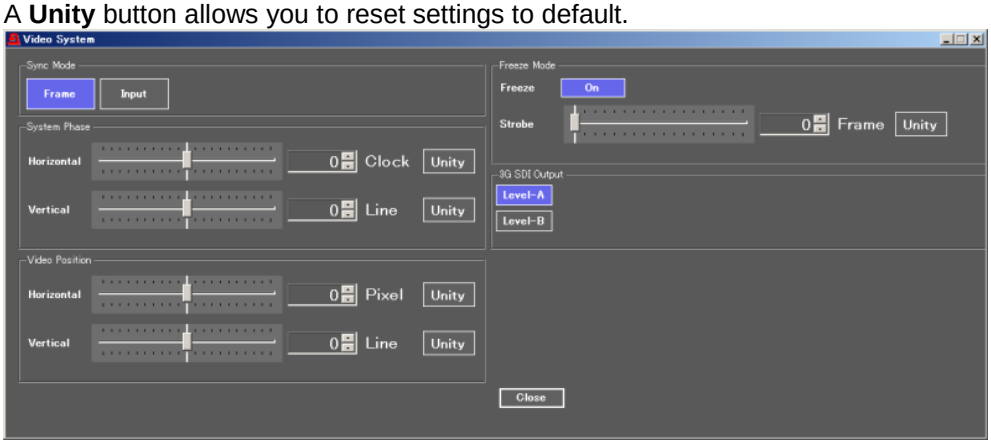
This window displays the detected ancillary packets.



Item	Description
DID	Data Identifier (Hex), which indicates the type of ancillary data.
SDID	Secondary Data Identifier (Hex), which indicates the type of ancillary data and is used when further identification is needed.
Standard	Ancillary packet name.
Line	Line number where the ancillary packet was found.

4-2-4. Video System

The Video System page allows you to change frame synchronization settings.
A **Unity** button allows you to reset settings to default.



◆ **Sync Mode**

Item	Default	Setting range	Description
Sync Mode	Frame	Frame Input	**Frame**: Enables horizontal and vertical alignment of video signals to a genlock signal. Effective on both synchronous and asynchronous signals. **Input**: Locks and output the video signal to the input signal.

Output format		I/O Delay	
Input	Output	Frame	Input
1080/59i 1080/50i	Level A	3 frames or less	3 frames
	Level B	3 frames + 2H or less	3 frames + 2H
1080/59p Level A 1080/50p Level A	Level A	1 frame or less	1 frame
	Level B	1 frame + 3H or less	1 frame +3H
1080/59p Level B 1080/50p Level B	Level A	1 frame + 1H or less	1 frame +1H
	Level B	1 frame + 3H or less	1 frame +3H

◆ **System Phase**

Settings are unavailable if there is no reference signal input.

Item	Default	Setting range (Steps)	Description
Horizontal	0	± 1400 (1 clock)	Allows you to adjust horizontal and vertical system phase settings referring to genlock signal.
Vertical	0	± 600 (1 line)	

◆ **Video Position**

Adjustable when Sync Mode is set to Frame.

Item	Default	Setting range (Steps)	Description
Horizontal	0	± 40 (4 pixel)	Adjusts the horizontal/vertical position of output videos.
Vertical	0	± 20 (1 line)	

◆ **Freeze Mode**

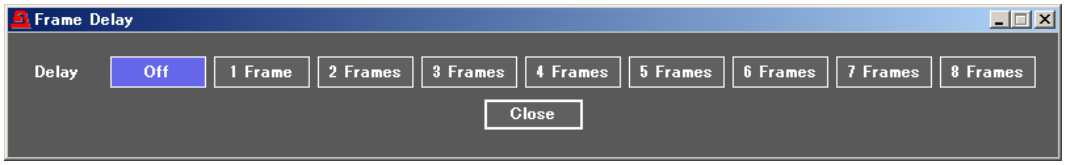
Item	Default	Setting range	Description
Freeze	On	Off On	Allows you to turn Freeze On/Off.
Strobe	0	0 - 255	Allows you to set the refresh rate in frames. 0: Images not refreshed

◆ **3G-SDI Output**

Item	Default	Setting range	Description
3G SDI Output	Level A	Level-A Level-B	Allows you to select 3G-SDI Level A or B output.

4-2-5. Frame Delay

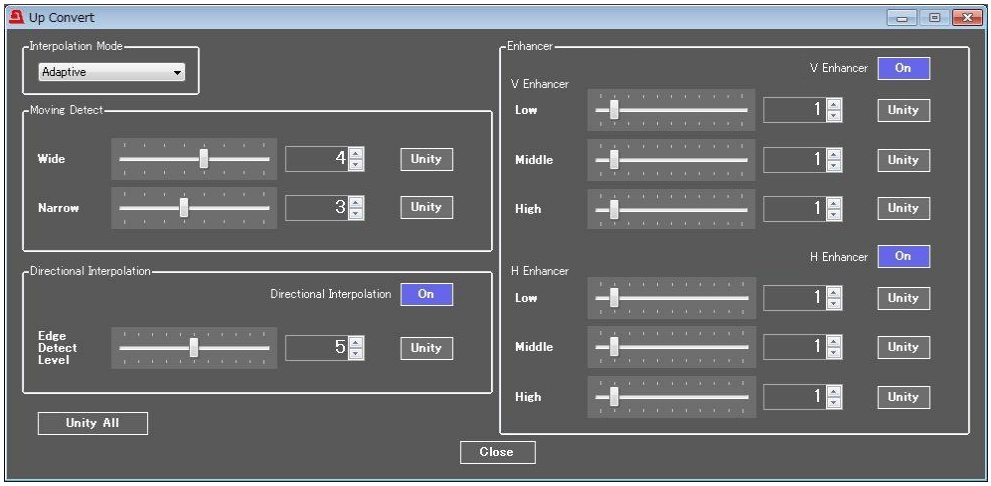
The Frame Delay page allows you to add video delay.



Item	Default	Setting range	Description
Delay	Off	Off 1 - 8 Frames	Allows you to add a frame delay amount.

4-2-6. Up Convert

The Up Convert page allows you to select the interpolation method and set its various levels when up-converting interlaced input videos.
The **Unity All** button resets all parameters in the Up Convert page.
A **Unity** button allows you to reset settings to default.



◆ **Interpolation Mode**

Item	Default	Setting range	Description
Interpolation mode	Adaptive	Field	Creates progressive images using one of two field images.
		Adaptive	Creates optimal progressive images by detecting motions in input video images. Still regions on a field image are interpolated by the paired field image. On the other hand, the directional interpolation within the field image is used for motion regions.
		Frame (Odd 1st)	Creates progressive images using both (odd and even) field images.

◆ **Moving Detect**

Item	Default	Setting range	Description
Wide	4	0 - 7	Allows you to set the motion detection level in wide mode. The higher the value, the greater the still mode processing area becomes.

Narrow	3	0 - 7	Allows you to set the motion detection level in narrow mode. The higher the value, the greater the still mode processing area becomes.

◆ **Directional Interpolation**

Directional Interpolation affects edge areas in video images.
Edge Detect Level can be set **Directional Interpolation** is set to **On**.

Item	Default	Setting range	Description
Edge Detect Level	5	0 - 10	Sets the edge detection level. The lower the value, the higher the detection level and interpolated areas are increased.

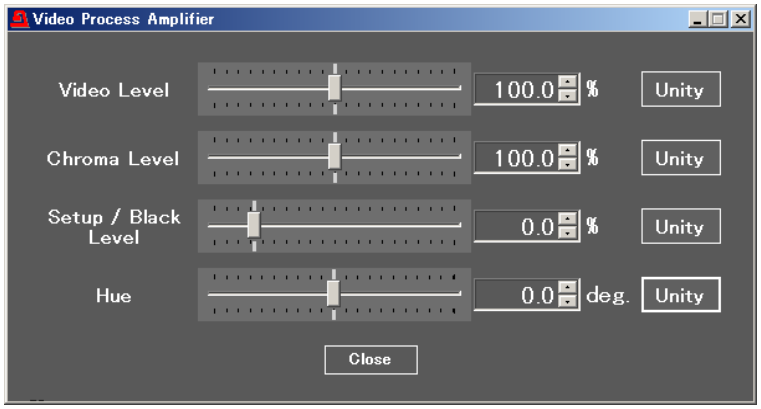
◆ **Enhancer**

The following adjustments are available when **V Enhancer** and **H Enhancer** are respectively set to **On**.

Item		Default	Setting range	Description
V-Enhancer	Low	1	0 - 10	Allows you to set the lower, middle and upper vertical enhancement levels independently.
	Middle	1	0 - 10	
	High	1	0 - 10	
H-Enhancer	Low	1	0 - 10	Allows you to set the lower, middle and upper horizontal enhancement levels independently.
	Middle	1	0 - 10	
	High	1	0 - 10	

4-2-7. Video Process Amplifier

The Video Process Amplifier page allows you to adjust video signal levels.

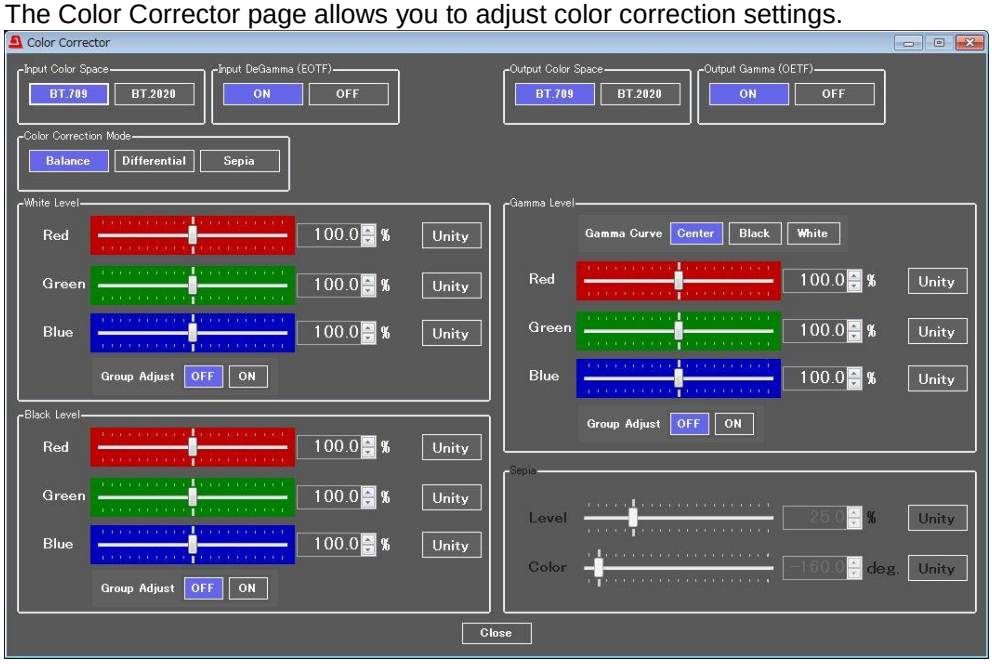


Item	Default	Setting range (Steps)	Description
Video Level	100.0%	0.0 - 200.0% (0.1%)	Allows you to adjust the video level.
Chroma Level	100.0%	0.0 - 200.0% (0.1%)	Allows you to adjust the chroma level.
Setup/Black Level	0.0%	-20.0 - 100.0% (0.1%)	Allows you to adjust the black level.
Hue	0.0°	-179.8° - 180.0° (0.2°)	Allows you to adjust the Chroma phase.
Unity (button)	-	-	Allows you to reset settings to default.

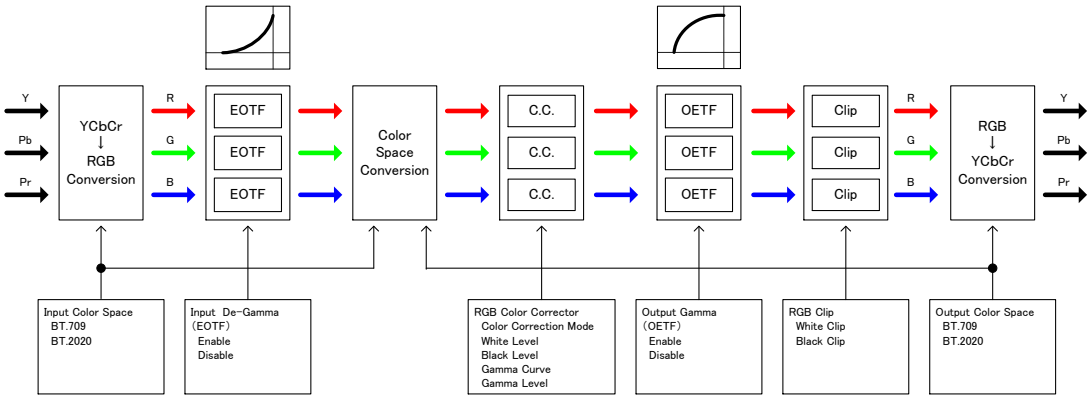
* Chroma Level and Hue settings are disabled if Correction Mode is set to Sepia (see sec. 4-2-8. “Color Corrector”).

