FOR.A
INNOVATIONS IN VIDEO
and AUDIO TECHNOLOGY

OPERATION MANUAL

USF-1044UDC

4K Up/Down Converter

2nd Edition - Rev. 1

(Ver. 1.4.04)

FOR-A COMPANY LIMITED

Precautions

Important Safety Warnings

[Power]

 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.

[Circuitry Access]

 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.

[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

USF-1044UDC units and their accessories are fully inspected and adjusted prior to shipment. 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.

◆ **USF-1044UDC**

ITEM	QTY	REMARKS
USF-1044UDC	1	USF-1044UDC Front Module USF-1044UDC Rear Module
CD-ROM	1	Operation Manual (PDF)
Screw (for Rear Module Installation)	4	

Table of Contents

1. Prior to Starting

1-1. Overview

The USF-1044UDC is a plug-in module to be mounted into a USF-212S frame.
The USF-1044UDC has been developed as a 4K converter that supports up/down conversion between 3G/HD/SD-SDI and 4K UHD. The USF-1044UDC also supports mutual conversion between 4K gamut BT.709 and 2020, 2SI and SQD, and Level A and B.
The USF-1044UDC also supports embedded audio gain adjustment and remapping.

1-2. Features

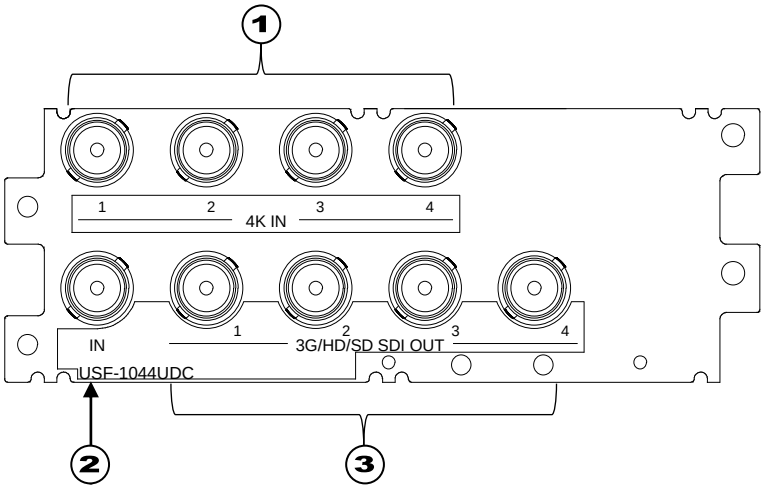
- Up-conversion from HD (4 formats of 3G-SDI and 12 formats of HD-SDI) and SD (2 formats of SD-SDI) inputs to 4K UHD.
- Down-conversion from 4K UHD to HD (4 formats of 3G-SDI and 12 formats of HD-SDI) and SD (2 formats of SD-SDI)
- 4K 3G-SDI signal conversion between SQD (Square Division) and 2SI (2-Sample Interleave)
- 4K color gamut conversion between ITU-R BT.2020 and 709
- 4K 3G-SDI signal conversion between Level-A and Level-B
- Cadence processing for 1080/23, 25 and 29p/PsF supported
- Aspect conversion using AFD (Active Format Description)
- Aperture and enhancement effects
- Built-in timecode generator
- Embedded audio channel remapping
- Audio gain and delay adjustment

2. Panel Descriptions

2-1. Front Panel

No.	Name	Description
1	POWER LED	Lights when power is supplied.
2	REF LED	Lights when a reference is present. Flashes when Free-run or Input Lock is detected.
3	DIP SW	Unused. All switches are turned off (upper side) normally. Do not change the settings.
4	CPU LED	Lights when the CPU is active.
5	SD/HD LED	Lights when signals are detected at the input terminal 3G/HD/SD SDI IN.
6	4K IN LED	Lights when signals are detected at input terminal 4K IN.
7	4K OUT LED	Lights when 4K signals are output.

2-2. Rear Panel



No.	Name	Description
1	4K IN	Inputs 4K UHD (Quad Link 3G-SDI) signals.
2	IN	Inputs 3G/HD/SD SDI signals.
3	OUT	4K UHD (Quad Link 3G-SDI) or 3G/HD/SD SDI signals are output. * In down-conversion mode, the same signal is output from 3G/HD/SD SDI 1-4.

◆ **Signal formats and Input / Output Connectors**

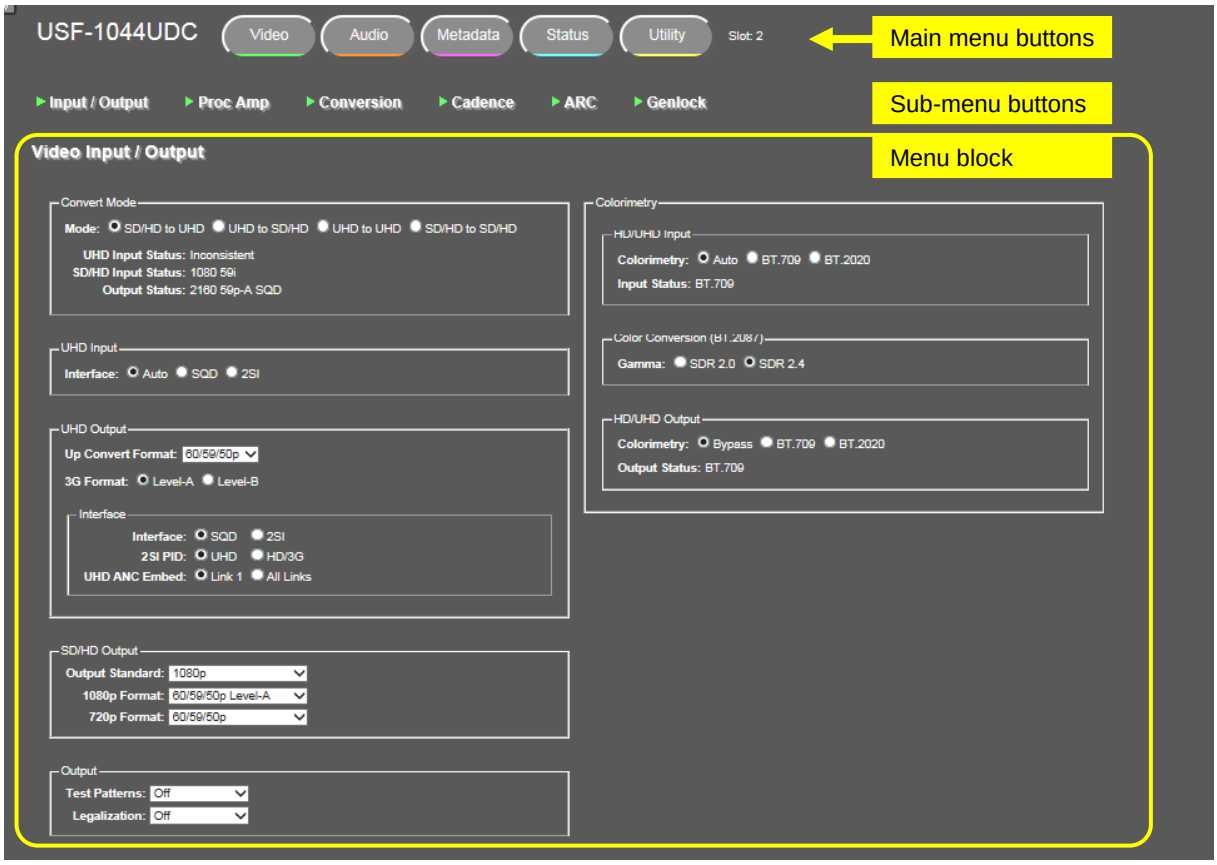
Input		Output	
Format	BNC	Format	BNC
4K UHD	4K IN 1-4	4K UHD	3G/HD/SD SDI OUT 1-4 (1 出力)
4K UHD	4K IN 1-4	3G/HD/SD	3G/HD/SD SDI OUT 1-4 (4 分配出力)
3G/HD/SD	IN	4K UHD	3G/HD/SD SDI OUT 1-4 (1 出力)

3. Opening the Web GUI

(1) Refer to USF-212S operation manual to connect to the USF-212S through a web browser on your computer.

(2) Click USF-1044UDC on the right side of the screen to open the USF-1044UDC page.

(3) The USF-1044UDC menu is composed of 5 main menus and various sub-menus. Click a main menu button and a sub-menu button to access each page to set up the USF-1044UDC.

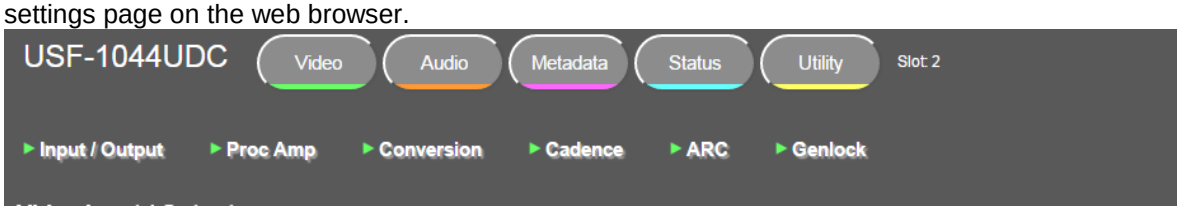


IMPORTANT

USF-1044UDC GUI does not support the Microsoft web browsers such as IE 11 or Edge. Use the Mozilla Firefox or Google Chrome browser.

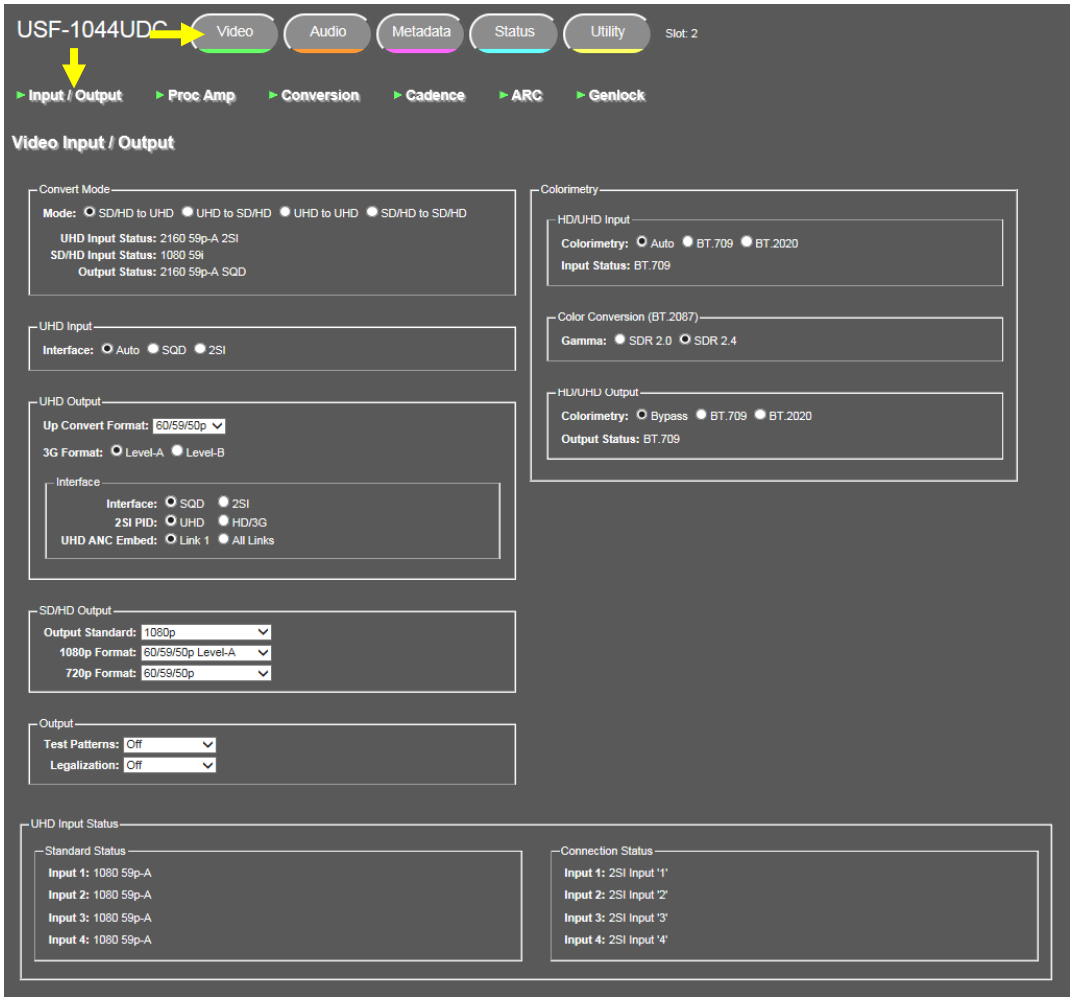
4. Video Menu

The VIDEO menu allows you to set video input and output settings, up / down converter settings, video aspect settings, output video synchronization settings, and etc. Clicking the **Video** button opens a video settings page on the web browser.



4-1. [Video > Input / Output]

Click the **Video** button and **Input / Output** button to open the menu page.



4-1-1. Convert Mode

Selects conversion mode of the USF-1044UDC.
It will take about 27 seconds to refresh video images after changing Mode settings.

Item	Setting	Description
Mode	SD/HD to UHD (default)	Converts SD/HD input into 4K video.
	UHD to SD/HD	Converts 4K input into SD/HD video.
	UHD to UHD	Converts 4K video into 4K video.
	SD/HD to SD/HD	Converts SD/HD input into SD/HD video.
UHD Input Status		Displays 4K input signal format.
SD/HD Input Status		Displays SD/HD input signal format.
Output Status		Displays outputting signal format.

4-1-2. UHD Input

Selects how to identify 4K input as SQD (Square division) or 2SI (2 Sample Interleave).

Item	Setting	Description
Interface	Auto (default)	Automatically identifies 4K input as SQD (Square division) or 2SI (2 Sample Interleave) using the payload information. Identifies as 2SI if ST425-3/5 PID (0x96, 0x97, 0x98) is detected, and as SQD if not detected.
	SQD	Manually selects SQD.
	2SI	Manually selects 2SI

4-1-3. UHD Output

Specifies 4K output specifications.

Item	Setting	Description
Up Convert Format	60/59/50p (default) 20/29/25p 30/23/24p	Specifies the SDI format for 4K output.
3G Format	Level A (default) Level B	Specifies the 3G-SDI output level.
Interface	SQD (default) 2SI	Selects SQD or 2SI for 4K output.
2SI PID	UHD (default) HD/3G	If 2SI is selected above, specifies the embedded PID (Payload ID). Normally set to **UHD**. Use **HD/3G** only when the connected cannot recognize the 4K output or needs to detect 4K video format.
UHD ANC Embed	Link1 (default)	Embeds audio into Link 1 of 4K output.
	All Links	Embeds audio into Link 1-4 of 4K output.

4-1-4. SD/HD Output

Specifies SD/HD output specifications.

Item	Setting	Description
Output Standard	SD 720p 1080i 1080p (default)	Selects an SD/HD output format. If **720p** is selected, **720p Format** setting is also needed. If **1080p** is selected, **1080p Format** setting is also needed.
1080p Format	30/23/24p 30/23/24PsF 30/29/25p 30/29/25PsF 60/59/50p Level-A (default) 60/59/50p Level-B	Selects a 1080p format.
720p Format	30/23/24p 30/29/25p 60/59/50p (default)	Selects a 720p format.

4-1-5. Output

Item	Setting	Description
Test Patterns	Off (default) Black Ramp Bars	Selects a test signal to be output for video system installation and adjustment.
Legalization	Off (default) 700mv 721mv 735mv 746mv	Legalizes output video signals so that their levels are within RGB gamut limits by reducing signal levels evenly across all channels. All values above the selected voltage limit (ex. 700mV) in the RGB color space are clipped to the voltage. All values below 0 mV are clipped to zero.

4-1-6. Colorimetry

◆ **HD/UHD Input**

Selects how to identify the colorimetry of 4K or HD input.

Item	Setting	Description
Colorimetry	Auto (default)	Automatically identifies the colorimetry of input video. 4K input in 2SI is identified by the embedded payload information. HD input or 4K input in SQD is identified as BT.709.
	BT.709	Manually selects BT.709.
	BT.2020	Manually selects BT.2020.
Input status		Displays the input video's colorimetry.

◆ **Color Conversion (BT.2087)**

Specifies which colorimetry is used in 4K IN1-4 input signals.

Item	Setting	Description
Gamma	SDR 2.4 (default)	Used for display color matching (e.g. ITU-R BT.2087 ‘case 1’)
	SDR 2.0	Used for camera color matching (e.g. ITU-R BT.2087 ‘case 2’)

◆ **HD/UHD Output**

Selects the output video colorimetry.

Item	Setting	Description
Colorimetry	Bypass (default)	Applies the input video’s colorimetry.
	BT.709	Manually selects BT.709.
	BT.2020	Manually selects BT.2020.
Output Status		Displays the output video’s colorimetry.

4-1-7. UHD Input Status

◆ **Standard Status**

Item	Description
Input 1-4	Reports interface standard on each of the quad inputs. ‘Loss’ indicates missing input

◆ **Connection Status**

Item	Display	Description
Input 1-4	None	UHD has not been detected
	Inconsistent	The detected input is a possible UHD format but does not match the other inputs
	2SI input [n]	UHD has been detected. The format is Two-Sampled-Interleaved. ‘n’ indicates the channel number contained in the PID. Where this does not match the input number it will be necessary to reconnect the inputs in the correct order.
	SQD	UHD has been detected. The format is Square Division since a 2SI PID has not been detected.
	Error (Inputs 2 to 4 only)	Indicates a timing error relative to input 1

4-2. [Video > Proc Amp]

Click the **Video** button and **Proc Amp** button to open the menu page.
This page allows you to manually adjust Proc Amp and Color Corrector settings.

4-2-1. Proc Amp

Item	Default	Setting	Description
Enable	Off	Off On	Selecting **On** enables the Proc Amp settings.
Y Level	100%	50 to 199%	Adjusts the luminance level.
Chroma Level	100%	50 to 199%	Adjusts the chroma level.
Black Level	0.0%	-14.5 to 14.5%	Adjusts the black level.
Hue	0deg	-180 to 180deg	Adjusts the hue.

* Clicking UNITY resets each level to its default value.

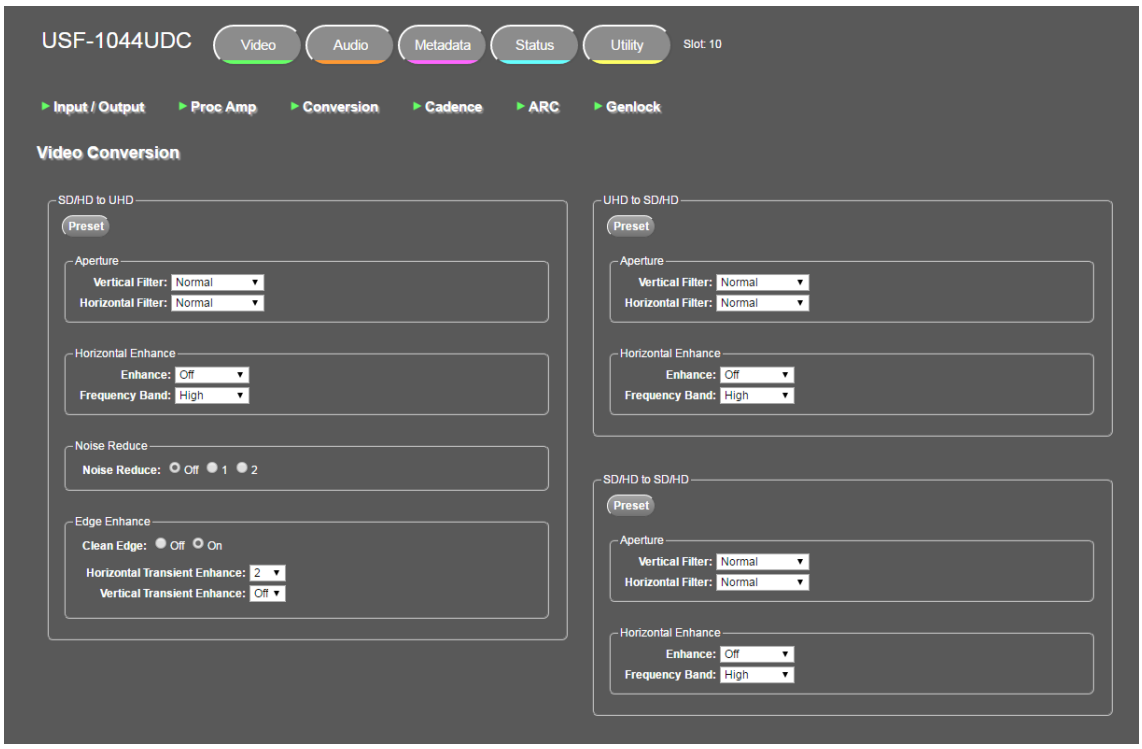
4-2-2. Color Corrector

Item	Default	Setting	Description
Enable	Off	Off On	Selecting **On** enables the Color Corrector settings.
White Level	100.0%	50 to 199%	Adjusts the RGB white level.
Black Level	0.0%	-25.0 to 25.0%	Adjusts the RGB black level.
Gamma	1.0	0.4 to 1.7	Adjusts the RGB gamma level.

* Clicking UNITY resets each level to its default value.

4-3. [Video > Conversion]

Click **Video** and **Conversion**. A window shown as below opens on the PC web browser. Sets to improve image quality while converting video signals.



4-3-1. SD/HD to UHD

Sets to improve image quality when up-converting from SD/HD to UHD according to the input signal type.
Clicking  presets all settings in SD/HD to UHD to default values.

◆ **Aperture**

Item	Setting	Description
Vertical Filter	Narrow	Reduces vertical bandwidth of the HD source prior to up-conversion. May be useful when HD source contains excessive enhancement (ringing), which may be objectionable in UHD.
	Normal (default)	Passes all source vertical frequencies without attenuation or boost prior to up-conversion.
	Boost1	Applies a small amount of boost within the HD frequency band. This can increase the visual ‘sharpness’ of the up-converted image.
	Boost2	Applies a larger amount of boost beginning at a lower frequency.
	Boost3	Maximum boost. Transient overshoot is visible.
Horizontal Filter	Narrow2	Reduces horizontal bandwidth of HD source prior to up-conversion. May be useful when HD source contains excessive enhancement (ringing), which may be objectionable in UHD.
	Narrow1	Applies a small reduction in horizontal bandwidth of HD source prior to up-conversion. May be useful when HD source contains some enhancement, which may be objectionable in UHD.
	Normal (default)	Passes all source horizontal frequencies without attenuation.

◆ **Horizontal Enhance**

Item	Setting	Description
Enhance	Off (default) 1 to 6	Applies horizontal frequency boost to make image visually 'sharper'. Adaptive processing prevents an increase in noise level and excessive boost on textures. The higher the value, the greater the enhancement.
Frequency Band	Mid High (default)	Boost can be set to operate on either the highest or middle frequencies. Mid frequencies are enhanced greater.

◆ **Noise Reduce**

Item	Setting	Description
Noise Reduce	Off (default) 1 2	Multi-band noise reduction reduces noise visibility in up-converted images without introducing visual artefacts. This process will not reduce noise that is already visible in the HD source.

◆ **Edge Enhance**

Item	Default	Setting	Description
Clean Edge	Off	Off On	Adaptive processing to remove 'ringing' often evident in up-conversion processing. Normally disabled. Turn On if subtitles, etc. are in the input images.
Horizontal Transient Enhance	2	Off 1 2 3	Sharp vertical edge detail in an HD source, such as captions and graphics, is identified. The gradient of these transients is increased to occupy the full UHD bandwidth. Adaptive processing ensures that textures and periodic waveforms are not degraded. Settable H/V separately.
Vertical Transient Enhance	Off		

4-3-2. UHD to SD/HD

Sets to improve image quality when down-converting from UHD to SD/HD according to the input signal type.
Clicking 

presets all settings in UHD to SD/HD to default values.

◆ **Aperture**

Item	Setting	Description
Vertical Filter	Narrow3	Reduces vertical bandwidth of the down conversion process. May be useful when the UHD source contains high levels of mid-frequency content.
	Narrow2	As above but with less bandwidth reduction.
	Narrow1	As above but with minimal bandwidth reduction.
	Normal (default)	Optimized bandwidth setting. Passes all vertical frequencies compatible with the output standard. For interlaced outputs, high vertical frequencies are attenuated to reduce interline flicker.
	Wide1	Allows some alias frequencies to pass which may give an apparent increase in 'sharpness'. For interlaced outputs this may increase interline flicker.
	Wide2	Allows more alias frequencies to pass.

Item	Setting	Description
Horizontal Filter	Narrow2	Reduces horizontal bandwidth of the down conversion process. May be useful when the UHD source contains high levels of mid-frequency content.
	Narrow1	As above but with less bandwidth reduction.
	Normal (default)	Optimized bandwidth setting. Passes all horizontal frequencies compatible with the HD output.
	Wide1	Allows some alias frequencies to pass which may give an apparent increase in 'sharpness.'
	Wide2	Allows more alias frequencies to pass.