4-2-8. Color Corrector

The Color Corrector page allows you to adjust color correction settings.



The figure below shows the block diagram of the color correction process.



Item	Default	Setting range	Description
Input Color Space	BT.709	BT.709 BT.2020	Allows you to select a color space of input signal.
Input DeGamma (EOTF)	ON	ON OFF	Allows you to apply a reverse gamma to gamma-corrected signals before color correction, which changes signals from optimized for CRT to linear-light image data. If set to **OFF**, a reverse gamma process is bypassed and not applied to signals.
Output Color space	BT.709	BT.709 BT.2020	Allows you to select a color space of output signal.
Output Gamma (OETF)	ON	ON OFF	Allows you to re-apply gamma correction to color corrected signals. If set to **OFF**, a gamma correction process is bypassed and not applied to signals.
Correction Mode	Balance	Balance	RGB signal correction mode Allows you to adjust the white balance. Gray scale can be changed by adjusting R, G and B levels.

Correction Mode	Balance	Differential	Color difference signal mode Allows you to adjust contrast without changing white balance. R, G and B levels can be changed without affecting gray scale. This adjustment is effective for images with different color saturation levels.
		Sepia	Sepia mode Useful for creating sepia or black and white images.

◆ **White Level settings**

Item	Default	Setting range (Steps)	Description
Red, Green, Blue	100.0%	0.0 - 200.0% (0.5%)	Allows you to adjust the white level of R, G, and B components separately.
Group Adjust (Group adjustment)	OFF	OFF ON	Allows you to simultaneously adjust R, G, and B-component white levels while retaining the separately adjusted level proportions.
Unity (button)	-	-	Allows you to reset settings to default.

◆ **Black Level Settings**

Item	Default	Setting range (Steps)	Description
Red, Green, Blue	100.0%	0.0 - 200.0% (0.5%)	Allows you to adjust the black level of R, G, and B components separately.
Group Adjust (Group Adjustment)	OFF	OFF ON	Allows you to simultaneously adjust R, G, and B-component white levels while retaining the separately adjusted level proportions.
Unity (button)	-	-	Allows you to reset settings to default.

◆ **Gamma Level Settings**

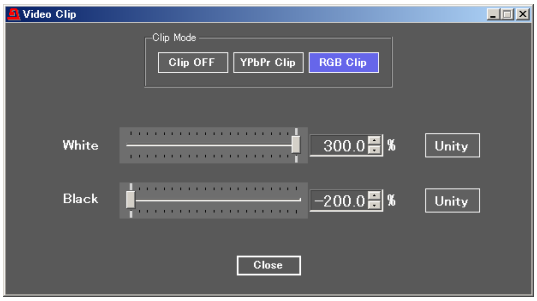
Gamma Curve	Center	Black Center White	Allows you to select a gamma curve type.
RED, GREEN, BLUE	100.0%	0.0 - 200% (0.5%)	Allows you to adjust the gamma level of R, G, and B components separately.
GROUP ADJUST (Group Adjustment)	OFF	OFF ON	Allows you to simultaneously adjust R, G, and B-component gamma levels while retaining the separately adjusted level proportions.
Unity (button)	-	-	Allows you to reset settings to default.

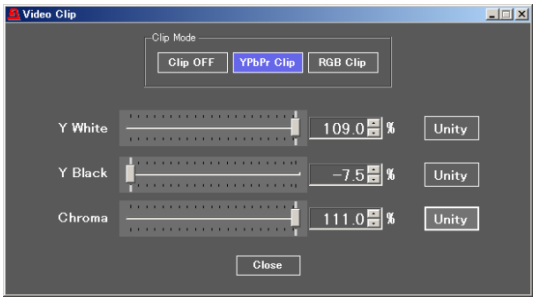
◆ **Sepia Settings**

Level	25.0%	0.0 - 100% (0.1%)	Allows you to adjust the color level in the Sepia mode.
Color	-160.0°	-179.8° - 180.0° (0.2°)	Allows you to adjust the color in the Sepia mode.
Unity (button)	-	-	Allows you to reset settings to default.

Sepia settings are effective only when **Color Correction Mode** is set to **Sepia**.

4-2-9. Video Clip





Item	Default	Setting range	Description
Clip Mode	Clip OFF	Clip OFF YPbPr Clip RGB Clip	Selects a mode in which/whether signal clipping occurs in the YPbPr color space or RGB color space.

◆ **YPbPr Clip**

Item	Default	Setting range (Steps)	Description
Y White (Y White Clip)	109.0%	50.0 - 109.0% (0.5%)	Sets the Y signal upper threshold.
Y Black (Y Black Clip)	-7.5%	-7.5 - 50.0% (0.5%)	Sets the Y signal lower threshold.
Chroma (YPbPr Chroma Clip)	111.0%	50.0 - 111.0% (0.5%)	Sets both the upper and lower thresholds of PbPr signals.
Unity (button)	-	-	Allows you to reset settings to default.

◆ **RGB Clip**

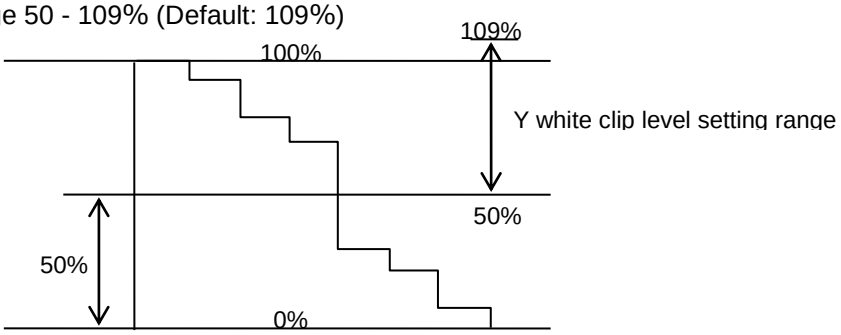
Item	Default	Setting range (Steps)	Description
White (RGB White Clip)	300.0%	50 - 300% (0.5%)	Sets the upper threshold of RGB color space.
Black (RGB Black Clip)	-200.0%	-200 - 50% (0.5%)	Sets the lower threshold of RGB color space.
Unity (button)	-	-	Allows you to reset settings to default.

◆ **Video Clip Setting Ranges**

Y Signal Settings

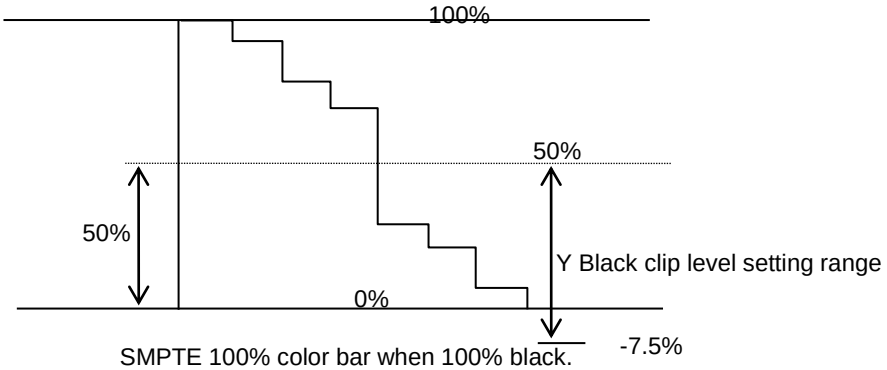
① Y White Clip Level

Setting range 50 - 109% (Default: 109%)



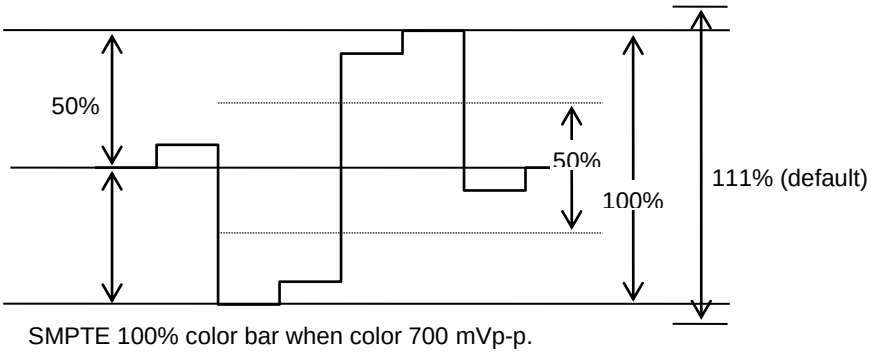
SMPTE 100% color bar when 100% white.

② Y Black Clip Level
Setting range -7.5 - 50% (Default: -7.5%)



SMPTE 100% color bar when 100% black.

③ C White Clip Level
Setting range 50 - 111% (Default: 111%)



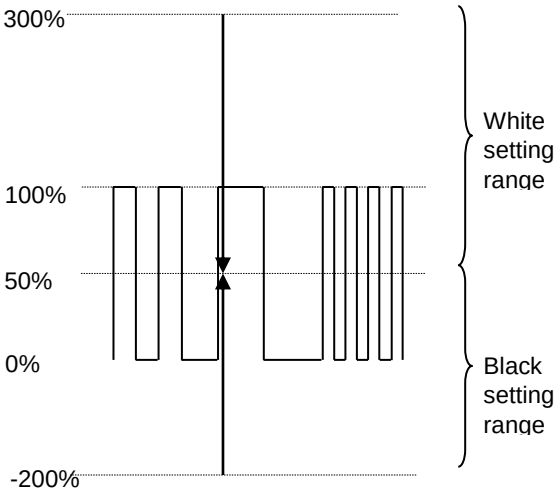
SMPTE 100% color bar when color 700 mVp-p.

<RGB CLIP>

To adjust RGB clipping, select the RGB CLIP under CLIP MODE, then set RGB White Clip and RGB Black Clip.

Once the “RGB CLIP” is selected, the YPbPr input video signal is converted into an RGB signal in the unit. The converted RGB signal is processed so as not to exceed the RGB gamut range set under the RGB White Clip and RGB Black Clip parameters.

The processed RGB signal is then converted again to YPbPr format. This correction is used to eliminate out-of RGB gamut problems.



RGB Clip Processing

4-2-10. Video Test Signal

The Video Test Signal page allows you to output a test signal.

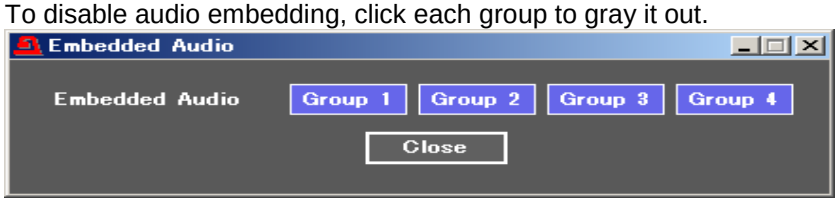
Item	Default	Setting range	Description
Video Test Signal	Off	Off 100% Color Bar 75% Color Bar SMPTE Color Bar Ramp	Allows you to select a test signal for output.

4-2-11. SDI Multiplexer

The SDI Multiplexer page allows you to de-embed audio from the SDI input, then process and re-embed the audio into the same frame.

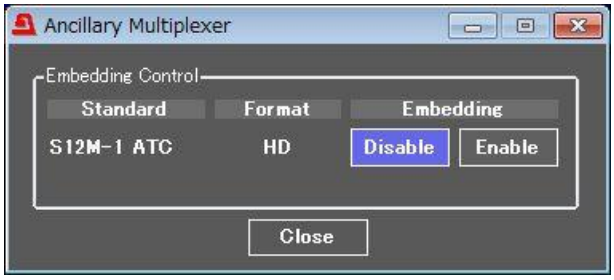
4-2-11-1. Embedded Audio

This page allows you to select whether to embed audio signals for each audio group.
Audio channels are embedded into all four groups as factory default (blue).
To disable audio embedding, click each group to gray it out.



All 16 channels of SDI input can be output from the 3G-SDI output.
Channel remapping and down-mixing are also available. Refer to section 4-3. “Audio Block” for more details.
In 3G-SDI Level B signals, up to 16 audio channels can be embedded into Link-A.

4-2-11-2. Ancillary Multiplexer

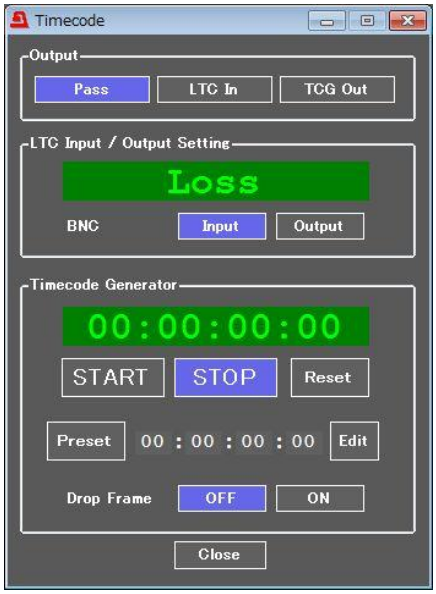


Item		Default	Setting	Description
Embedding Control	Embedding	Disable	Disable Enable	Disable: Blanks the data area. Enable: Passes-through the data.

Standard (Ancillary data type)

Data standard	Description
S12M-1 ATC	Timecode data stored as packets in the ANC space in SDI signals

4-2-11-3. Timecode



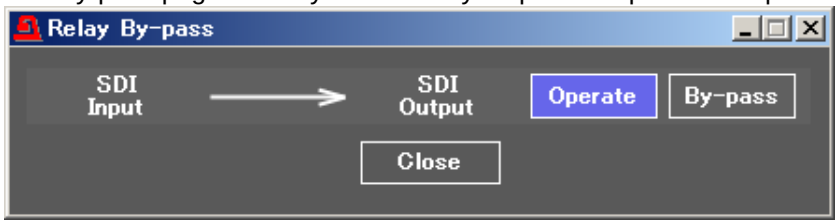
Item		Setting	Description
Output		Pass (default)	Re-embeds the timecode data into the SDI input to the SDI output.
		LTC In	Embeds timecode data input from LTC IN/OUT into the SDI output.
		TCG Out	Embeds timecode generated in the internal timecode generator into the SDI output.
LTC Input / Output Setting	BNC	Input	Uses the LTC IN/OUT connector on the rear panel as input. Pressing Output also displays the timecode input to the LTC IN.
		Output	Uses the LTC IN/OUT connector on the rear panel as output. Pressing Output also displays the timecode generated by the internal Timecode Generator.

◆ **Timecode Generator**

Item	Setting	Description
Start button	–	Starts the internal timecode generator.
Stop button	–	Stops the internal timecode generator.
Reset button	–	Resets the internal timecode generator at 00:00:00:00.
Preset button	–	Applies the
Edit button	–	Allows to enter the desired timecode.
Drop Frame	OFF (default)	Outputs non-drop-frame timecode.
	ON	Outputs drop-frame timecode.

4-2-12. Relay By-pass

The By-pass page allows you to directly output the input without processing.

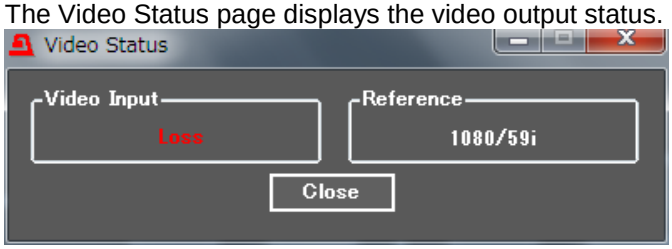


Item	Default	Setting range	Description
Relay By-pass	Operate	Operate By-pass	Operate: Outputs the 4K up-converted input signal. By-pass: Loops through without processing the HD input from OUTPUT1- CH1.

* When By-pass is enabled, the front panel By-pass LED lights green.

4-2-13. Video Status

The Video Status page displays the video output status.



A signal processing route varies depending on the Input and Output menu settings.

Display	Description
Video Input	Indicates the input video channel. (See Sec. 4-2-1. " FS Input.")
Reference	Indicates the genlock input format.

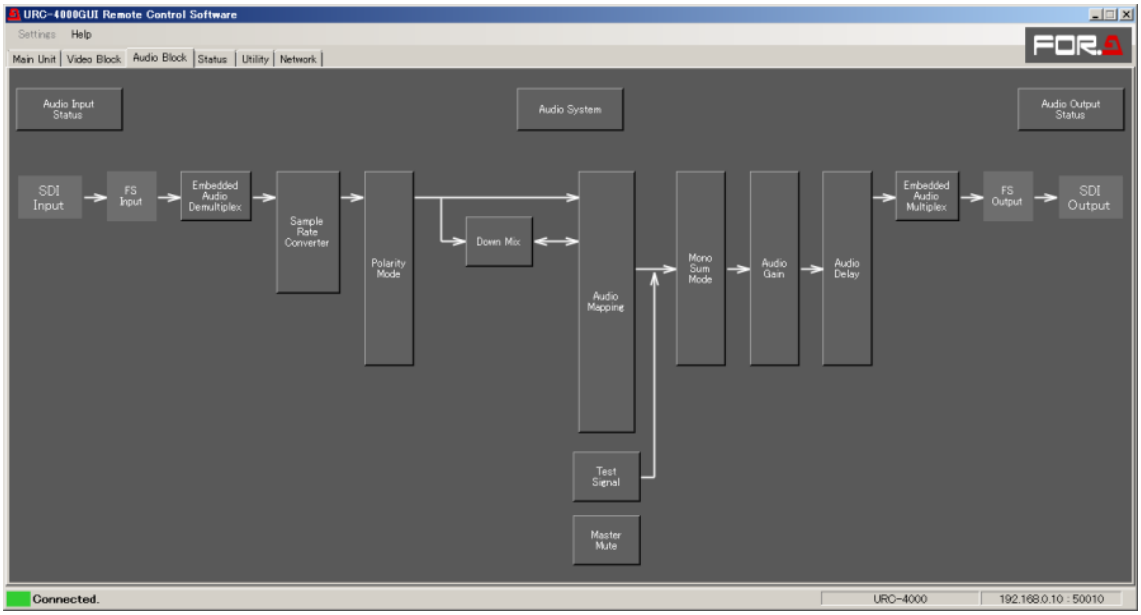
<Input / Output Signal Formats>

Input signal format	Output signal format
1080/59i, 1080/59p	1080/59p
1080/50i, 1080/50p	1080/50p

4-3. Audio Block

Clicking the Audio Block tab opens the Audio block diagram. Click a block to open its corresponding setting page.

As factory default settings, audio signals are de-embedded from the SDI input, processed in the Audio Block and re-embedded into the same location in the SDI output.

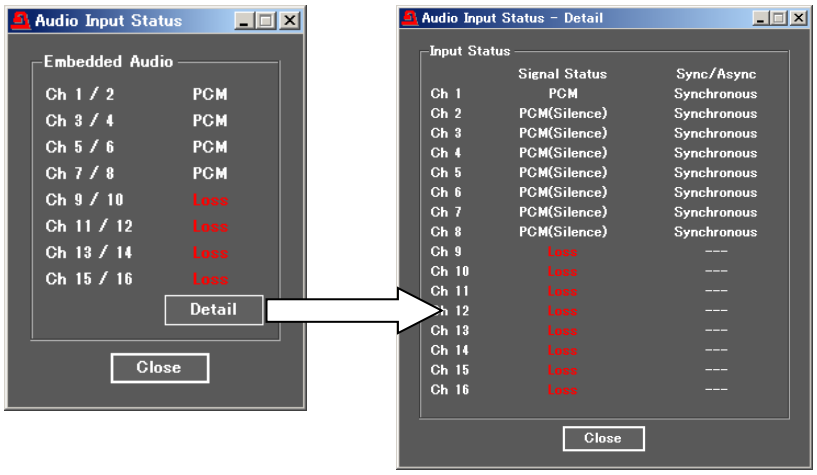


Menu block	Description	Refer to
Audio Input Status	Displays the embedded audio input status for each channel.	4-3-1
Audio Output Status	Displays the embedded audio output status for each channel.	4-3-14

Menu block	Description	Setting unit	Event save	Refer to
Embedded Audio Demux	Allows you to set embedded audio de-multiplexing.	All	Available	4-3-2
Sample Rate Converter	Allows you to select whether to pass audio source channels through the SRC circuit.	2 Ch	Available	4-3-3
Polarity Mode	Allows you to set polarity for each channel.	Ch	Available	4-3-4
Down Mix	Allows you to down mix 5 linear PCM channels to 2 channels.	Ch	Available	4-3-5
Audio Mapping	Allows you to assign audio sources to output channels.	Ch	Available	4-3-6
Test Signal	Allows you to output audio test signals.	All	Available	4-3-7
Master Mute	Allows you to mute all audio channels.	All	Unavailable	4-3-8
Mono Sum Mode	Allows you to set the Mono Sum mode (Stereo or Monaural).	2 Ch	Available	4-3-9
Audio Gain	Allows you to set audio gain.	All/Ch	Available	4-3-10
Audio Delay	Allows you to adjust audio I/O delay.	All/Ch	Available	4-3-11
Embedded Audio Multiplex	Allows you to select an audio clock.	Group	Available	4-3-12
Audio System	Allows you to set output audio characteristics.	All	Available	4-3-13

4-3-1. Audio Input Status

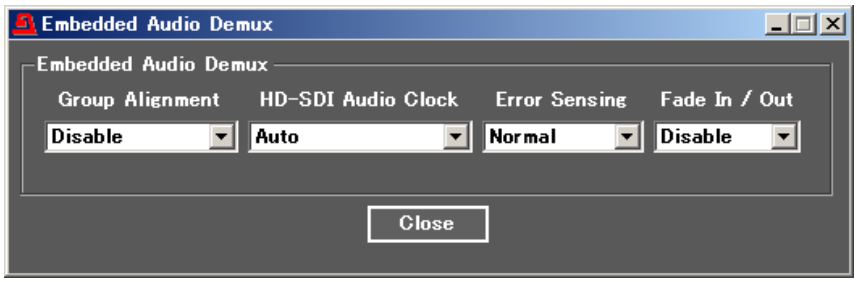
This page displays the SDI audio input status.
Clicking **Detail** opens the detailed information window.



Item	Display	Description
Signal Status	Loss PCM PCM (Silence) * NON-PCM Blank By-pass	Displays the SDI audio input information. * The Silence state is determined according to the Digital Audio Silence Level and Digital/Analog Audio Silence Time settings. See section 4-3-13. “Audio System” for details.
Sync/Async	Synchronous Asynchronous	Displays the sync/async status of each audio channel and video signals.

4-3-2. Embedded Audio Demux

This page allows you to set embedded audio de-multiplexing.



Item	Default	Setting range	Description
Group Alignment	Disable	Enable Disable	Allows you to enable or disable automatic phase adjustment for input embedded audio groups. *1 **Enable:** Automatic adjustment **Disable:** No adjustment (normal setting)

*1 Enable resets all group phase settings when an input audio status has changed in one group.

IMPORTANT

Normally set **Error Sensing** to Normal.

Set to Disable for a specific program or duration when audio output has noise or is muted.

The URC-4000 fades out audio or resets the delay circuit when a status change (SDI signal input interruption, signal switchover, etc. is detected. Faulty ancillary data in normal audio signals may also be detected as status changes.

Audio signals with such faulty ancillary data may lead the URC-4000's automatic correction to improperly process the audio input and produce noise or mute the audio.

Note that disabling the automatic correction can prevent such improper processing, however, the following functions will also be disabled.

After a signal switchover by router or recovery of interrupted SDI signal, delay settings will lose their accuracy to within ±2 msec max.

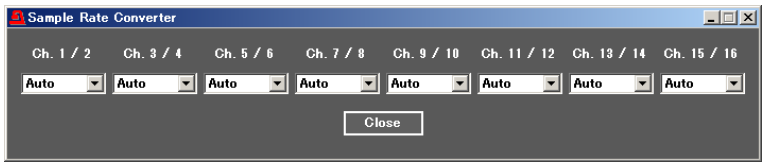
Audio signal phases among audio groups will not match.

Item	Default	Setting range	Description
HD-SDI Audio Clock	Auto	Auto Sync SDI Audio Clock	Allows you to select audio clock signal to use for de-embedding and processing audio data in HD-SDI input signal. Auto: De-embeds HD-SDI embedded audio data using the audio clock phase data in the embedded audio. Synchronous and asynchronous embedded audio signals from 4 audio groups can be de-embedded separately. Audio data will be processed as synchronous data if the audio clock phase data is incorrect, or jitter is too great. Sync SDI: All audio data in 4 audio groups are always processed as synchronous data without referring to the respective audio clock phase data. AUD Clock: Always uses audio clock phase data in HD-SDI embedded audio data to de-embed the audio data.
Error Sensing	Normal	Disable Normal Sensitive	The URC-4000 can detect audio status changes such as an input signal change, and automatically mute *2 and fade signals out. **Disable**: Disables mute function when a change in audio status is detected. Normally not selected. * Refer to the IMPORTANT notes above. **Normal**: Mutes when a change on an SDI signal, ADP (Audio Data Packet), or DBN (Data Block Number) is detected. Normally selected. **Sensitive**: Mutes when a change on channel status, EDP (Extended Data Packet) presence (only for SD-SDI), SDI signal, ADP (Audio Data Packet), or DBN (Data Block Number) is detected.
Fade In/Out	Disable	Disable Enable	Disable: Always passes audio signals without applying fade or mute processing. Enable: Fades out and mutes when an error occurs, and fades in after returning to normal state.

*2 Fades out when Fade In/Out is set to Enable

4-3-3. Sample Rate Converter (SRC)

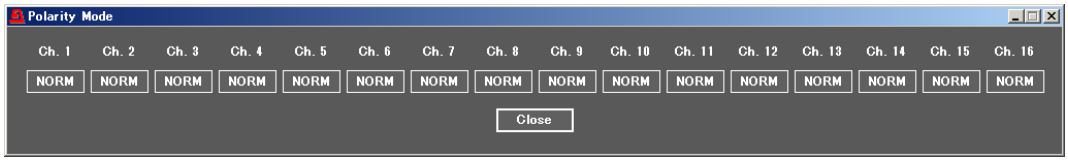
This page allows you to select whether to pass audio source channels through the SRC circuit.