◆ **Horizontal Enhance**

Item	Setting	Description
Enhance	Off (default) 1 to 6	Applies horizontal frequency boost to make image visually 'sharper'. Adaptive processing prevents an increase in noise level and excessive boost on textures. The higher the value, the greater the enhancement.
Frequency Band	Mid High (default)	Boost can be set to operate on either the highest or middle frequencies. Mid frequencies are enhanced greater.

4-3-3. SD/HD to SD/HD

Sets to improve image quality when converting between SD and HD according to the input signal type.
Clicking Preset presets all settings in SD/HD to SD/HD to default values.

◆ **Aperture**

Item	Setting	Description
Vertical Filter	Narrow2	Reduces vertical bandwidth of the down conversion process. May be useful when the UHD source contains high levels of mid-frequency content.
	Narrow1	As above but with minimal bandwidth reduction.
	Normal (default)	Optimized bandwidth setting. Passes all vertical frequencies compatible with the output standard. For interlaced outputs, high vertical frequencies are attenuated to reduce interline flicker.
	Wide	Allows some alias frequencies to pass which may give an apparent increase in 'sharpness'. For interlaced outputs this may increase interline flicker.
	Boost1	Applies a small amount of boost within the HD frequency band. This can increase the visual 'sharpness' of the up-converted image.
	Boost2	Maximum boost. Transient overshoot will be visible.
Horizontal Filter	Narrow2	Reduces horizontal bandwidth of the down conversion process. May be useful when the video source contains high levels of mid-frequency content.
	Narrow1	As above but with less bandwidth reduction.
	Normal (default)	Optimized bandwidth setting. Passes all horizontal frequencies compatible with the video output.
	Wide1	Allows some alias frequencies to pass which may give an apparent increase in 'sharpness.'
	Wide2	Allows more alias frequencies to pass.

◆ **Horizontal Enhance**

Item	Setting	Description
Enhance	Off (default) 1 to 6	Applies horizontal frequency boost to make image visually ‘sharper’. Adaptive processing prevents an increase in noise level and excessive boost on textures.
Frequency Band	Mid High (default)	Boost can be set to operate on either the highest or middle frequencies.

4-4. [Video > Cadence]

Click the **Video** and **Cadence** button. A window shown as below opens on the PC web browser. Sets cadence processing for 23-30p/PsF conversions.

4-4-1. Cadence

◆ **Insert Cadence(23-30p/PsF inputs only)**

Item	Display	Description
Status	Not Available	Cadence processing status is displayed.
	2:2	The insertion of 2:2 cadence is allowed.
	2:3	The insertion of 2:3 cadence is allowed.

Film Cadence enables cadence insertion on the output when the input frame rate is 23, 25, 29p/PsF. For all other input frame rates, the cadence insertion is automatically disabled.

Item	Setting	Description
Film Cadence	On	**Example 1**) If Input 1080/23p and Output UHD 59p, input frame sequence “A, B, C, D” will change to “A, A, B, B, B, C, C, D, D, D” in the output. **Example 2**) If Input 720/25p and Output UHD 50p, input frame sequence “A, B, C, D” will change to “A, A, B, B, C, C, D, D” in the output.
	Off (default)	The output will be a linear frame rate conversion.
2:3 Start Hour	0 to 23 (hours) (Default: 1)	Allows the user to define the position of timecode when the 2:3 sequence begins. The assumption is made that the start of the 2:3 sequence is aligned with the start of program and under normal working practices, that the start of program is coincident with an integer hour value. This control is only active when 2:3 Source is set to Output timecode. Note that the 2:3 sequence start phase can only be controlled for Drop-Frame Timecode. For non-Drop-Frame output timecode the phase automatically repeats on each hour so this control has no effect.
2:3 Source	Output timecode	Normally set to **Output timecode**. This enables downstream equipment to reliably identify the inserted cadence sequence from timecode.

Item	Setting	Description
	Free Run (default)	Only possible for downstream equipment to identify the cadence created by the USF-1044UDC by detecting motion in the image, which is not always reliable.

◆ **Input Cadence (23p/PsF outputs only)**

Item	Display	Description
Status	Not Available	Cadence processing status is displayed.
	2:3	The removal of 2:3 cadence is allowed.

Film Cadence allows processing of 59p sources with embedded cadence to correctly generate 23p/PsF output formats. For all other output frame rates the cadence processing is automatically disabled.

Item	Setting	Description
Film Cadence	On	**Example 1**) If UHD 59p (with embedded 2:2 cadence) and Output 1080/23p, input frame sequence “A, A, B, B, B, C, C, D, D, D,…” will return to “A, B, C, D,…” in the output. The following examples illustrate the operation for 2:2 or 1:1 UHD sources. In these modes the cadence control is not operational. **Example 2**) If UHD 50p (with embedded 2:2 cadence) and Output 720/25p, input frame sequence “A, A, B, B, C, C, D, D,…” will return to “A, B, C, D,…” in the output. **Example 3**) If UHD 50p (without cadence) and Output 720/25p, input frame sequence “A, B, C, D, E,…” will change to “A, C, E, …” in the output.
	Off (default)	The output will be a linear frame rate conversion.
2:3 Start Hour	0 to 23 (hours) (Default: 1)	Allows the user to define the position of timecode when the 2:3 sequence begins. The assumption is made that the start of the 2:3 sequence is aligned with the start of program and under normal working practices, that the start of program is coincident with an integer hour value. This control is only active when ‘2:3 Source’ is set to Input timecode. Note that the 2:3 sequence start phase can only be controlled with Drop-Frame Timecode sources. For non-Drop-Frame Timecode sources the phase automatically repeats on each hour so this control has no effect.
2:3 Source	Automatic (default)	The video source (at 50 or 59p) is analyzed to identify the presence of 2:2 or 2:3 cadence
	Input timecode	Cadence is detected from input timecode as specified above.

4-4-2. Interlaced Inputs

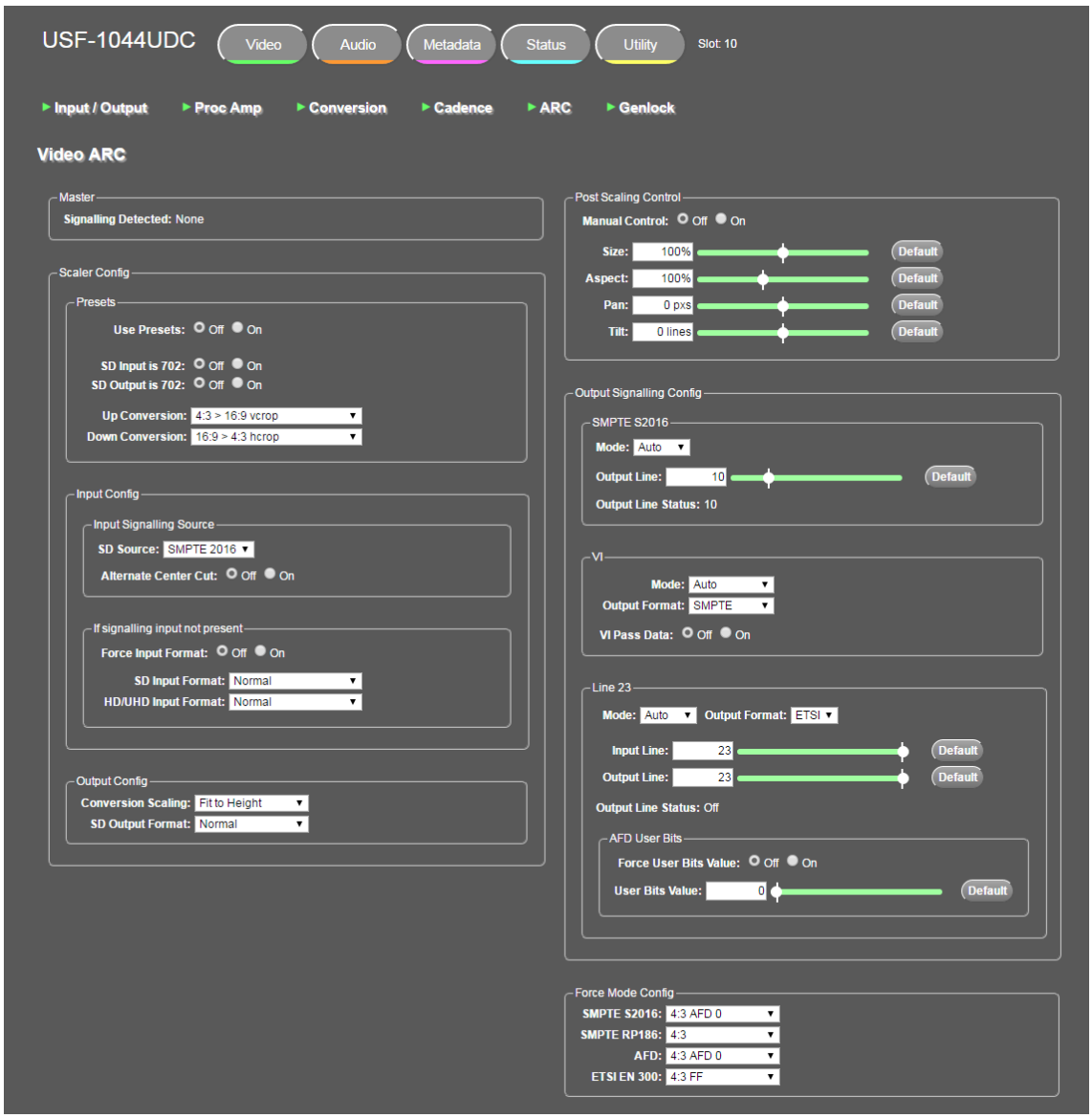
Item	Setting	Description
Film mode	On	Uses if input is interlaced (1080i or 525 or 625) and contains film originated content. This adjusts the conversion aperture to give maximum vertical bandwidth.
	Off (default)	In other cases, set to Off.

4-4-3. Input PsF

Item	Setting	Description
Field Order	Normal (default)	Basically set to Normal, in which correct PsF signals are input.
	Reversed	Correctly displays PsF content when the frame boundary does not align correctly with the interlaced frame.

4-5. [Video > ARC (Aspect Ratio Converter)]

Click the **Video** and **ARC** button. A window shown as below opens on the PC web browser. Sets aspect ratio converter parameters.



4-5-1. Master

The aspect data detected from input signal are displayed here.

4-5-2. Scaler Config

Configures scaling.

◆ **Presets**

Item	Setting	Description
Use Presets	Off (default)	**Con**verts aspect according to the aspect data detected by master.
	On	**Enable all presets.**

SD Input is 702	Off (default) On	Use On for SD SDI incoming content that uses a 702 horizontal sample active line.
SD Output is 702	Off (default) On	Use On for generating SD output with a 702 horizontal sample active line
Up Conversion	None 4:3>16:9vcrop (default) 4:3>4:3PB 16:9LB>16:9 16:9An >16:9 14:9LB>14:9PB 14:9PB>16:9vcrop 4:3PB>16:9vcrop 4:3PB>14:9 vcrop	Sets the SD to UHD aspect ratio conversion. Example: **4:3 > 16:9 vcrop** means 4:3 SD input to 16:9 UHD output with vertically cropped.
Down Conversion	None 16:9>4:3hcrop (default) 16:9>16:9LB 16:9>16:9An 4:3 PB > 4:3 14:9PB>14:9LB 14:9PB>16:9vcrop 4:3 PB>16:9vcrop 4:3 PB>14:9PBVcrop	Sets the UHD to SD aspect ratio conversion. Example: **16:9 > 4:3 hcrop** means 16:9 UHD input to 4:3 SD output with horizontally cropped.

◆ **Input Config**

Item	Setting	Description
SD Source	SMPTE S2016 (default) L23 ETSI L23 AFD VI SMPTE VI AFD	When an SD source contains more than one style of signaling use selection to set active data.
Alternate Center Cut	Off (default)	Behaviour on receipt of certain specific AFD codes ignores protected regions.
	On	**The ARC behavior for these 6 specific codes will be to remove any Black bars and also remove the gray bars that will leave the "Alternative Centre".** The Alternative center therefore be stretched to fit the screen so that the whole "white area" fills the screen. This will override "Fit to width," "14:9" and "Fit to height" settings, so that all three give the same output result. It also overrides the "SD Output Format" control ("Anamorphic" or "Normal"). Refer to SMPTE S2016-1:2009, pages 7, 8 and 9.
Force Input Format	Off (default)	Sets the input format when signalling is not present on the selected input The last known format will be used.
	On	Input format is selected from SD or HD/UHD lists below.
SD Input Format	Normal(4:3) (default) 16:9 Anamorphic 16:9 Letterbox 14:9 Letterbox	For SD SDI inputs manually selects forced format from the list.