Item	Default	Setting range	Description
Ch. 1/2 | Ch. 15/16	Auto	Auto SRC In By-pass	**Auto:** Sets the SRC circuit to pass signals. However, non-PCM audio signals will be by-passed. SRC In**:** Sets the SRC circuit to pass both PCM and PCM signals. However, real non-PCM signals cannot be output properly. **By-pass:** Sets the SRC circuit to by-pass signals. Set to **By-pass** to output asynchronous audio signals or Non-PCM signals. An audio clock must be selected under 4-3-12. “Embedded Audio Multiplex“ for the respective audio groups to embed audio signals to SDI output video signals.

4-3-4. Polarity Mode

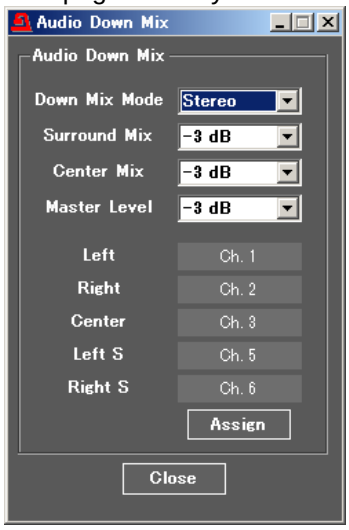
This page allows you to set polarity for each channel.



Default	Setting range	Description
NORM	NORM INV	Allows you to set the polarity for each channel. INV: Reverses polarity.

4-3-5. Down Mix

This page allows you to down-mix 5 linear PCM channels to 2 channels.



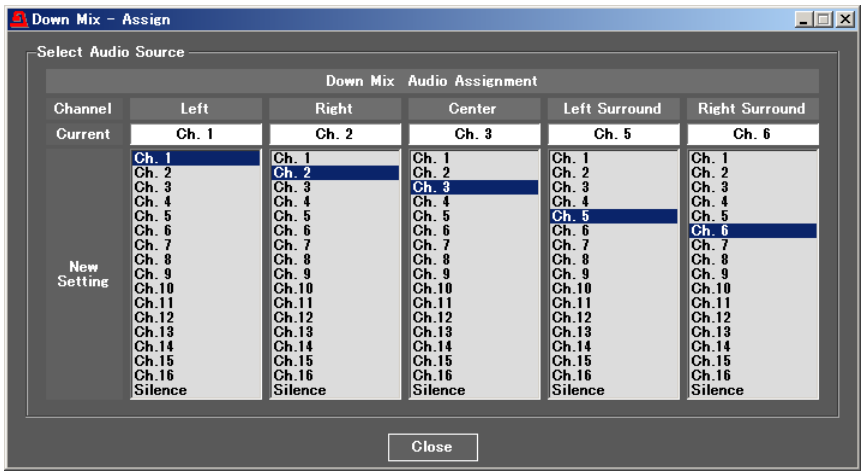
Item	Default	Setting range (Steps)	Description
Down Mix Mode	Stereo	Stereo Surround Monaural	Allows you to select a mode to downmix audio signals.
Surround Mix	-3dB	-3dB -6dB -9dB 0 (Off)	Allows you to set the Ls/Rs (surround channels) level. **0**: (-∞dB) Excludes surround channels from the downmix.
Center Mix	-3dB	-3dB -4.5dB -6dB	Allows you to set the C (center channel) level. **-3dB**: The output level after a downmix retains the original center channel level. **-4.5dB, -6dB:** Used to reduce the audio level in case it becomes too loud due to the center channel audio mixing to both the right and left channels.
Master Level	-3dB	-3dB Auto	Allows you to set the level for the downmixed audio signals as a whole. If set to **Auto**, Down MIX Master Level changes according to the Downmix Mode and Surround Mix level selections. *1
Left Right Center Left S (Surround) Right S (Surround)	Left: Ch1 Right: Ch2 Center: Ch3 Left S: Ch5 Right S: Ch6	Ch1 to 16	Displays current audio input signals for downmixing.
Assign (button)	-	-	Allows you to open a window to assign audio signals to input for downmixing.

* If Master Level is set to Auto, Master Level changes as shown in the below table.

Surround Mix Level / Down Mix Mode	-3dB	-6dB	-9dB	0 (-∞dB)
Stereo	approx.-7.7dB	approx.-6.9dB	approx.-6.3dB	approx.-4.6dB
Surround	approx.-9.9dB	approx.-8.7dB	approx.-7.7dB	approx.-4.6dB
Monaural	approx.-12.9dB	approx.-12.0dB	approx.-11.4dB	approx.-9.5dB

4-3-5-1. Down Mix Assign

Clicking an Assign button in the Down Mix page opens a window as shown below allowing audio signals to be assigned to Down Mix channels.



◆ **Down Mix Assign**

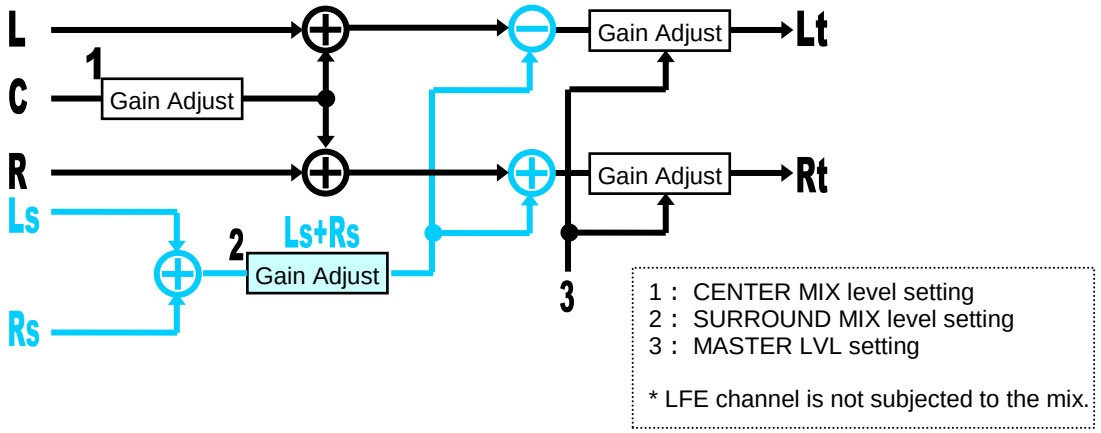
Item	Default	Setting range	Description
Channel	-	-	Allows you to assign an audio signal for each channel; Left, Right, Center, Left S (Surround), and Right S (Surround).
Current	-	-	Displays currently selected audio signals.
New Setting	Left: Ch1 Right: Ch2 Center: Ch3 Left S: Ch5 Right S: Ch6	Ch1 to 16 Silence	Allows you to select audio signals to input to downmixed audio channels. *1 *2

*1 An audio signal assigned to multiple channels may not output properly.

◆ **Down Mix Block Diagram**

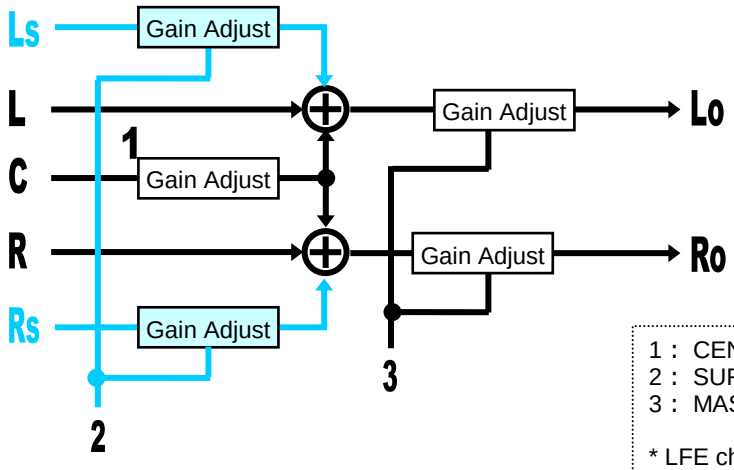
<Surround Mix (Lt/Rt)>

Ls/Rs surround channels are summed to produce a mono surround channel and mixed to right and left channels by the 180 degree phase difference. (LFE channel is discarded.)



<Stereo Mix (Lo/Ro)>

For Stereo Monitors

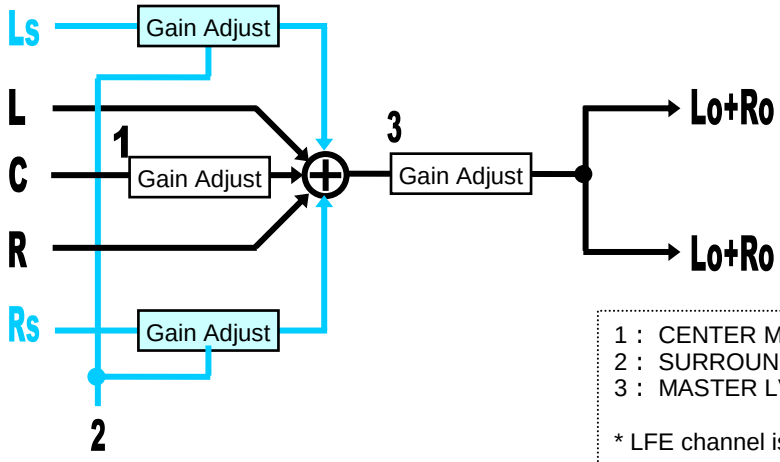


1： CENTER MIX level setting
2： SURROUND MIX level setting
3： MASTER LVL setting

* LFE channel is not subjected to the mix.

<Monaural Mix (Lo+Ro/Lo+Ro)>

For Monaural Monitors

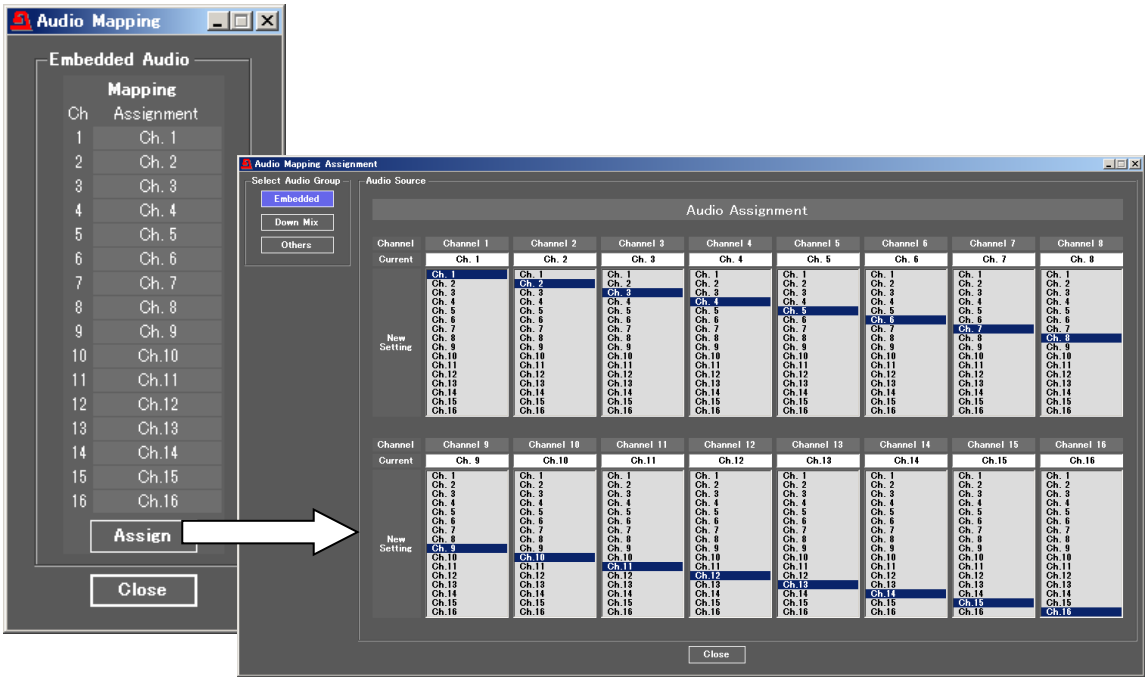


1： CENTER MIX level setting
2： SURROUND MIX level setting
3： MASTER LVL setting

* LFE channel is not subjected to the mix.

4-3-6. Audio Mapping

The Audio Mapping block in the Audio Block diagram allows you to open the Audio Mapping page showing audio signal mapping states.
Click the **Assign** button to open the Audio Assignment page.



Current audio sources (Current row) are displayed below each channel number (Channel row). To change assignments, select a new source in the **New Setting** list.
Embedded, **Down Mix** and **Others** buttons in the Select Audio Group allow you to select an audio signal type.