HD/UHD Input Format	Normal(4:3) (default) 14:9 Pillarbox 4:3 Pillarbox	For HD/UHD SDI inputs manually selects forced format from the list.

◆ **Output Config**

Item	Setting	Description
Conversion Scaling	Fit to Height (default)	Scales the image to fit the height of the screen while maintaining the aspect ratio.
	Fit to Width	Scales the image to fit the width of the screen while maintaining the aspect ratio.
	14:9	Can scale either a 4:3 image for viewing on a 16:9 screen, or a 16:9 image for viewing on a 4:3 screen. This is a compromise in order to maintain the aspect ratio of the image, but will crop some of the image in the process (top and bottom when viewing 16:9 and left and right when viewing 4:3).
SD Output Format	Normal (default)	Uses default aspect ratios.
	Anamorphic	Horizontally squeezes a widescreen image to fit a standard 4:3 aspect ratio.

4-5-3. Post Scaling Control

Item	Default	Setting Range (Setting unit)	Description
Manual Control	Off	Off On	Enables manual controls below. **Note**: These controls do not operate in UHD to UHD mode
Size	100%	80% to 120% (1%)	Adjusts the size of the whole output image while maintaining aspect ratio.
Aspect	100%	70% to 150% (1%)	Adjusts the aspect ratio of the output image.
Pan	0 pxs	-50 to 50 pxs (1)	Adjusts the horizontal position of the output image.
Tilt	0 lines	-50 to 50 lines (2)	Adjusts the vertical position of the output image.

4-5-4. Output Signalling Config

Sets how to ancillary embed the outputting AFDs on SDI.

◆ **SMPTE S2016**

Item	Setting	Description
Mode	Auto (default)	Auto: Automatically sets conversion based on a combination of input and output standards.
	Pass	Passes SMPTE S2016 information through the unit unchanged.
	Force	Forces the conversion specified on the output to SMPTE S2016.
	Delete	Deletes SMPTE S2016 information from the output signal
Output Line	7 to 22 (Default: 10)	Selects the output line on which SMPTE S2016 information is embedded.

Output Line Status	-	Displays line number of where the SMPTE information is placed

◆ **VI (Video Index)**

Item	Setting	Description
Mode	Auto (default)	Automatically sets conversion based on a combination of input and output standards.
	Pass	Passes the VI information through the unit unchanged.
	Force	Forces the conversion specified on the output.
	Delete	Deletes VI information from the output signal.
Output Format	SMPTE (default)	Outputs Video Index information according to SMPTE RP186.
	AFD	Outputs Video Index information according to ARDSPEC1.
VI Pass Data	Off (default)	Blanks User Data associated with Video Index.
	On	Passes User Data and re-inserts this in the output Video Index.

◆ **Line 23**

Sets Line 23 AFD data handling.

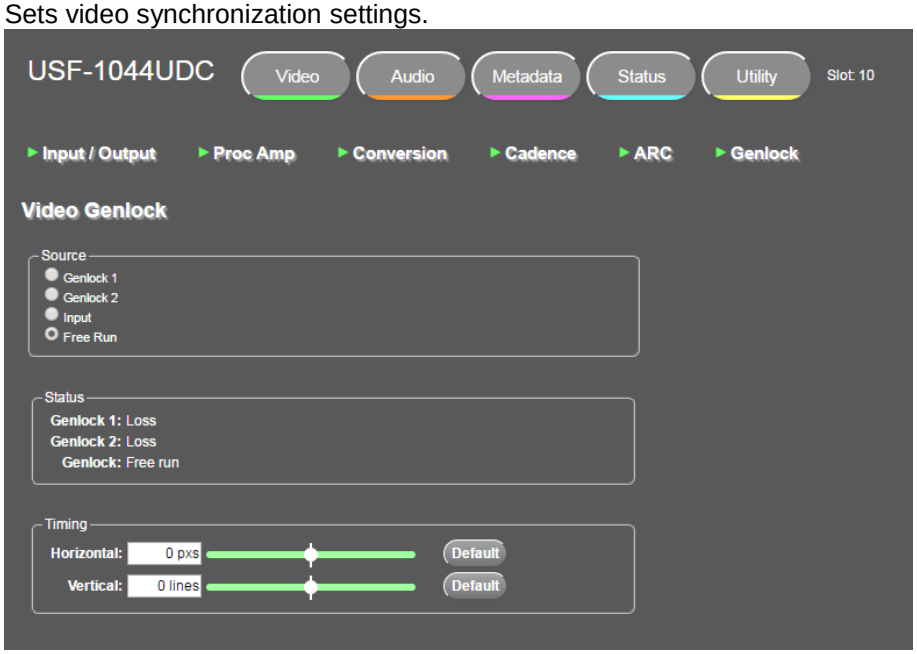
Item	Setting	Description
Mode	Auto (default)	Automatically sets conversion based on a combination of input and output standards.
	Pass	Passes L23 data and re-inserts this in the output Video Index.
	Force	Forces the conversion specified on the output.
	Delete	Deletes L23 information from the output signal.
Output Format	ETSI (default)	Outputs L23 information according to ETSI EN 300 294 v1.4.1.
	AFD	Outputs L23 information according to West Country TV/HTV/Central TV L23_SPEC.doc 1997.
Input Line	Line10 to Line23 (default)	Selects the input line on which L23 information is embedded.
Output Line	Line10 to Line23 (default)	Selects the output line on which L23 information is embedded.
Output Line Status		Displays line number of where the L23 information is placed
Force User Bits Value	Off (default)	User defined bits not to be inserted.
	On	Enables up to 4 user defined bits to be inserted.
User Bits Value	0 (default) to 15	Sets bits value to be inserted.

4-5-5. Force Mode Config

Item	Setting	Description
SMPTE S2016	4:3 AFD 0 (default) to 4:3 AFD 15 16:9 AFD 0 to 16:9 AFD 15	Inserts valid SMPTE S2016 data when no AFD information is present on the input, or **Mode** for SMPTE S2016 is set to **Force**.
SMPTE RP186	4:3 (default) 16:9	Inserts valid RP-186 data when no AFD information is present on the input, or **Mode** for VI (Video Index) is set to **Force** and **Output Format** to **SMPTE**.
AFD	4:3 AFD 0 (default) to 4:3 AFD 7 16:9 AFD 0 to 16:9 AFD 7	Inserts valid AFD data when no AFD information is present on the input, or **Mode** for VI (Video Index) is set to **Force** and **Output Format** to **SMPTE**. Inserts valid AFD data when no AFD information is present on the input, or **Mode** for Line 23 is set to **Force** and **Output Format** to **AFD**.
ETSIEN 300	4:3 FF (default) 14:9 Centre 14:9 Top 16:9 Centre 16:9 Top > 16:9 Centre 4:3 SP 14:9 16:9 FF	Inserts valid AFD data when no AFD information is present on the input, or **Mode** for Line 23 is set to **Force** and **Output Format** to **ETSI**.

4-6. [Video > Genlock]

Click the **Video** and **Genlock** buttons. A window shown as below opens on the PC web browser. Sets video synchronization settings.



4-6-1. Source

Setting	Description
Genlock1	**Outputs** video synchronizing with the signals input to USF-212S Genlock1. When no signal is input to Genlock1, outputs the video in free running mode.
Genlock2	Outputs video synchronizing with signals input to USF-212S Genlock2. When no signal is input to Genlock2, outputs the video in free running mode.
Input	Locks the system to an input video signal.
Free Run (default)	**Locks** the system to USF-1044UDC internal timing.

4-6-2. Status

Item	Description
Genlock1	Displays the video standard on USF-212S Genlock1.
Genlock2	Displays the video standard on USF-212S Genlock2.
Genlock	Indicates the lock source.

4-6-3. Timing

Item	Default	Setting (Steps)	Description
Horizontal	0	-2640 to 2640 pxs (1)	Adjusts horizontal timing of the output signal with respect to the reference signal.
Vertical	0	-562 to 562 lines (1)	Adjusts vertical timing of the output signal with respect to the reference signal

* H/V timing adjustments are available when the following conditions are met:
- Source (Sec. 4-6-1) is set to Genlock 1 or Genlock 2.
- Status (Sec. 4-6-2.) is indicated as Genlock.

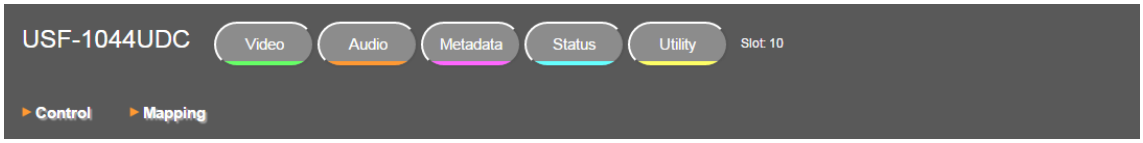
5. Audio Menu

◆ **Processing Overview**

When up-converting 3G/HD/SD-SDI input video to 4K video, the audio source is distributed into 4K SDI output (4K quad-link signals, Link 1-4) following the **UHD ANC Embed** setting (See Sec. 4-1-3). If 3G Level-B signals are used for 4K input, the audio source only on Link-A can be processed. If 3G Level-B signals are used for 4K output, an audio source is embedded only onto Link-A.

When down-converting 4K input video (4K quad-link signals, Link 1-4) to HD/SD video, only Link 1 audio sources are processed and embedded onto 3G/HD/SD-SDI output signals. If 3G Level-B signals are used for down-converted output, audio sources are embedded only onto Link-A.

The Audio menu allows you to gain and delay audio, remap audio channels, and set other audio parameters. Clicking **Audio** opens the Audio page as shown below.



5-1. [Audio > Control]

Click the **Audio** and **Control** Buttons.

5-1-1. Audio Gain

Item	Default	Setting (Steps)	Description
Master	0dB	-18dB to +18dB (0.1dB)	Adjusts Ch1 to Ch16 gain at the same time. Adjustable between the maximum and minimum gain values keeping differences between channels.
Ch1 to Ch 16	0dB	-18dB to +18dB (0.1dB)	Adjusts individual channel gain offsets.

5-1-2. Audio Delay

Item	Default	Setting (Steps)	Description
Master	0msec	-40 to 1000msec (1msec)	Adjusts Ch1 to Ch16 delay at the same time. Adjustable between the maximum and minimum delay values keeping differences between channels.
Ch 1/2 to Ch 15/16	0msec	-40 to 1000msec (1msec)	Adjusts individual channel pair delay offsets.

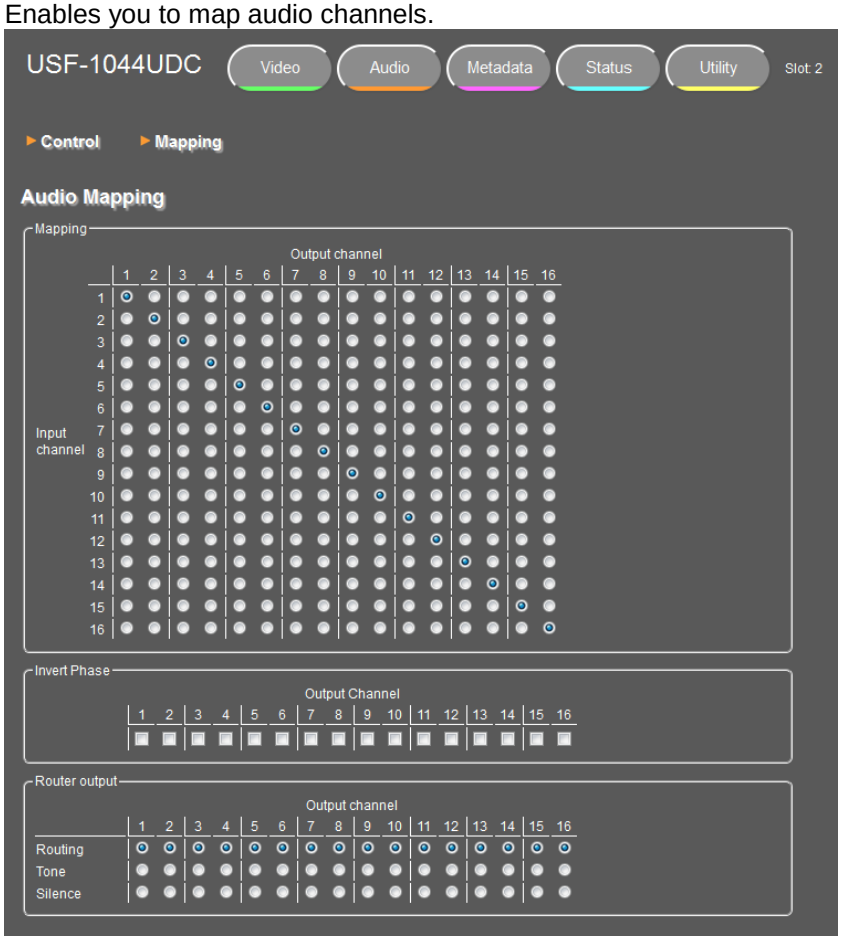
* When set to default 0 msec, the video conversion delay is automatically added.
The audio signal is embedded at the same point as video input at 0 msec.
* About Master
If Master is changed, operates with delays of Master set values plus Ch 1 to 16 set values. When you have changed the settings, confirm each delay according to Sec. 5-1-3. “Delay Statuses.” If you set a value under 0, the setting delay may not be obtained so confirm delay according to Sec. 5-1-3. “Delay Statuses”.

5-1-3. Delay Statuses

Reports video processing delay and each audio pair delay.

5-2. [Audio > Mapping]

Click the **Audio** and **Mapping** buttons. The following window is shown on the web browser. Enables you to map audio channels.



5-2-1. Mapping

Enables you to exchange audio signals embedded to SDI.
Click an output channel from Output Channel1 to 16 for an input channel from Input Channel 1 to 16 to exchange audio signals.

5-2-2. Invert Phase

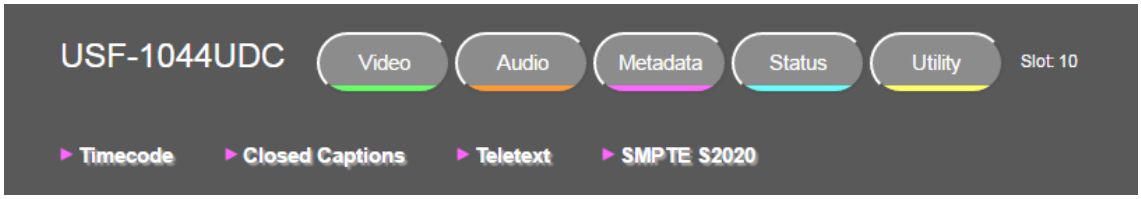
To invert the audio phase in a specified output channel, click Output Channel 1 to 16 and input checkmarks.

5-2-3. Router output

Enables you to select tone (1kHz) or silence to selected outputs from Ch 1 to 16 respectively to embed SDI.
Check Tone (1kHz) or Silence on the setting channel.
When Routing is selected, the input signal is output.

6. Metadata Menu

Allows you to set metadata embedding details. Metadata is timecode, closed captions and teletext data, etc. Clicking the **Metadata** button opens a metadata settings window on the web browser.



6-1. [Metadata > Timecode]

Click the **Metadata** and **Timecode** buttons.

6-1-1. Source

Item	Setting	Description
SD VITC Source	VITC Embedded LTC (default)	Selects a timecode for SD SDI input sources.
Status	-	Reports all detected timecode types.

6-1-2. Timecode Insertion

Item	Setting	Description
VITC	VITC LTC Generate	Selects a timecode to be inserted into VITC.
LTC	VITC LTC Generate	Selects a timecode to be inserted into LTC.

6-1-3. Generator

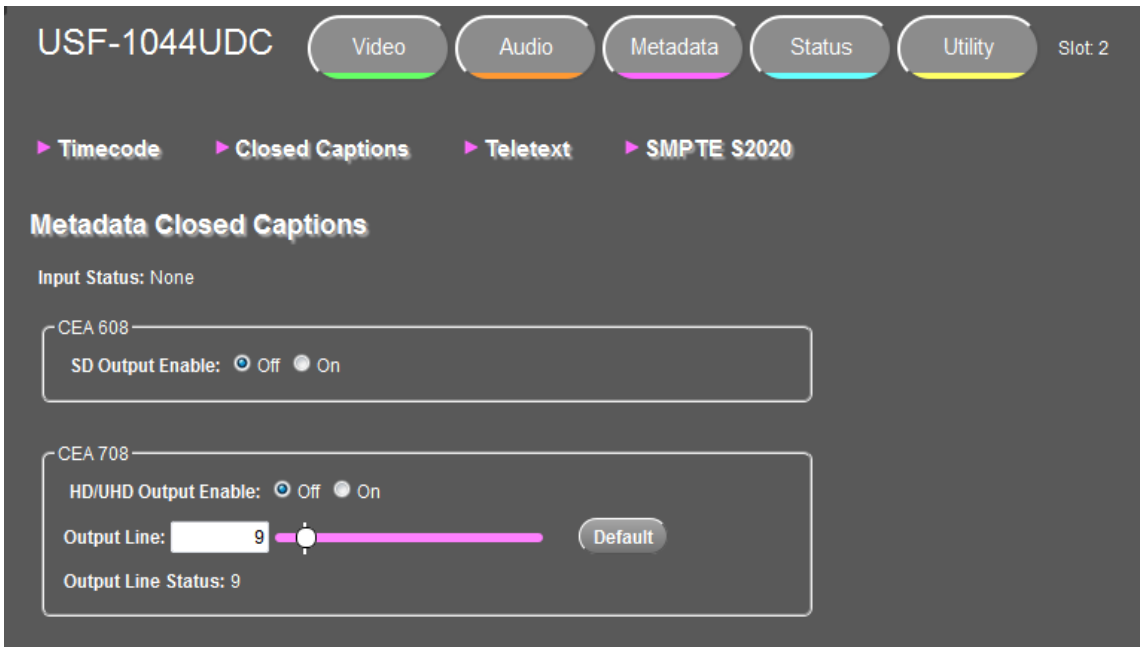
Item	Setting	Description
Timecode Entry	0:0:0:0 (default) to 23:59:59:29	If mode is Generate, this field specifies when the internally generated timecode starts.
Timecode Load	-	Loads the value entered in “Timecode Entry” when **Timecode Load** is clicked.
29.94fps	Drop Frame (default) Non-drop Frame	Set the timecode format.

6-1-4. SD Embedding

Item	Default	Setting Range	Description
VITC Enable	On	Off	VITC is not embedded.
		On	VITC is embedded into SD SDI output.
Output Line (625)	19	7 to 20	Select the output line on which VITC is placed when the output is SD 625/50. Clicking **Default** sets the default line.
Output Line (525)	14	11 to 17	Select the output line on which VITC is placed when the output is SD 525/60. Clicking **Default** sets the default line.
Output Line Status			Reports the SD output line number containing timecode.

6-2. [Metadata > Closed Captions]

Allows you to set closed captions by embedding details.
Click the **Metadata** and **Closed Captions** buttons.



The input Closed Caption information is displayed under Input Status.

6-2-1. CEA 608

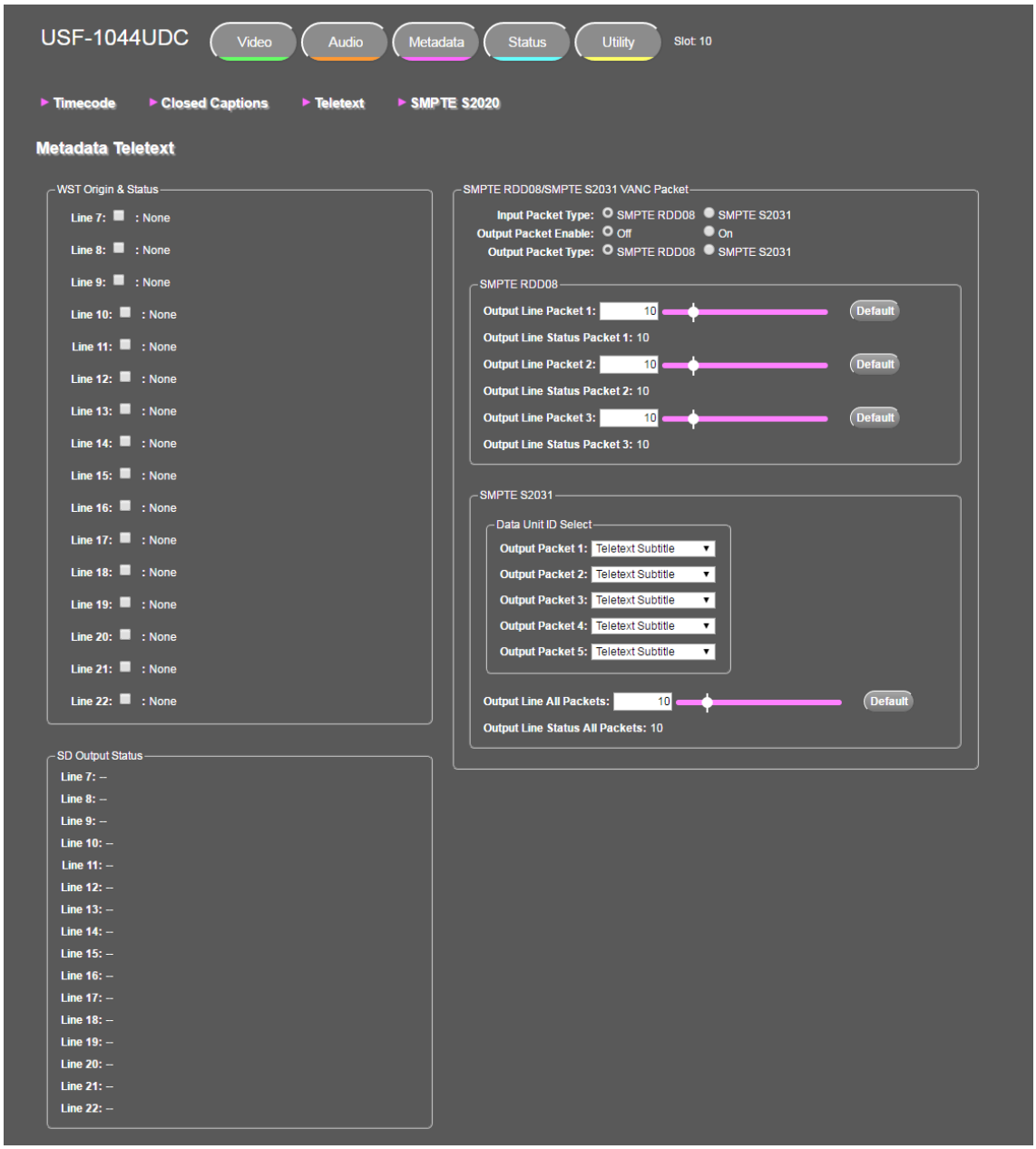
Select On when embedding CEA608 captions on SD SDI output.
Default is Off.

6-2-2. CEA 708

Select On when embedding CEA708 captions on HD/UHD SDI output. Default is Off.
The line no. on which to insert CEA708 packets is set as Output Line. Default is line 9. (Setting range: 8-20）Clicking Default sets the line to default.
The embedded line no. is shown on Output Line Status.

6-3. [Metadata > Teletext]

Allows you to set teletext embedding details.
Click the **Metadata** and **Teletext** buttons.
The Teletext setting window opens as follows.



6-3-1. WST Origin & Status

The WST Origin & Status block shows line teletext information from Line 7 to 22.
For SD signals, VBI (Vertical Blanking Interval) lines, in which teletext is carried, are displayed. For HD, actual VBI lines are not displayed, but lines in packets (SMPTE RDD08 (OP47) / S2031) are displayed.
Check a check box to select the WST (World System Teletext) origin line, as necessary. Off is set as default.

6-3-2. SD Output Status

Displays WST status of Line 7 to Line 22. (Also reports if any VANC packets are inserted on that line.)

6-3-3. SMPTE RDD08/SMPTE S2031 VANC Packet

Item	Setting	Description
Input Packet Type	SMPTE RDD08 (default) SMPTE S2031	Selects which input packet type to decode.
Output Packet Enable	Off (default) On	Selects On to embed packets.
Output Packet Type	SMPTE RDD08 (default) SMPTE S2031	Selects packet type to output.

◆ **SMPTE RDD08**

Up to 5 lines can be encoded into each OP47 packet. A maximum of 3 packets are allowed on an output, each with individual line number controls. The number of output OP47 packets is decided by the number of valid WST lines decoded on the input. The first five WST lines are encoded in the first OP47 packet, the next 5 in the second OP47 packet and so on.

Item	Default	Setting Range	Description
Output Line Packet 1 to 3	10	8 to 20	Selects a line to embed.
Output Line Status Packet 1 to 3	-	-	Reports the chosen output line for packets 1 to 3.