◆ **Audio Assignment**

Item	Default	Assignment setting		Description
		Select Audio Group	Setting range	
New Setting	Ch 1-16	Embedded	Ch. 1-16	Allows you to select an audio signal channel from which to output respective audio channels.
		Down Mix	Down Mix L Down Mix R	
		Others	Silence 500Hz Tone 1kHz Tone	

4-3-7. Audio Test Signal

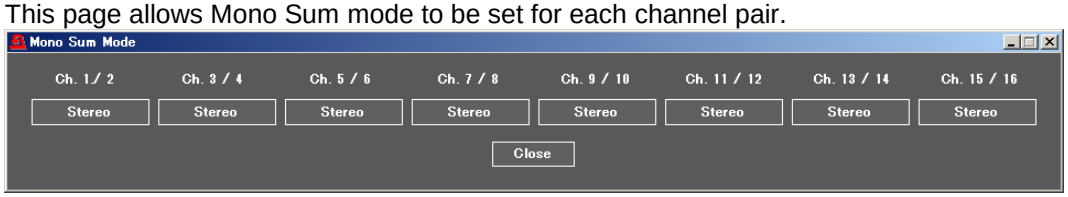
Item	Default	Setting range	Description
Audio Test Signal	OFF	OFF 500Hz Tone 1kHz Tone	Allows you to output audio test signals for all channels.

4-3-8. Master Mute

Item	Default	Setting range	Description
Audio Master Mute	OFF	ON OFF	ON: Mutes all audio channels.

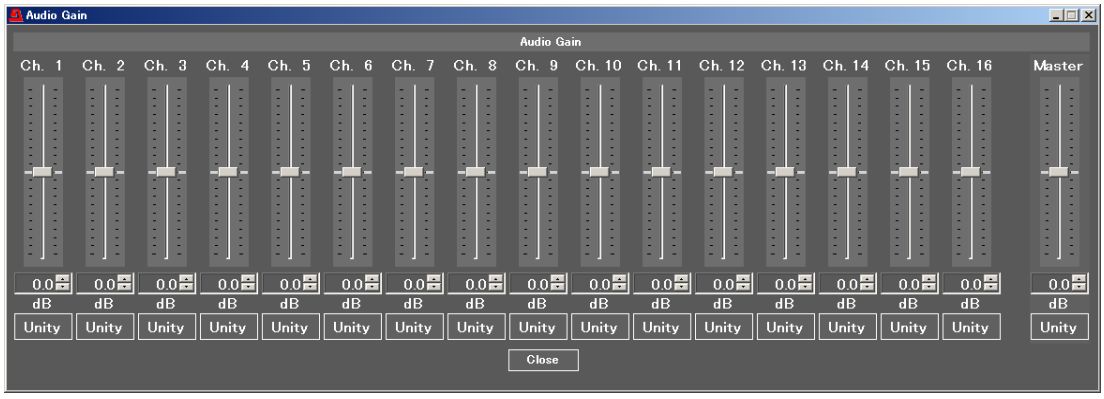
4-3-9. Mono Sum Mode

This page allows Mono Sum mode to be set for each channel pair.



Item	Default	Setting range	Description
Mono Sum Mode	Stereo	Stereo Monaural	Stereo: Outputs audio in L/R stereo mode. Monaural: Outputs audio in mono sum mode.

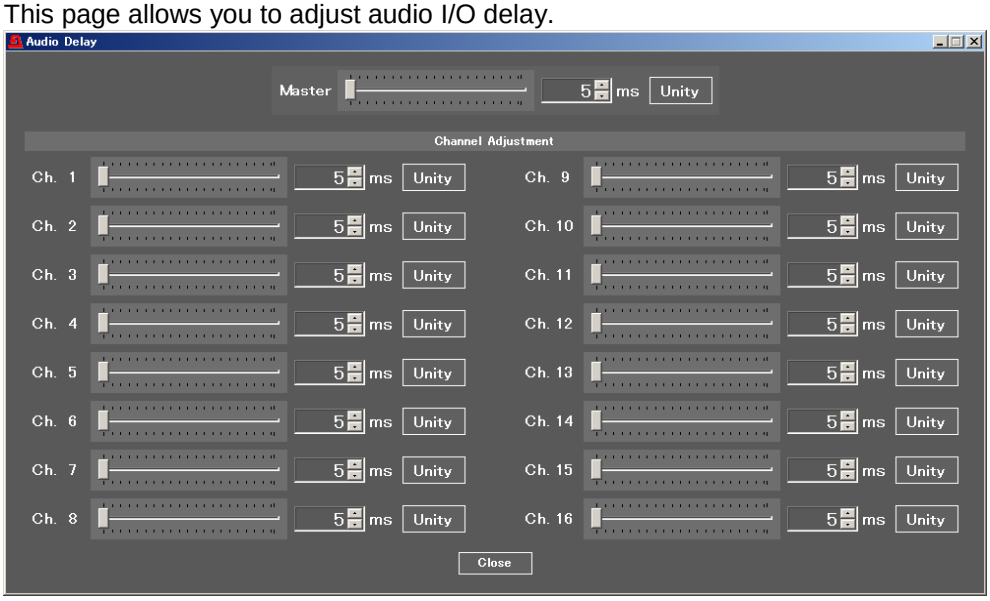
4-3-10. Audio Gain



Item	Default	Setting range (Steps)	Description
Audio Gain	0.0dB	-20.0 - +20.0 dB (0.1 dB)	Allows you to set audio gain for each audio channel.
Master	0.0dB	-20.0 - +20.0 dB (0.1 dB)	Allows you to set an output offset for all embedded audio channels.
Unity (button)	-	-	Allows you to reset settings to default.

4-3-11. Audio Delay

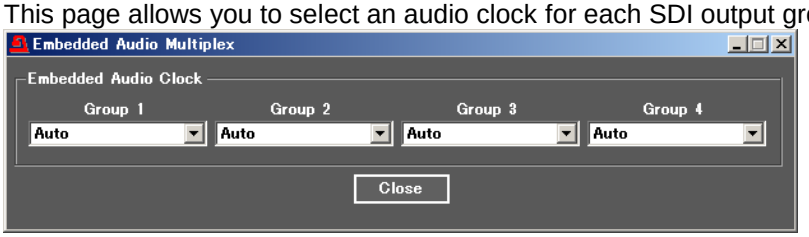
This page allows you to adjust audio I/O delay.



Item	Default	Setting range	Description
Master	5 ms	5 – 1000 ms	Allows you to set the delay offset for all audio channels.
Ch. 1-16	5 ms	5 – 1000 ms	Allows you to set a delay for each audio channel.
Unity (button)	-	-	Allows you to reset settings to default.

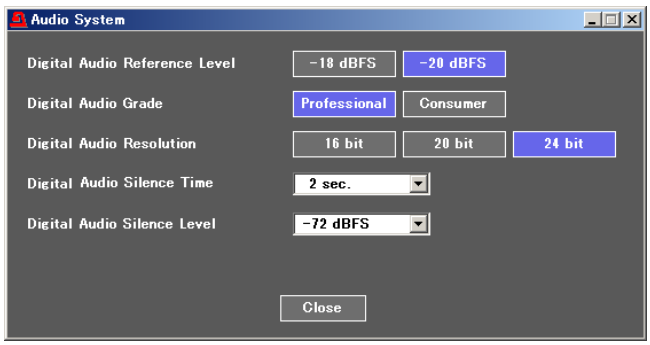
4-3-12. Embedded Audio Multiplex

This page allows you to select an audio clock for each SDI output group.



Item	Default	Setting range	Description
Group 1	Auto	Auto Reference Clock CH 1/2 CH 3/4	**Auto**: Automatically selects audio clock input in the non-PCM signal channel, if an input non-PCM signal is in the selected SDI embedded audio group. Automatically selects audio clock signal in the smallest numbered channel, if all signals in the audio group are non-PCM. Automatically selects audio clock signal synchronized to the output video signal, if all signals in the audio group are PCM. **Reference Clock:** Uses an audio clock synchronized with the output video signal. (Used to synchronize audio with video signals processed in the SRC.) **CH 1/2 to 15/16:** An input audio clock in channels 1/2 to 15/16. To output asynchronous audio signals, select one input channel pair for each group.
Group 2	Auto	Auto Reference Clock CH 5/6 CH 7/8	
Group 3	Auto	Auto Reference Clock CH 9/10 CH 11/12	
Group 4	Auto	Auto Reference Clock CH 13/14 CH 15/16	

4-3-13. Audio System

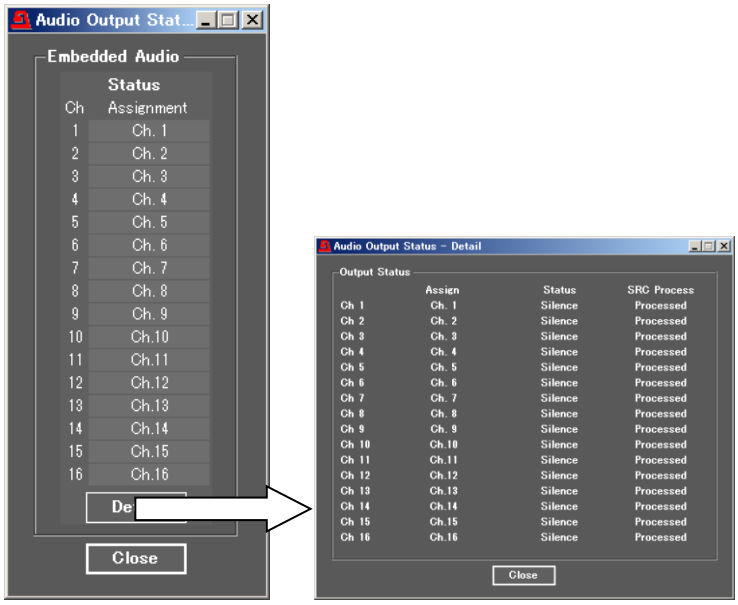


Item	Default	Setting range	Description
Digital Audio Reference Level	-20 dBFS	-18 dBFS -20 dBFS	Allows you to select the reference level for digital audio signals.
Digital Audio Grade	Professional	Professional Consumer	Allows you to select an audio application for digital audio channels. **Professional**: Optimized for professional use **Consumer**: Optimized for consumer use.
Digital Audio Resolution	24 Bit	16 Bit 20 Bit 24 Bit	Allows you to select an audio word length for Digital Audio output signals.
Digital/Analog Audio Silence Time	2 sec	1 – 10sec	Allows you to set a threshold duration to determine audio signal silence.
Digital/analog Audio Silence Level	-72 dBFS	-48 dBFS -54 dBFS -60 dBFS -66 dBFS -72 dBFS	Allows you to select a threshold level to determine audio signal silence.
Analog Audio Silence Level	-60 dBFS		

-
-

4-3-14. Audio Output Status

This page displays SDI audio output status.
Clicking **Detail** opens the detailed information window.

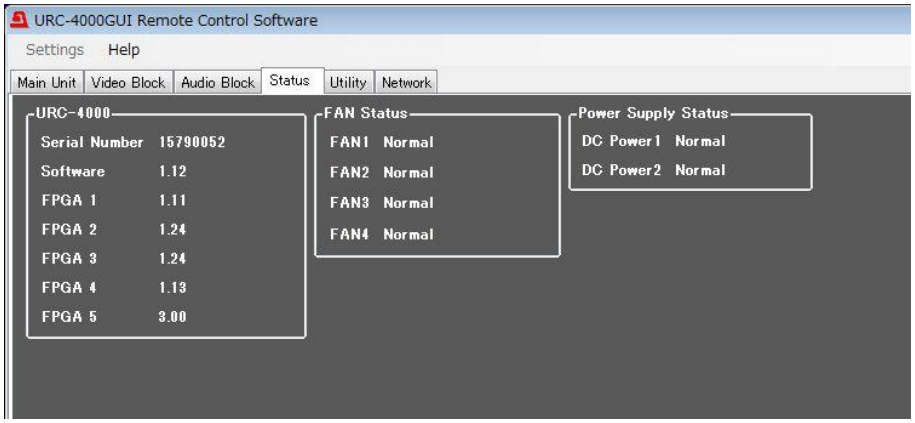


Item	Display	Description
Assign	-	Displays the assigned source signal.
Status	PCM PCM (Silence) NON-PCM Blank By-pass Silence	**Displays the embedded audio signal type or status.** **PCM:** Normal audio signal **PCM (Silence):** Mute signal **NON-PCM:** Compressed audio data such as AC3 **Blank:** No embedded audio **By-pass**: SDI input and output are relay by-passed. **Silence**: Mute signal (Analog)
SRC Process	Processed Bypassed	Displays whether the audio signal has been processed or not in the SRC.