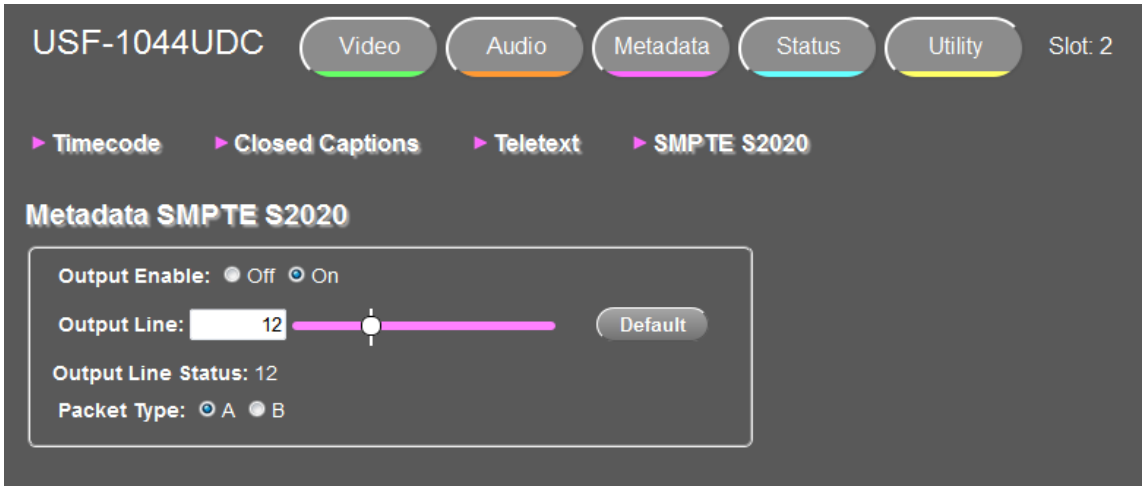
◆ **SMPTE S2031**

Up to 5 SMPTE S2031 packets are allowed to be inserted on an output, with each packet containing data from one SD teletext line. The first 5 lines selected on the input are encoded in the 2031 packet. All packets are placed on the same line selected by the user control “Output Line All Packets.”

Item	Default	Setting Range	Description
Output Packet 1 to 5	Teletext Subtitle	Teletext Subtitle Teletext non-subtitle Inverted Teletext	Selects a packet to embed.
Output Line All Packets	10	8 to 20	Selects a line to embed.
Output Line Status All Packets	-	-	Reports the chosen output line for all packets.

6-4. [Metadata > SMPTE S2020]

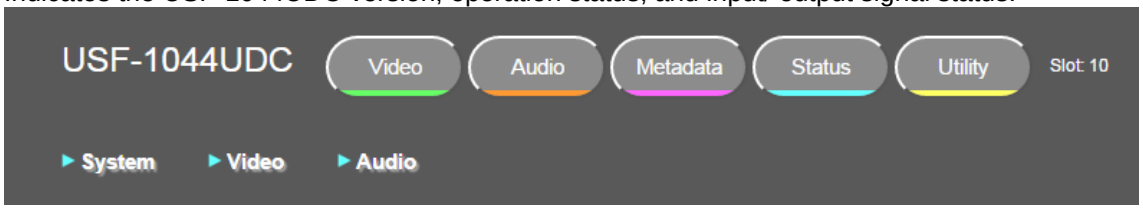
Allows you to set SMPTE S2020 metadata embedding details.



Item	Default	Setting	Description
Output Enable	On	Off On	**Selects On** to embed metadata S2020.
Output Line	12	8 to 22	Selects a line no. to embed.
Output Line Status	-	-	Reports the chosen output line.
Packet Type	A	A B	Selects a packet type to output.

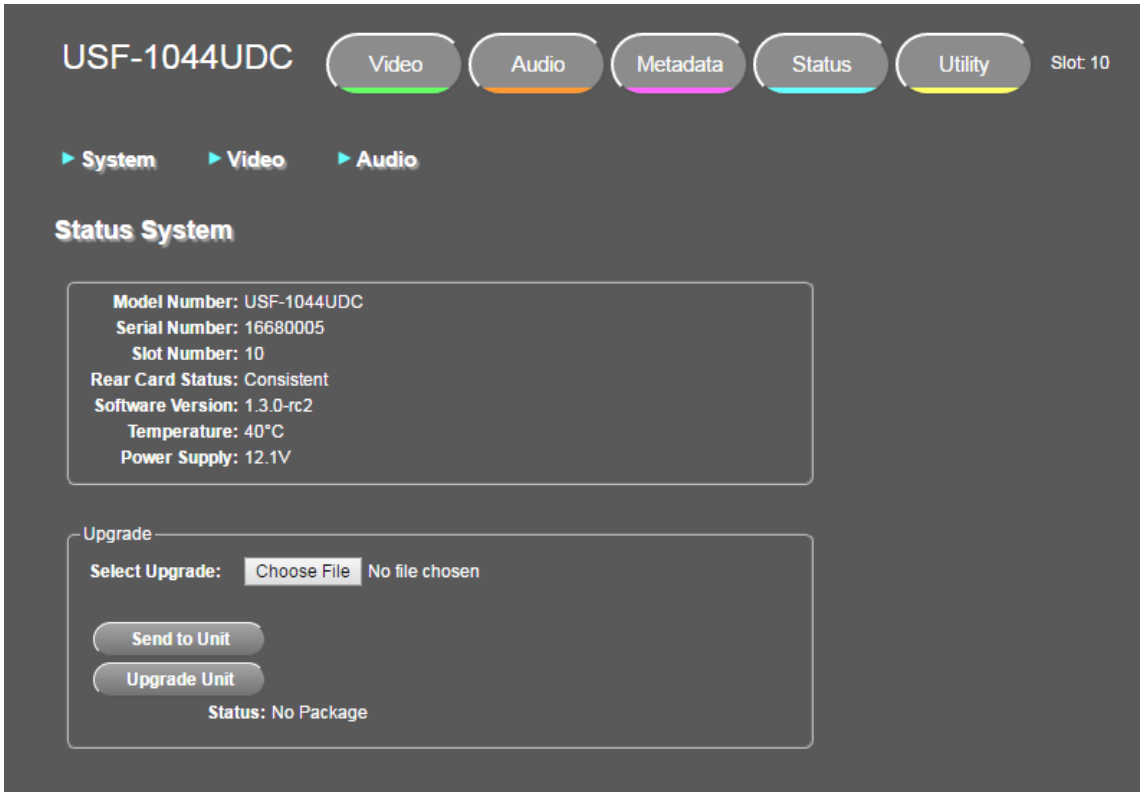
7. Status Menu

Indicates the USF-1044UDC version, operation status, and input/ output signal status.



7-1. [Status > System]

Click the **Status** and **System** buttons. System information is displayed on the web browser.

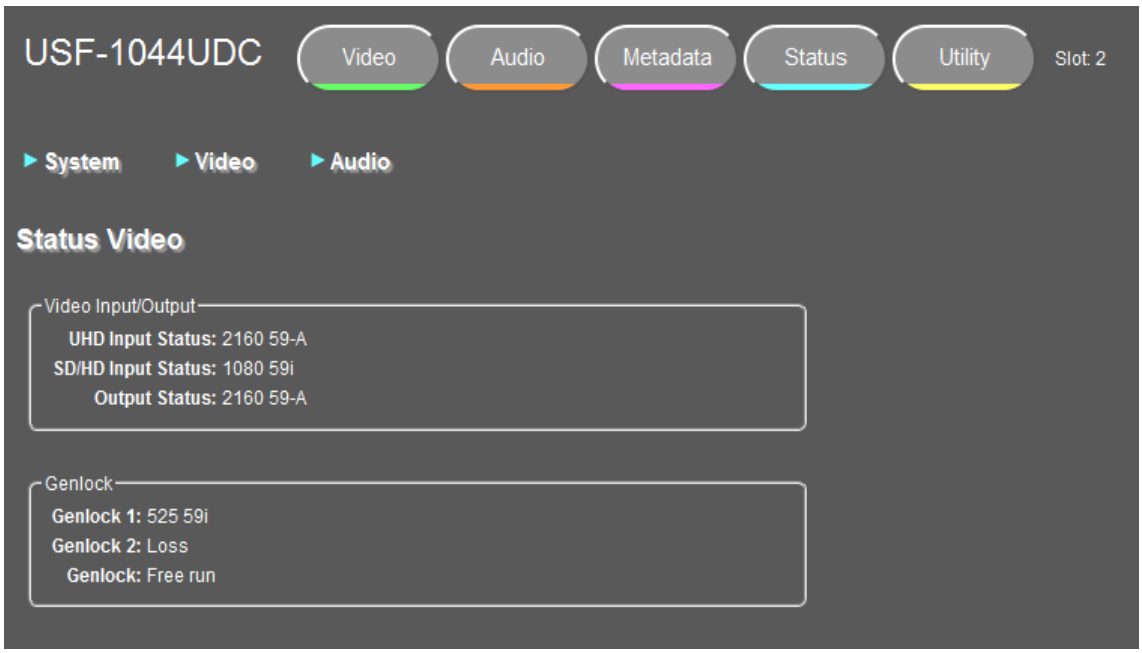


Item	Description
Model Number	USF-1044UDC
Serial Number	Serial no. of USF-1044UDC.
Slot Number	Slot no. in which the USF-1044UDC is installed.
Rear Card Status	Presence of compatible rear card.
Software Version	Software version of USF-1044UDC
Temperature	Indicates FPGA temperature. (hottest point on module)
Power Supply	Indicates supply voltage.

◆ **Upgrade**
Used when upgrading the USF-1044UDC. Do not normally operate.

7-2. [Status > Video]

Click the **Status** and **Video** buttons.
Input/ Output video standards are displayed.



7-2-1. Video Input/Output

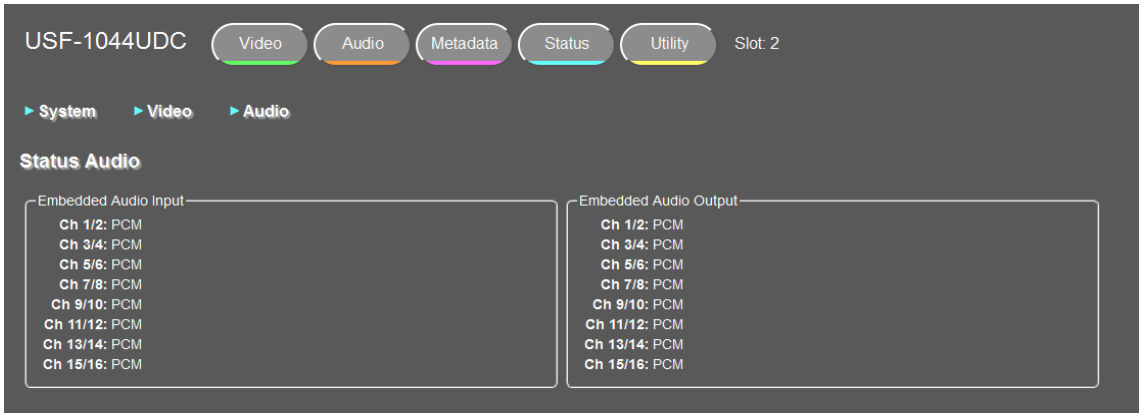
Item	Description
UHD Input Status	Reports current UHD input standard
SD/HD Input Status	Reports current SD/HD input standard
Output Status	Reports current output standard

7-2-2. Genlock

Item	Description
Genlock1	Reports standard on Genlock 1 or ‘Loss’
Genlock2	Reports standard on Genlock 2 or ‘Loss’
Genlock	Reports Genlock mode: ‘Free run’; Clocklock; Genlock

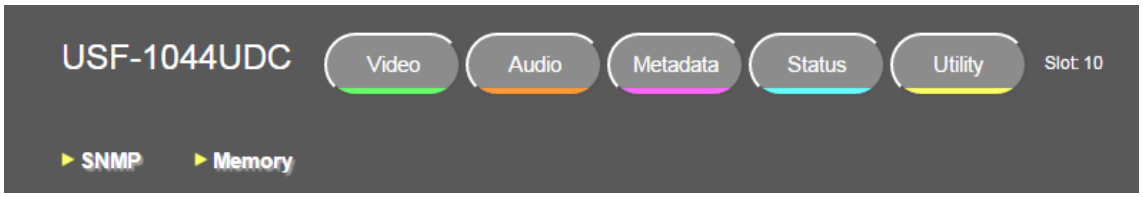
7-3. [Status > Audio]

Click the **Status** and **Audio** buttons. Input/ Output audio status is displayed.



Item	Description
Embedded Audio Input	Reports presence of audio pairs and type of audio
Embedded Audio Output	Reports type of audio output pairs including tone insertion and silence

8. Utility Menu



8-1. [Utility > SNMP]

Click the **Utility** and **SNMP** buttons.