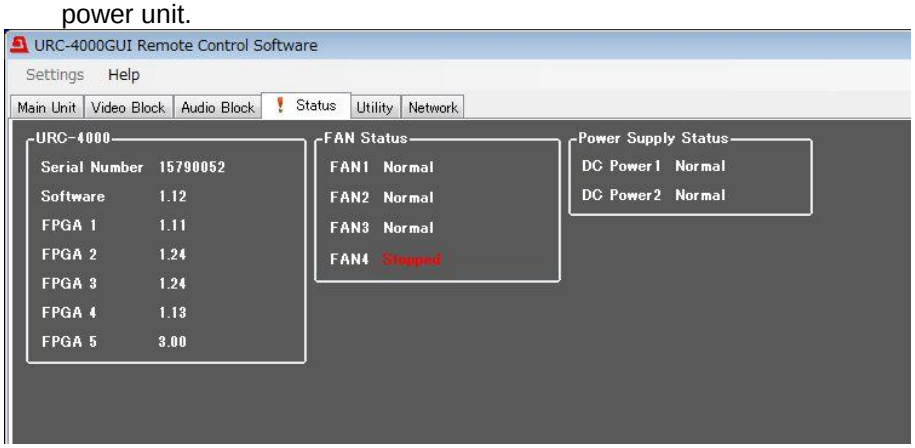
•

4-4. Status

Click the Status tab at the top of the page to open the status page.



* An exclamation mark (!) is displayed on the Status tab, if an error occurs in a FAN or DC power unit.



◆ **URC-4000**

Item	Indication
Serial Number	Displays the serial number of the unit.
Software	Displays the software version.
FPGA 1- 5	Displays the version of each FPGA.

◆ **Fan Status**

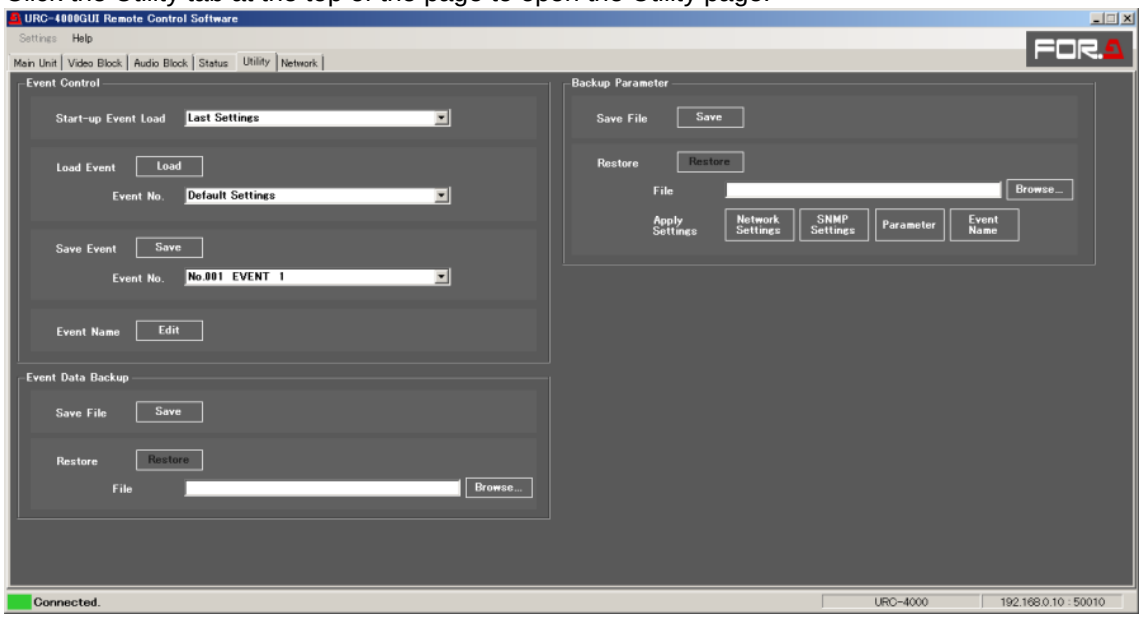
Item	Indication	Description
FAN 1-4	Normal Stopped	Displays the status of FAN 1-4 respectively. **Normal**: Operating normally. **Stopped**: The indicated FAN has stopped. Turn the unit power off, and contact your dealer for assistance.

◆ **Power Supply Status**

Item	Indication	Description
DC Power1 DC Power2	Normal Abnormal Not Installed	Displays the status of power supply units respectively. **Normal**: Normal **Abnormal:** Error state An error has occurred in the indicated power supply unit. Although operation can be continued, replacement of the power supply unit is recommended. To do so, contact your dealer. **Not Installed**: The indicated power supply unit is not installed.

4-5. Utility

Click the Utility tab at the top of the page to open the Utility page.



4-5-1. Event Control

The URC-4000 can save settings data in 100 event memories. The desired settings can be immediately recalled by loading saved settings data.

Item		Default	Setting range	Description
Start-up Event Load		Last Setting	Last Setting Default Settings Event1-100	**Last Setting**: Starts up with the last set settings. **Default Settings**: Starts up with default settings. **Event1 to 100**: Starts up with settings saved as an event among events 1 to 100.
Load Event	Load	-	-	The Load button allows you to load an event.
	Event No.	Default Settings	Default Settings Event1-100	Allows you to select an event number to be recalled.
Save Event	Save	-	-	The Save button allows you to save an event to the URC-4000. *1
	Event No.	Event 1	Event1-100	Allows you to select an event number to be saved
Event Name		-	-	The Event button allows you to open the Event Name setting screen. *2 (See sec. 4-5-1-1. “Event Name Edit”.)

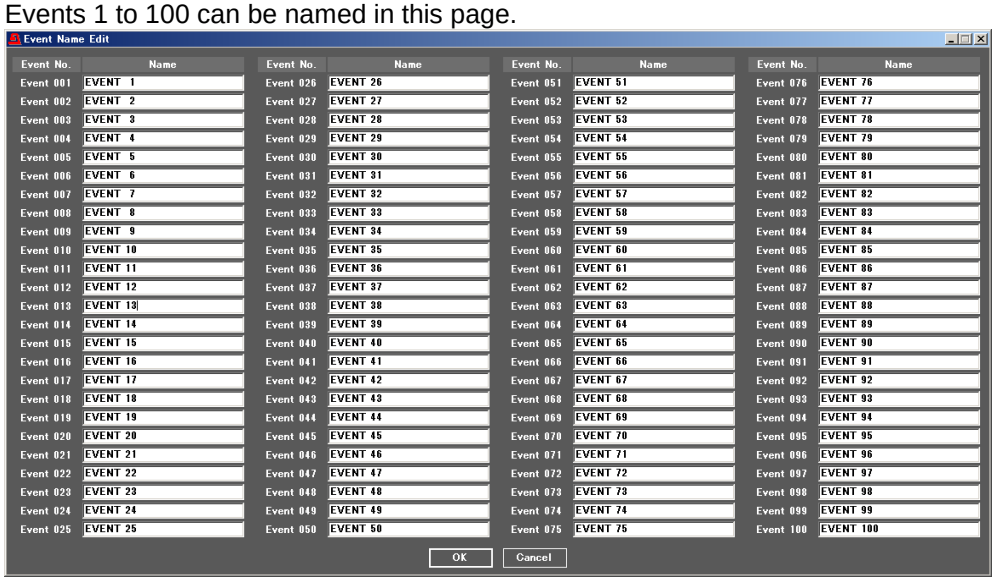
*1 See section 4-2, “Video Block” and 4-3. “Audio Block” for details on loading events in different modes.
*2 Event names will be displayed for Event Load/Event Save settings.

WARNING

Note that **Default Settings** reset settings, and that all data except Event data and network settings will be lost every time the URC-4000 is powered on.

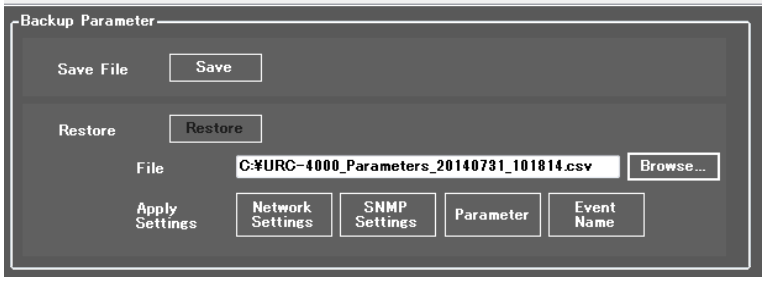
4-5-1-1. Event Name Edit

Events 1 to 100 can be named in this page.



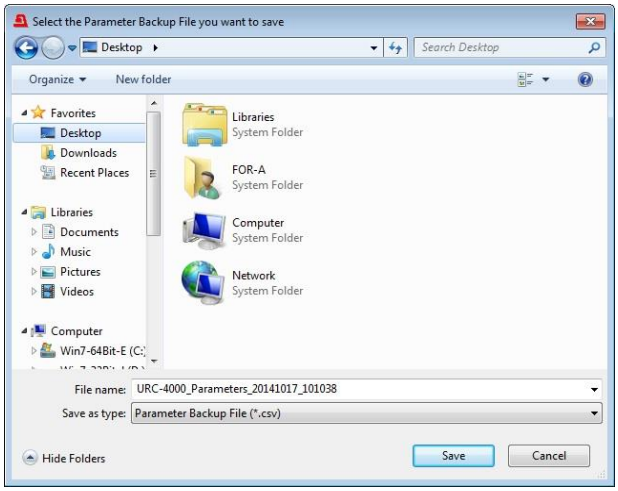
4-5-2. Backup Parameter

The URC-4000 settings can be saved to a file, and the saved file settings can be loaded.



◆ Saving URC-4000 Settings to a File

Click Save. A window to save a file to as shown below opens.



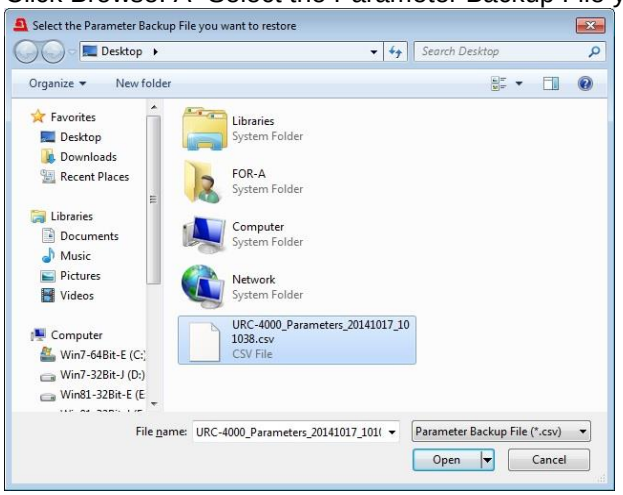
Specify the destination directory and file name, then click **Save** A “Saving in progress” message box appears.

A “Saving complete” message box appears after the file is saved.

◆ **Loading data saved in a file**

Press a button to select settings to load under Apply Setting. The button will light blue.
If no button is selected, no data will load.

Click Browse. A “Select the Parameter Backup File you want to restore” window opens.



Specify a destination directory, and click Open.
Click Restore. A confirmation dialog box appears.
Click OK to start transferring file material to the URC-4000.
To stop the file transfer, click Cancel.

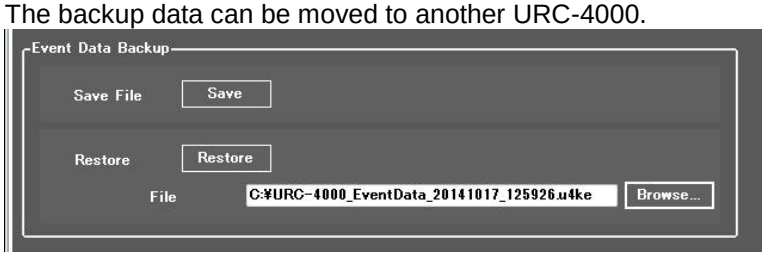
* Some parameters such as By-pass and Freeze settings are not stored in any Backup Parameter.

IMPORTANT

The URC-4000 uses the CSV file format to back up the configuration data that enables commercially available spreadsheet software to edit the data. However, Unit ID or event names that consist only of numbers may be recognized as numeric values by such software and appear differently after being recalled on the URC-4000. It is recommended that alphabetical values be included in names to enable editing using such software.

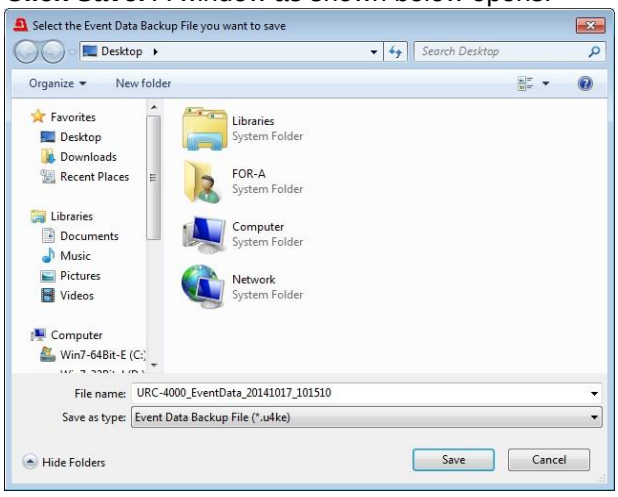
4-5-3. Event Data Backup

Event Memory data (Events1 through 100) can be saved in a file on the computer as backup. The backup data can be moved to another URC-4000.



◆ **Save File**

Click Save. A window as shown below opens.