Item	Setting	Description
Control Enable	Off (default) On	**SNMP Set is enabled and sends** traps to the selected IP address. Refer to the USF-212S Operation Manual for details on selecting IP addresses.
Input	Off (default) On	Sends traps if a change occurs in the input video signal.
Reference		Sends traps if a change occurs in the currently-selected genlock signal.
Audio Pair1		Sends traps if a change occurs in input channel pair 1/2.
Audio Pair2		Sends traps if a change occurs in input channel pair 3/4.
Audio Pair3		Sends traps if a change occurs in input channel pair 5/6.
Audio Pair4		Sends traps if a change occurs in input channel pair 7/8.
Audio Pair5		Sends traps if a change occurs in input channel pair 9/10.
Audio Pair6		Sends traps if a change occurs in the input channels 11/12.
Audio Pair7		Sends traps if a change occurs in input channel pair 13/14.
Audio Pair8		Sends traps if a change occurs in input channel pair 15/16.

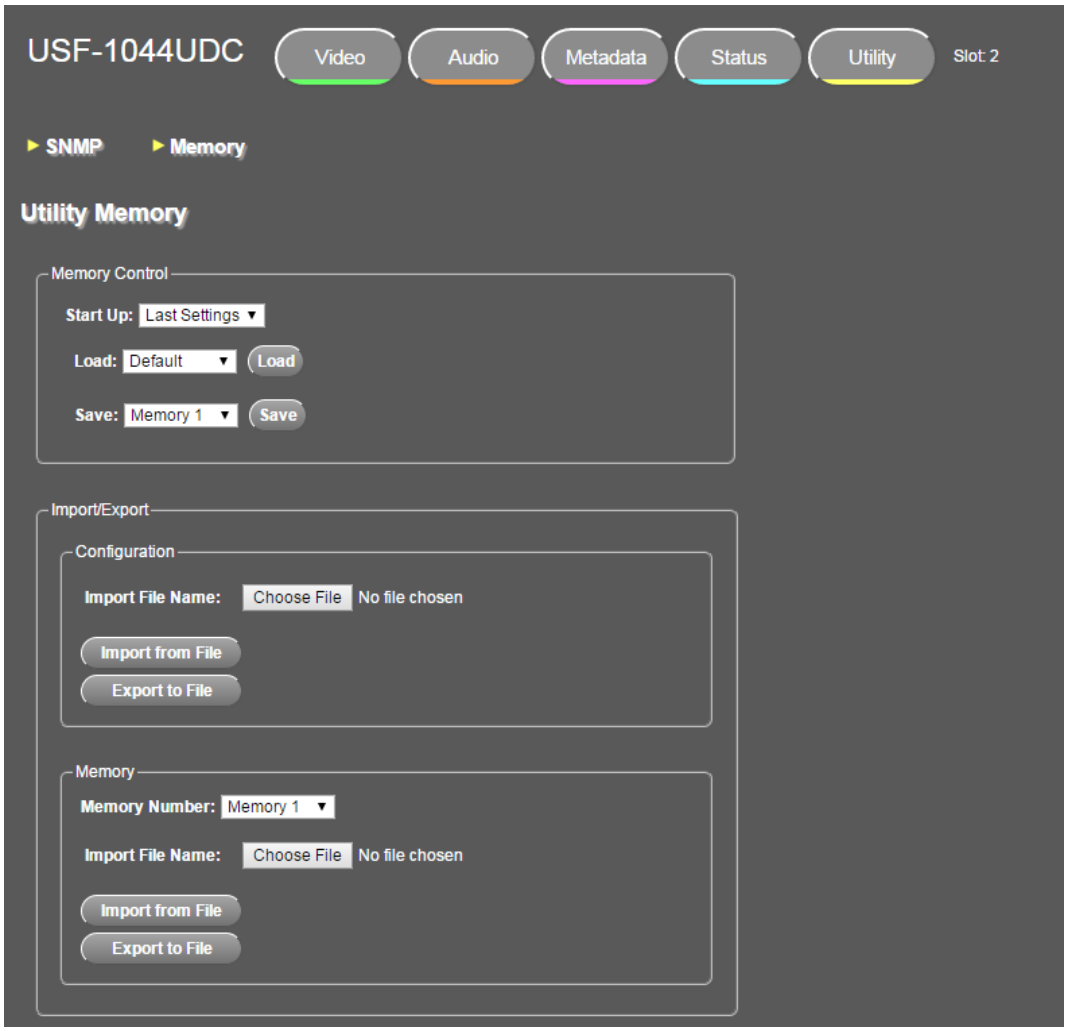
Clicking the **Trap Send All** button sends all traps as test transmission.
Clicking **Download MIB** allows you to download the MIB file used for SNMP monitoring and settings of USF-1044UDC modules.

8-2. [Utility > Memory]

Click the **Utility** and **Memory** buttons.
Settings of USF-1044UDC settings are saved in and loaded from 10 built-in registers.
Start-ups are also performed when settings are loaded from these saved registers.
Settings can be returned to their initial values.

NOTE

Automatic data saving: The USF-1044UDC saves the latest settings automatically. Turn the power off for 20 seconds after a setting change occurs. If the power is turned off for less than 20 seconds, the settings may not save.



8-2-1. Memory Control

Item	Setting	Description
Start Up	Last Settings (default)	Sets event data loading at start-up. Starts-up with last-saved settings.
	Default	Starts-up with all settings set to default.
	Memory 1 to 10	Starts up with settings saved in Memory1-10.
Load	Default (default) Memory 1 to Memory 10	Loads event settings in memory. Select an event using the pulldown menu and click Load. Loading Default changes parameters to default.
Save	Memory 1 (default) to Memory 10	Saves the settings in an event. Select an event using the pulldown menu and click Save.

8-2-2. Import/Export

USF-1044UDC setting data can be saved on a PC in .csv file. The saved data can be loaded into the USF-1044UDC.

◆ **Saving parameters**

Click Export to File in Configuration. Video/Audio/Trap parameters are saved on a PC in a .csv file.

◆ **Loading parameters**

Click Import File Name in Configuration and select a file in .csv format. Click Import **from** File. Video/Audio/Trap parameters are loaded into the USF-1044UDC.

◆ **Saving Event Data**

Example: Saving Memory 1 on a PC.

(1) Select Memory 1 in Memory Number.
(2) Click Export to File. Memory 1 event data is saved on a PC in a .csv file.

◆ **Loading Event Data**

Example: Loading data into Memory 2.

(1) Select Memory 2 in Memory Number.
(2) Select necessary event data saved on a PC under Import File Name.
(3) Click Import from File. The selected event data is loaded into the USF-1044UDC.

9. SNMP Functions

USF-1044UDC operations can be monitored by an external SNMP monitoring system supporting SNMPv2C. The MIB (Management Information Base) files used by SNMP monitoring system can be downloaded via web GUI. See Sec. 8-1. “SNMP” for MIB downloading procedures. See the USF-212S Operation Manual for SNMP settings.

9-1. SET and GET Objects

Object group	Web GUI	MIB Object Name	Value	OID	Type	Trap	Set
OID : 1.3.6.1.4.1.20175.1.325.1.							
Module Information	Module Name	usf1044UdcProductName	USF-1044UDC	1	Octet string		
	Product Code	usf1044UdcProductCode	1023824	2	Integer 32		
	Serial Number	usf1044UdcSerialNumber	1668****	3	Integer 32		
	Software Version	usf1044UdcSoftVersion	*.*.*	4	Octet string		
	FPGA Version	usf1044UdcFpgaVersion	*.*.*	5	Octet string		
	Slot Number	usf1044UdcSlotNumber	1-12	6	Integer 32		
Video Input/ Output	Convert Mode	usf1044UdcConvertMode	1: convertModeFrmSdHdToUhd 2: convertModeFrmUhdToSdHd 3: convertModeFrmUhdToUhd 4: convertModeFrmSdHdToSdHd	100	Integer		✓
	UHD Input Status	usf1044UdcUhdInStatus	*1 0: loss 1: format52559i 2: format62550i 3: format108060i 4: format108030p 5: format108030PsF 6: format108059i 7: format108029p 8: format108029PsF 9: format108050i 10: format108025p 11: format108025pPsF 12: format108024p 13: format108024PsF 14: format108023p 15: format108023PsF 16: format72060p 17: format72059p 18: format72050p 19: format72030p 20: format72029p 21: format72025p 22: format72024p 23: format72023p 101: format108060pA 102: format108059pA 103: format108050pA 201: format108060pB 202: format108059pB 203: format108050pB 301:format216023pSQD 302:format216024pSQD 303:format216025pSQD 304:format216029pSQD 305:format216030pSQD 351:format216023p2SI 352:format216024p2SI 353:format216025p2SI 354:format216029p2SI 355:format216030p2SI 401:format216023PsFSQD 402:format216024PsFSQD 403:format216025PsFSQD 404:format216029PsFSQD 405:format216030PsFSQD 501: format216060pASqd 502: format216059pASqd 503: format216050pASqd 701: format216060pBSqd 702: format216059pBSqd 703: format216050pBSqd 901: format216060pA2Si 902: format216059pA2Si	101	Integer		

			903: format216050pA2Si 1101: format216060pB2Si 1102: format216059pB2Si 1103: format216050pB2Si 9998: unknown 9999: none				
	SD/HD Input Status	usf1044UdcSdhdInStatus	Same as *1.	102	Integer	✓	
	Output Status	usf1044UdcOutStatus	Same as *1.	103	Integer		
Video Input/ Output (Continued)	UHD Input Interface	usf1044UdcUhdInInterface	1: uhdInInterfaceFrmAuto 2: uhdInInterfaceFrmSqd 3: uhdInInterfaceFrm2Si	104	Integer		✓
	UHD Up Convert Format	usf1044UdcUhdUpConvFormat	1: uhdUpConvFormatFrm605950P 2: uhdUpConvFormatFrm302925P 3: uhdUpConvFormatFrm302324P	144	Integer		✓
	UHD 3G Output Format	usf1044UdcUhd3GFormat	1: uhd3GFormatFrmLevelA 2: uhd3GFormatFrmLevelB	145	Integer		✓
	UHD Output Interface	Usf1044UdcOutUhdInterface	1: outUhdInterfaceFrmSqd 2: outUhdInterfaceFrm2Si	118	Integer		✓
	UHD Output 2SI PID	Usf1044UdcOutUhdInterleave	1: outUhdInterleaveFrmUhd 2: outUhdInterleaveFrmHd3G	119	Integer		✓
	UHD ANC	usf1044UdcAncEmbedLinks	1: ancEmbedLinksFrmLink1 2: ancEmbedLinksFrmAllLinks	143	Integer		✓
	Colorimetry HD/UHD Input	usf1044UdcColorIn	1: colorInFrmAuto 2: colorInFrmBt709 3: colorInFrmBt2020	128	Integer		✓
	Colorimetry Input Status	usf1044UdcInColorStatus	0: iturBt601 1: iturBt709 2: iturBt2020 9998: unknown	129	Integer		
	Color Conversion	usf1044UdcConversionGamma	1: conversionGammaFrmSdr20 2: conversionGammaFrmSdr24	126	Integer		✓
	Colorimetry HD/UHD Output	usf1044UdcColorOut	1: colorOutFrmBypass 2: colorOutFrmBt709 3: colorOutFrmBt2020	130	Integer		✓
	Colorimetry Output Status	usf1044UdcOutColorStatus	0: iturBt601 1: iturBt709 2: iturBt2020 9998: unknown	131	Integer		
	UHD Input Standard Status	usf1044UdcUhdStdStatus1	Same as *1.	106	Integer	✓	
		usf1044UdcUhdStdStatus2	Same as *1.	107	Integer	✓	
		usf1044UdcUhdStdStatus3	Same as *1.	108	Integer	✓	
		usf1044UdcUhdStdStatus4	Same as *1.	109	Integer	✓	
	UHD Input Connection Status	usf1044UdcUhdConStatus1	Status acquisition	110	Octet string		
		usf1044UdcUhdConStatus2	Status acquisition	111	Octet string		
		usf1044UdcUhdConStatus3	Status acquisition	112	Octet string		
		usf1044UdcUhdConStatus4	Status acquisition	113	Octet string		
	SD/HD Output Output Standard	usf1044UdcSdhdOutStandard	1: sdhdOutStandardFrmSd 2: sdhdOutStandardFrm720P 3: sdhdOutStandardFrm1080I 4: sdhdOutStandardFrm1080P	114	Integer		✓
	SD/HD Output 1080p Format	usf1044UdcOutForm1080	1: outForm1080Frm302324P 2: outForm1080Frm302324Psf 3: outForm1080Frm302925P 4: outForm1080Frm302925Psf 5: outForm1080Frm605950PLevelA 6: outForm1080Frm605950PLevelB	115			✓
	SD/HD Output 720p Format	usf1044UdcOutForm720	1: outForm720Frm302324P 2: outForm720Frm302925P 3: outForm720Frm605950P	127	Integer		✓
	Output Test Patterns	usf1044UdcOutPattern	1: outPatternFrmOff 2: outPatternFrmBlack 3: outPatternFrmRamp 4: outPatternFrmBars	125	Integer		✓
	Output Legalization	usf1044UdcGamutLegaliser	1: gamutLegaliserFrmOff 2: gamutLegaliserFrm700Mv 3: gamutLegaliserFrm721Mv 4: gamutLegaliserFrm735Mv 5: gamutLegaliserFrm746Mv	124	Integer		✓