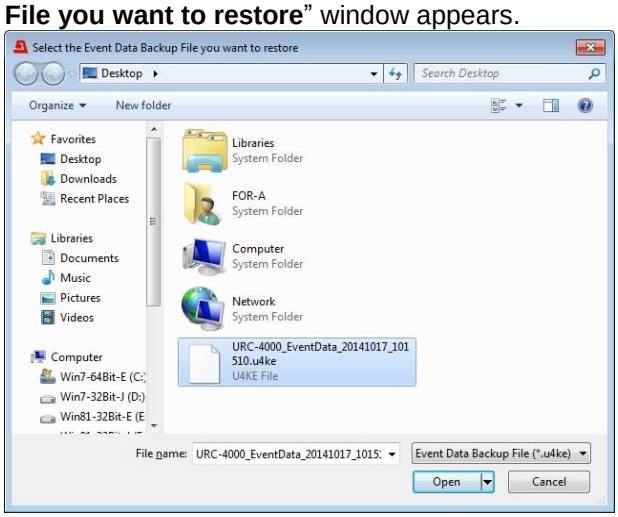


Specify a destination directory and file name, then click **Save**. A “Saving in progress” message box appears.

Once the file has been saved, a “Saving complete” message box appears.

◆ **Restore File**

To load a backup file on the computer, click **Browse**. The “**Select the Event Data Backup File you want to restore**” window appears.



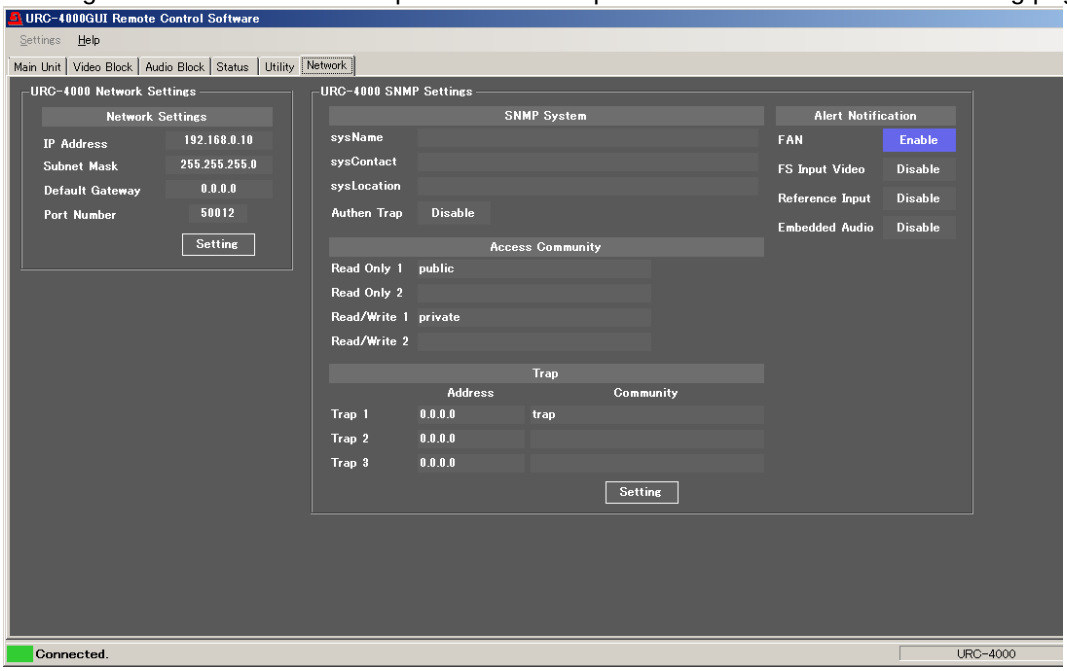
Specify the directory and file name and click **Open**. The destination path will be displayed on screen.

Click **Restore**. A confirmation dialog box appears.

Click **OK** to start loading. To stop the data upload, click **Cancel**.

4-6. Network

Clicking the Network tab at the top of the screen opens the URC-4000 Network Setting page.



4-6-1. Network Settings

Clicking the Setting button in the URC-4000 Network Settings section displays the LAN port network settings page.

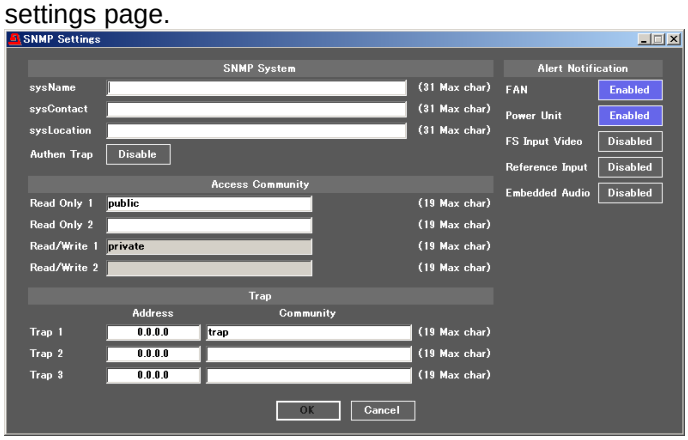
Item	Default	Description
IP Address	192.168.0.10	Allows you to set the LAN port IP address. A period "." is used to separate each octet.
Subnet Mask	255.255.255.0	Allows you to set the LAN port subnet mask. A period "." is used to separate each octet.
Default Gateway	0.0.0.0	Allows you to set the gateway. A period "." is used to separate each octet.
Port Number	50012	Allows you to set the TCP port number for the Windows GUI connection.
OK (button)		Allows you to apply the settings to the URC-4000.

IMPORTANT

Clicking **OK** after changing a network setting opens a message box that asks you to restart the unit. In such case, close the message box, then restart the unit. Changes will take effect after the unit is restarted.

4-6-2. SNMP Settings

Clicking the Setting button in the URC-4000 SNMP Settings section displays the SNMP settings page.



◆ **SNMP System**

Item	Character limit (Alphanumeric and symbolic characters)	Description
SysName	31 char max	Allows you to set the device name.
SysContact	31 char max	Allows you to enter comments regarding the device location.
SysLocation	31 char max	Allows you to enter comments regarding the person in charge of the device.
Authen Trap	-	Enable: Sends a trap if authentication fails.

◆ **Access Community**

Item	Character limit (Alphanumeric and symbolic characters)	Description
Read Only1	19 char max	Read only SNMP community name
Read Only2	19 char max	Read only SNMP community name
Read/Write1	19 char max	Read/Write SNMP community name
Read/Write2	19 char max	Read/Write SNMP community name

◆ **Trap**

Item	Character limit (Alphanumeric and symbolic characters)	Description
Trap1 Address	---	The SNMP manager IP address to which a trap is sent.
Trap2 Address	---	The SNMP manager IP address to which a trap is sent.
Trap3 Address	---	The SNMP manager IP address to which a trap is sent.
Trap1 Community	19 char max	The community name that sends a trap to Trap1 Address.
Trap2 Community	19 char max	The community name that sends a trap to Trap2 Address.
Trap3 Community	19 char max	The community name that sends a trap to Trap3 Address.
OK (button)		Allows you to apply SNMP System, Access Community, and Trap settings to the URC-4000.

◆ **Alert Notification**

Item	Default	Setting range	Description
FAN	Enable	Disable Enable	Enable: Sends a trap when the fan state changes.
Power Unit (Only if a URC-40PS is installed)	Enable	Disable Enable	Enable: Sends a trap when the power supply unit state changes.
Input Video	-	-	Allows you to select whether to send a trap when the SDI input signal changes for each channel.
Reference Input	Disable	Disable Enable	Enable: Sends a trap when the reference signal changes.
Embedded Audio	-	-	Allows you to select whether to send a trap when the input embedded audio state changes.

5. SNMP Monitoring and Control

The URC-4000 can be remotely monitored using the SNMPv2C protocol. The MIB (Management Information Base) file that is required for the monitoring is included in the supplied CD-ROM. See section 4-6-2 "SNMP Settings" for details about the SNMP network settings.

◆ SET/GET List

Object group	Item name	Object name in MIB file	Value	OID	Type	TRAP function	Note
OID: 1.3.6.1.4.1.20175.1.313.1.1. (Unit Info)							
Unit Information	Product Name	urc4000ProductName		1	OCTET STRING		
	Product Code	urc4000ProductCode		2	INTEGER		
	Unit Name	urc4000UnitName		3	OCTET STRING		
	Serial Number	urc4000SerialNumber		4	INTEGER		
	Soft Ver	urc4000SoftwareVersion		10	OCTET STRING		
	FPGA1 Ver.	urc4000Fpga1Version		11	OCTET STRING		
	FPGA2 Ver.	urc4000Fpga2Version		12	OCTET STRING		
	FPGA3 Ver.	urc4000Fpga3Version		13	OCTET STRING		
	FPGA4 Ver.	urc4000Fpga4Version		14	OCTET STRING		
	FPGA5 Ver.	urc4000Fpga5Version		15	OCTET STRING		
OID: 1.3.6.1.4.1.20175.1.313.1.2. (Unit Status)							
Unit Status	Fan1 Status	urc4000Fan1Status	0: normal 1: stopped	1	INTEGER	✓	
	Fan2 Status	urc4000Fan2Status	0: normal 1: stopped	2	INTEGER	✓	
	Fan3 Status	urc4000Fan3Status	0: normal 1: stopped	3	INTEGER	✓	
	Fan4 Status	urc4000Fan4Status	0: normal 1: stopped	4	INTEGER	✓	
	Power1Status	urc4000Power1Status	-1: notInstalled 0: abnormal 1: normal	11	INTEGER	✓	
	Power2Status	urc4000Power2Status	-1: notInstalled 0: abnormal 1: normal	12	INTEGER	✓	
OID: 1.3.6.1.4.1.20175.1.313.1.3 (Video Status)							
OID: 1.3.6.1.4.1.20175.1.313.1.3.1.1 (SDI Status)							
SDI Status	Channel	urc4000SdiStatusChannel	1	1	INTEGER		*1*2
	Input SDI Status	urc4000InputSdiStatus	0: loss 4: format1080-59i 5: format1080-50i 13. format1080-59pA 14. format1080-59pB 15. format1080-50pA 16. format1080-50pB 32: unknown	2	INTEGER	✓	*2
OID: 1.3.6.1.4.1.20175.1.313.1.3.2. (Reference Status)							
Ref Status	Reference Status	urc4000ReferenceStatus	0: loss 1: format525-60 2: format625-50 4: format1080-59i 5: format1080-50i 32: unknown	-	INTEGER	✓	
OID: 1.3.6.1.4.1.20175.1.313.1.4. (Audio Status)							
OID: 1.3.6.1.4.1.20175.1.313.1.4.1.3. (Input Embed Status)							
Audio Input Embed Status	Channel	urc4000InputEmbedChannel	1	0	INTEGER		*1*2
	Ch1	urc4000InputEmbedStatusCh1	0: loss 1: pcm 6: silence 11: nonPCM 12: asyncPCM 13: asyncNonPCM 15: bypass	1	INTEGER	✓	*2
	Ch2	urc4000InputEmbedStatusCh2	Same as above	2	INTEGER	✓	*2
	Ch3	urc4000InputEmbedStatusCh3	Same as above	3	INTEGER	✓	*2
	Ch4	urc4000InputEmbedStatusCh4	Same as above	4	INTEGER	✓	*2
	Ch5	urc4000InputEmbedStatusCh5	Same as above	5	INTEGER	✓	*2
	Ch6	urc4000InputEmbedStatusCh6	Same as above	6	INTEGER	✓	*2
	Ch7	urc4000InputEmbedStatusCh7	Same as above	7	INTEGER	✓	*2
	Ch8	urc4000InputEmbedStatusCh8	Same as above	8	INTEGER	✓	*2

	Ch9	urc4000InputEmbedStatusCh9	Same as above	9	INTEGER	✓	*2
	Ch10	urc4000InputEmbedStatusCh10	Same as above	10	INTEGER	✓	*2
	Ch11	urc4000InputEmbedStatusCh11	Same as above	11	INTEGER	✓	*2
	Ch12	urc4000InputEmbedStatusCh12	Same as above	12	INTEGER	✓	*2
	Ch13	urc4000InputEmbedStatusCh13	Same as above	13	INTEGER	✓	*2
	Ch14	urc4000InputEmbedStatusCh14	Same as above	14	INTEGER	✓	*2
	Ch15	urc4000InputEmbedStatusCh15	Same as above	15	INTEGER	✓	*2
	Ch16	urc4000InputEmbedStatusCh16	Same as above	16	INTEGER	✓	*2

*1 Obtainable only with Traps.

*2 Object instance number (the number at the end of OID) is fixed to “1.”

◆ TRAP List

Object group	Item name	Object name in MIB file	OID	Type	TRAP function	Reference object	
OID: 1.3.6.1.4.1.20175.1.313.0. (TRAP)							
TRAP Display	FAN1	urc4000Fan1StateChangedTrap	1	INTEGER	✓	urc4000Fan1Status	
	FAN2	urc4000Fan2StateChangedTrap	2	INTEGER	✓	urc4000Fan2Status	
	FAN3	urc4000Fan3StateChangedTrap	3	INTEGER	✓	urc4000Fan3Status	
	FAN4	urc4000Fan4StateChangedTrap	4	INTEGER	✓	urc4000Fan4Status	
	Power1	urc4000Power1StateChangedTrap	11	INTEGER	✓	urc4000Power1Status	
	Power2	urc4000Power2StateChangedTrap	12	INTEGER	✓	urc4000Power2Status	
	SDI Input	urc4000SdiInputChangedTrap	101	INTEGER	✓	urc4000SdiStatusChannel	urc4000InputSdiStatus
	Reference	urc4000ReferenceChangedTrap	111	INTEGER	✓	urc4000ReferenceStatus	
	Emb IN Ch1	urc4000EmbedInputCh1ChangedTrap	201	INTEGER	✓	urc4000InputEmbedChannel	urc4000InputEmbedStatusCh1
	Emb IN Ch2	urc4000EmbedInputCh2ChangedTrap	202	INTEGER	✓	urc4000InputEmbedChannel	urc4000InputEmbedStatusCh2
	Emb IN Ch3	urc4000EmbedInputCh3ChangedTrap	203	INTEGER	✓	urc4000InputEmbedChannel	urc4000InputEmbedStatusCh3
	Emb IN Ch4	urc4000EmbedInputCh4ChangedTrap	204	INTEGER	✓	urc4000InputEmbedChannel	urc4000InputEmbedStatusCh4
	Emb IN Ch5	urc4000EmbedInputCh5ChangedTrap	205	INTEGER	✓	urc4000InputEmbedChannel	urc4000InputEmbedStatusCh5
	Emb IN Ch6	urc4000EmbedInputCh6ChangedTrap	206	INTEGER	✓	urc4000InputEmbedChannel	urc4000InputEmbedStatusCh6
	Emb IN Ch7	urc4000EmbedInputCh7ChangedTrap	207	INTEGER	✓	urc4000InputEmbedChannel	urc4000InputEmbedStatusCh7
	Emb IN Ch8	urc4000EmbedInputCh8ChangedTrap	208	INTEGER	✓	urc4000InputEmbedChannel	urc4000InputEmbedStatusCh8
	Emb IN Ch9	urc4000EmbedInputCh9ChangedTrap	209	INTEGER	✓	urc4000InputEmbedChannel	urc4000InputEmbedStatusCh9
	Emb IN Ch10	urc4000EmbedInputCh10ChangedTrap	210	INTEGER	✓	urc4000InputEmbedChannel	urc4000InputEmbedStatusCh10
	Emb IN Ch11	urc4000EmbedInputCh11ChangedTrap	211	INTEGER	✓	urc4000InputEmbedChannel	urc4000InputEmbedStatusCh11
	Emb IN Ch12	urc4000EmbedInputCh12ChangedTrap	212	INTEGER	✓	urc4000InputEmbedChannel	urc4000InputEmbedStatusCh12
	Emb IN Ch13	urc4000EmbedInputCh13ChangedTrap	213	INTEGER	✓	urc4000InputEmbedChannel	urc4000InputEmbedStatusCh13
	Emb IN Ch14	urc4000EmbedInputCh14ChangedTrap	214	INTEGER	✓	urc4000InputEmbedChannel	urc4000InputEmbedStatusCh14
	Emb IN Ch15	urc4000EmbedInputCh15ChangedTrap	215	INTEGER	✓	urc4000InputEmbedChannel	urc4000InputEmbedStatusCh15
	Emb IN Ch16	urc4000EmbedInputCh16ChangedTrap	216	INTEGER	✓	urc4000InputEmbedChannel	urc4000InputEmbedStatusCh16

6. Troubleshooting

If any of the following problems occur while operating the URC-4000, follow the troubleshooting procedures below to see if the problem can be corrected before assuming a unit malfunction has occurred.

IMPORTANT

If the problem is not corrected by performing the procedures below, turn the unit off and then on again. If this still does not correct the problem, contact your dealer.

Problem	Check	Remedy
Unable to operate.	Is the unit powered on?	Turn the power of the unit on referring to section 2-1. “Front Panel”.
	Is the cable properly connecting the URC-4000 to a PC?	Connect units referring to section 2-2. “Rear Panel”.
	Is a proper cable being used to connect the URC-4000 to a PC?	Verify the cable is shorter than 100 m.
		Verify that a proper cable is being used as described in section 3-3-1. “System Requirements”.
The GENLOCK status LED remains unlit.	Is a genlock signal properly being input to the GENLOCK IN connector?	Verify that a genlock signal is properly connected referring to section 2-2. “Rear Panel”.
The POWER1 / POWER2 status LED is lit red.	Is the power cord properly connected? Normal state LED indications are as follows: PW1 ON -> lit green PW2 OFF -> lit red PW1 ON - > lit green PW2 absent -> unlit	Verify that the power cord is properly connected referring to section 2-2. “Rear Panel”. If the red LED stays lit, the power supply unit may have a problem. Contact your dealer for assistance.
The FAN ALARM LED is lit red.	Is anything preventing a fan from turning?	Remove the obstruction. If the red LED stays lit, a fan(s) may be experiencing a problem. Contact your dealer for assistance.
Button and text displays are partially missing.	Is the font set to larger than 100%?	Set the font size for the OS to 100%.
Forgot the IP address.		Open the top panel of the unit, then set Dipswitch DS2 pin 3 to ON. The unit can start up with the default IP address (192.168.0.10). Once the unit starts up, change the IP address in the Network settings, then return Dipswitch pin3 to OFF. Dipswitch settings must be conducted carefully. Refer to the “Dipswitch Settings” table below for their default settings. Normally do NOT change them from their default settings.

◆ **Dipswitch Settings**

Switch	Pin number	Default setting	Settings
DS1	1-8	OFF	Do not change.
DS2	1	OFF	URC-40PS option **not** installed: **OFF** URC-40PS option installed: **ON**
	2-8	OFF	Do not change.

7. Specifications and Dimensions

7-1. Specifications

Input Video Formats	1080/59.94p, 1080/50p 1080/59.94i, 1080/50i
Output Video Formats	3840 x 2160/59.94p, 50p
Video Input	3G-SDI (Level-A/B): 3 Gbps or HD-SDI: 1.5 Gbps 75Ω BNC x 1
Video Output	4K UHD: 3G-SDI(Level-A/B) x 4 Square Division 3 Gbps 75Ω (BNC x 4) 2 distribution outputs
Video Processing	4:2:2 Digital Component
Quantization	HD-SDI: 10-bit
Genlock Input	BB: NTSC: 0.429 Vp-p / PAL: 0.45 Vp-p; or Tri-level Sync: 0.6 Vp-p, 75Ω BNC x 1, loop-through (Terminate with 75Ω terminator, if unused.)
Synchronizer Mode	Frame mode, Input mode

I/O Delay

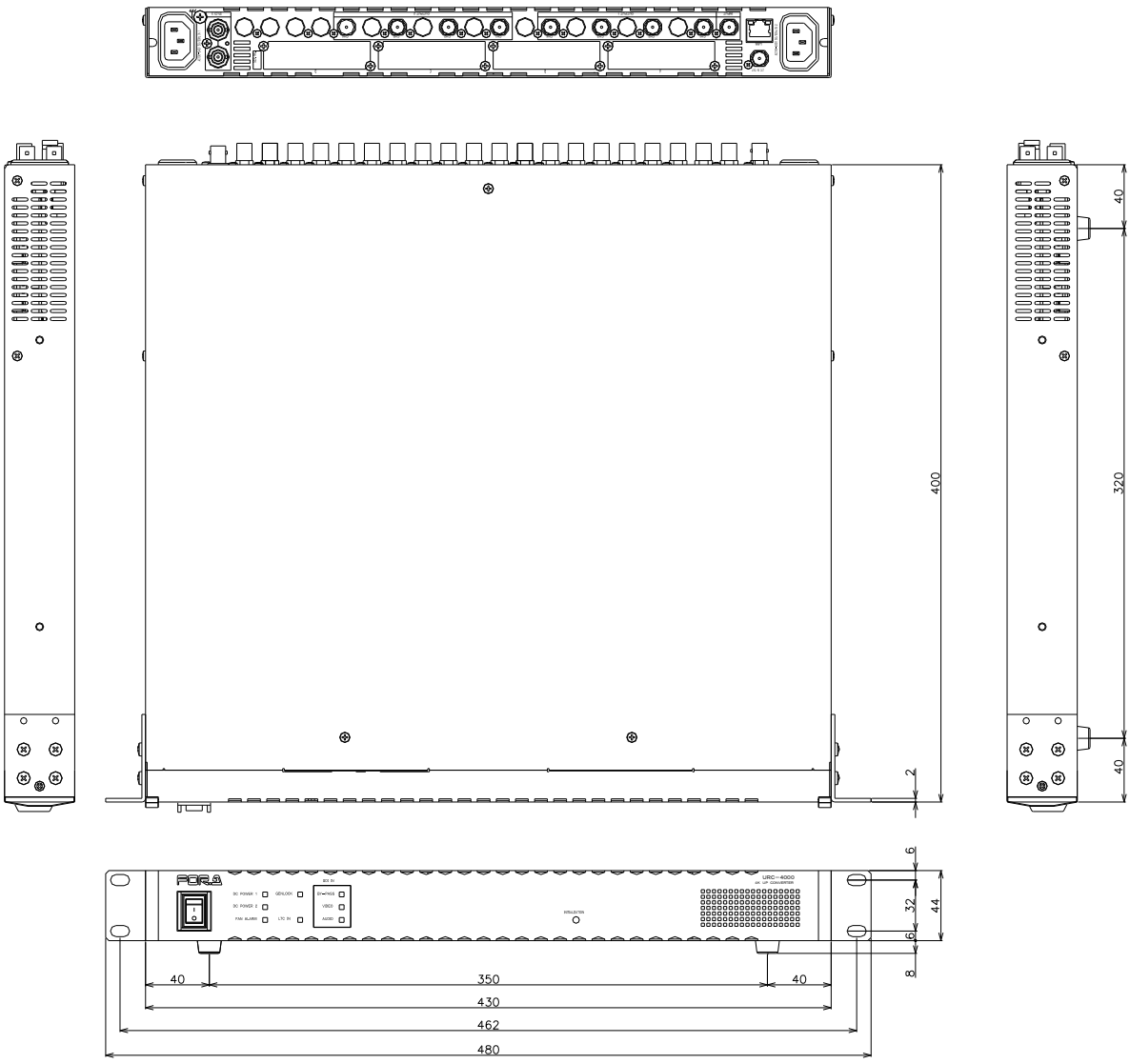
Input	Output	Frame mode	Input mode
1080i/59.94/50	Level A	3 frames or less	3 frames
	Level B	3 frames + 2H or less	3 frames +2H
1080/59p Level A, 1080/50p Level A	Level A	1 frame or less	1 frame
	Level B	1 frame + 3H or less	1 frame +3H
1080/59p Level B, 1080/50p Level B	Level A	1 frame + 1H or less	1 frame +1H
	Level B	1 frame + 3H or less	1 frame +3H

Video Delay Adjustment	Maximum 8 frames (Frame mode)
Video Processing Functions	Proc Amp, Color Corrector, Video Clip
Process Amp	Video level: 0.0% to 200.0% Chroma level: 0.0% to 200.0% Black level: -20.0% to 100.0% HUE: -179.8° to +180°
Color Correction	Balance mode, Differential mode, Sepia mode
Video Clip	YPbPr mode, RGB mode
Audio Input	
Embedded Audio	16 channels (Group 1 to 4), 48 kHz, 16- to 24-bit, synchronous/asynchronous
Audio Output	
Embedded Audio	16 channels (Group 1 to 4), 48 kHz, 16/20/24-bit, synchronous/asynchronous, (Link A-embedded audio only in 3G Level B)
Audio Delay Adjustment	5 - 1,000 ms (adjustable in 1 ms increments)
Audio Processing Functions	Sampling rate converter (SRC), Gain control, Down mix, Channel re-mapping, Channel mute (for each channel)
Interface	
Ethernet	100 Base-TX / 1000 Base-T, RJ-45 x 1
Temperature	0ºC - 40ºC
Humidity	30% - 90% (no condensation)
Power	100 VAC - 240 VAC ±10%, 50/60 Hz
Power Consumption	URC-4000 (w/o URC-40PS): 80 VA (79 W) (at 100 - 120 VAC) 90 VA (79 W) (at 220 - 240 VAC)
	URC-4000 (w/URC-40PS): 90 VA (87 W) (at 100 - 120 VAC) 108 VA (83 W) (at 220 - 240 VAC)

Dimensions	430 (W) x 400 (D) x 44 (H) mm
Weight	URC-4000: 7.0 kg
Consumables	(Recommended replacement timespans) Power unit (within 3 years) Cooling fan: P-1439-2 (FAN 1 - 4) (within 5 years)
Accessories	CD-ROM(URC-4000 GUI installation disc (including operation manual)), AC cord, rack mount brackets
Option	◇ URC-40PS: Redundant power supply unit

7-2. External Dimensions

(All dimensions in mm.)



Warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

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