Object group	Web GUI	MIB Object Name	Value	OID	Type	Trap	Set
OID : 1.3.6.1.4.1.20175.1.325.1.							
Proc Amp Color Corrector	Proc Amp Enable	usf1044UdcProcAmpEnable	1: true 2: false	120	Integer		✓
	Y Level	usf1044UdcProcAmpYLevel	50-199	121	Integer 32		✓
	Chroma Level	usf1044UdcProcAmpSaturation	50-199	122	Integer 32		✓
	Black Level	usf1044UdcProcAmpBlacklevel	-145 to 145	123	Integer 32		✓
	Hue	usf1044UdcProcAmpHue	-180 to 180	133	Integer 32		
	Color Corrector Enable	usf1044UdcProcAmpColorEnable	1: true 2: false	132	Integer		✓
	White Level Red	usf1044UdcProcAmpRWLevel	50-199	137	Integer 32		✓
	White Level Green	usf1044UdcProcAmpGWLevel	50-199	134	Integer 32		✓
	White Level Blue	usf1044UdcProcAmpBWLevel	50-199	140	Integer 32		✓
	Black Level Red	usf1044UdcProcAmpRBLevel	-250 to 250	139	Integer 32		✓
	Black Level Green	usf1044UdcProcAmpGBLevel	-250 to 250	136	Integer 32		✓
	Black Level Blue	usf1044UdcProcAmpBBLevel	-250 to 250	142	Integer 32		✓
	Gamma Red	usf1044UdcProcAmpRGamma	4-17	138	Integer 32		✓
	Gamma Green	usf1044UdcProcAmpGGamma	4-17	135	Integer 32		✓
	Gamma Blue	usf1044UdcProcAmpBGamma	4-17	141	Integer 32		✓
Video Conversion	Aperture Vertical Filter (SD/HD to UHD)	usf1044UdcApertureVUp	1: apertureVUpFrmNarrow 2: apertureVUpFrmNormal 3: apertureVUpFrmBoost1 4: apertureVUpFrmBoost2 5: apertureVUpFrmBoost3	201	Integer		✓
	Aperture Horizontal Filter (SD/HD to UHD)	usf1044UdcApertureHUp	1: apertureHUpFrmNarrow2 2: apertureHUpFrmNarrow1 3: apertureHUpFrmNormal	202	Integer		✓
	Horizontal Enhance Enhance Level (SD/HD to UHD)	usf1044UdcEnhanceUpHLevel	1: discreteLevelFormatOff 2: discreteLevelFormat1 3: discreteLevelFormat2 4: discreteLevelFormat3 5: discreteLevelFormat4 6: discreteLevelFormat5 7: discreteLevelFormat6	203	Integer		✓
	Horizontal Enhance Frequency Band (SD/HD to UHD)	usf1044UdcEnhanceUpHFreq	1: enhanceUpHFreqFrmMid 2: enhanceUpHFreqFrmHigh	204	Integer		✓
	Noise Reduce (SD/HD to UHD)	usf1044UdcNoiseReduceUp	1: noiseReduceUpFrmOff 2: noiseReduceUpFrm1 3: noiseReduceUpFrm2	205	Integer		✓
	Edge Enhance Clean edge (SD/HD to UHD)	usf1044UdcEnhanceCleanEdge	1: true 2: false	206	Integer		✓
	Edge Enhance Horizontal Transient Enhance (SD/HD to UHD)	usf1044UdcEnhanceTransientH	1: enhanceTransientHFrmOff 2: enhanceTransientHFrm1 3: enhanceTransientHFrm2 4: enhanceTransientHFrm3	207	Integer		✓
	Edge Enhance Vertical Transient Enhance (SD/HD to UHD)	usf1044UdcEnhanceTransientV	1: enhanceTransientVFrmOff 2: enhanceTransientVFrm1 3: enhanceTransientVFrm2 4: enhanceTransientVFrm3	208	Integer		✓
	Aperture Vertical Filter (UHD to SD/HD)	usf1044UdcApertureVDown	1: apertureVDownFrmNarrow3 2: apertureVDownFrmNarrow2 3: apertureVDownFrmNarrow1 4: apertureVDownFrmNormal 5: apertureVDownFrmWide1 6: apertureVDownFrmWide2	301	Integer		✓
	Aperture Horizontal Filter (UHD to SD/HD)	usf1044UdcApertureHDown	1: apertureHDownFrmNarrow2 2: apertureHDownFrmNarrow1 3: apertureHDownFrmNormal 4: apertureHDownFrmWide1 5: apertureHDownFrmWide2	302	Integer		✓

Object group	Web GUI	MIB Object Name	Value	OID	Type	Trap	Set
OID : 1.3.6.1.4.1.20175.1.325.1.							
Video Conversion (Continued)	Horizontal Enhance Enhance Level (UHD to SD/HD)	usf1044UdcEnhanceDownHLevel	1: discreteLevelFormatOff 2: discreteLevelFormat1 3: discreteLevelFormat2 4: discreteLevelFormat3 5: discreteLevelFormat4 6: discreteLevelFormat5 7: discreteLevelFormat6	303	Integer		✓
	Horizontal Enhance Frequency Band (UHD to SD/HD)	usf1044UdcEnhanceDownHFreq	1: enhanceDownHFreqFrmMid 2: enhanceDownHFreqFrmHigh	304	Integer		✓
	Aperture Vertical Filter (SD/HD to SD/HD)	usf1044UdcApetureVCross	1: apetureVCrossFrmNarrow2 2: apetureVCrossFrmNarrow1 3: apetureVCrossFrmNormal 4: apetureVCrossFrmWide 5: apetureVCrossFrmBoost1 6: apetureVCrossFrmBoost2	219	Integer		✓
	Aperture Horizontal Filter (SD/HD to SD/HD)	usf1044UdcApetureHCross	1: apetureHCrossFrmNarrow2 2: apetureHCrossFrmNarrow1 3: apetureHCrossFrmNormal 4: apetureHCrossFrmWide1 5: apetureHCrossFrmWide2	218	Integer		✓
	Horizontal Enhance Enhance Leve (SD/HD to SD/HD)	usf1044UdcEnhanceCrossHLevel	1: enhanceCrossHLevelFrmOff 2: enhanceCrossHLevelFrm1 3: enhanceCrossHLevelFrm2 4: enhanceCrossHLevelFrm3 5: enhanceCrossHLevelFrm4 6: enhanceCrossHLevelFrm5 7: enhanceCrossHLevelFrm6	217	Integer		✓
	Horizontal Enhance Frequency Band (SD/HD to SD/HD)	usf1044UdcEnhanceCrossHFreq	1: enhanceCrossHFreqFrmMid 2: enhanceCrossHFreqFrmHigh	216	Integer		✓
Cadence	Insert Cadence Status (23-30p/PsF Input)	usf1044UdcCadenceOutStatus	Status acquisition	209	Octet string		
	Insert Cadence Film Cadence (23-30p/PsF Input)	usf1044UdcCadenceOutEnable	1: true 2: false	210	Integer		✓
	Insert Cadence 2:3 Start Hour (23-30p/PsF Input)	usf1044UdcCadenceOutStartHour	0 -23	211	Integer 32		✓
	Insert Cadence 2:3 Source (23-30p/PsF Input)	usf1044UdcCadenceOutSource	1: cadenceOutSourceFrmFreeRun 2: cadenceOutSourceFrmOutTimecode	212	Integer		✓
	Input Cadence Status (23p/PsF Input)	usf1044UdcCadenceInStatus	Status acquisition	305	Octet string		
	Input Cadence Film Cadence (23p/PsF Input)	usf1044UdcCadenceInEnable	1: true 2: false	306	Integer		✓
	Input Cadence 2:3 Start Hour (23p/PsF Input)	usf1044UdcCadenceInStartHour	0-23	307	Integer 32		✓
	Input Cadence F2:3 Source (23p/PsF Input)	usf1044UdcCadenceInSource	1: cadenceInSourceFrmAutomatic 2: cadenceInSourceFrmInputTimecode	308	Integer		✓
	Interlaced Inputs Film Mode	usf1044UdcCadenceEnhancedFilm	1: true 2: false	213	Integer		✓
	Input PsF Field Order	usf1044UdcCadenceInPsfOrder	1: cadenceInPsfOrderFrmNormal 2: cadenceInPsfOrderFrmReversed	215	Integer		✓
ARC	Master	usf1044UdcSigInStatus	Status acquisition	400	Octet string		
	Scaler Config Presets Use Presets	usf1044UdcArcUsePresets	1: true 2: false	401	Integer		✓
	Scaler Config Presets SD Input is 702	usf1044UdcArcSdIn702	1: true 2: false	402	Integer		✓
	Scaler Config Presets SD Output is 702	usf1044UdcArcSdOut702	1: true 2: false	403	Integer		✓

Object group	Web GUI	MIB Object Name	Value	OID	Type	Trap	Set
OID : 1.3.6.1.4.1.20175.1.325.1.							
ARC (Continued)	Scaler Config Presets Up Conversion	usf1044UdcArcUpConvPresets	1: uConvPresetsFrmNone 2: uConvPresetsFrm43169Vcrop 3: uConvPresetsFrm4343Pb 4: uConvPresetsFrm169Lb169 5: uConvPresetsFrm169An169 6: uConvPresetsFrm149Lb149Pb 7: uConvPresetsFrm149Pb169Vcrop 8: uConvPresetsFrm43Pb169Vcrop 9: uConvPresetsFrm43Pb149PbVcrop	404	Integer		✓
	Scaler Config Presets Down Conversion	usf1044UdcArcDownConvPresets	1: dConvPresetsFrmNone 2: dConvPresetsFrm16943Hcrop 3: dConvPresetsFrm169169Lb 4: dConvPresetsFrm169169An 5: dConvPresetsFrm43Pb43 6: dConvPresetsFrm149Pb149Lb 7: dConvPresetsFrm149Pb169Vcrop 8: dConvPresetsFrm43Pb169Vcrop 9: dConvPresetsFrm43Pb149PbVcrop	405	Integer		✓
	Input Config Input Signalling Source SD Source	usf1044UdcSigInSdSource	1: sigInSdSourceFrmSmpte2016 2: sigInSdSourceFrmL23Etsi 3: sigInSdSourceFrmL23Afd 4: sigInSdSourceFrmViSmpte 5: sigInSdSourceFrmViAfd	406	Integer		✓
	Input Config Input Signalling Source Alternate Center Cut	usf1044UdcArcAlternateCut	1: true 2: false	407	Integer		✓
	Input Config If signalling input not present Force Input Format	usf1044UdcSigForceInFormat	1: true 2: false	408	Integer		✓
	Input Config If signalling input not present SD Input Format	usf1044UdcArcSdInFormat	1: arcSdInFormatFrmNormal 2: arcSdInFormatFrm169Anamorphic 3: arcSdInFormatFrm169Letterbox 4: arcSdInFormatFrm149Letterbox	409	Integer		✓
	Input Config If signalling input not present HD/UHD Input Format	usf1044UdcArcHdInFormat	1: arcHdInFormatFrmNormal 2: arcHdInFormatFrm149Pillarbox 3: arcHdInFormatFrm43Pillarbox	410	Integer		✓
	Input Config Output Config Conversion Scaling	usf1044UdcArcConvscaling	1: arcConvScalingFrmFitToHeight 2: arcConvScalingFrmFitToWidth 3: arcConvScalingFrm149	411	Integer		✓
	Input Config Output Config SD Output Format	usf1044UdcArcSdOutFormat	1: arcSdOutFormatFrmNormal 2: arcSdOutFormatFrmAnamorphic	412	Integer		✓
	Post Scaling Control Manual Control	usf1044UdcArcManualControl	1: true 2: false	413	Integer		✓
	Post Scaling Control Size	usf1044UdcArcSize	80-120%	414	Integer 32		✓
	Post Scaling Control Aspect	usf1044UdcArcAspect	70-150%	415	Integer 32		✓
	Post Scaling Control Pan	usf1044UdcArcPan	-50 to 50 Pxs	416	Integer 32		✓
	Post Scaling Control Tilt	usf1044UdcArcTilt	-50 to 50 Lines	417	Integer 32		✓
	Output Signalling Config SMPTE S2016 Mode	usf1044UdcSig2016OutMode	1: sig2016OutModeFrmAuto 2: sig2016OutModeFrmPass 3: sig2016OutModeFrmForce 4: sig2016OutModeFrmDelete	418	Integer		✓
	Output Signalling Config SMPTE S2016 Output Line	usf1044UdcSig2016OutLine	7-22	419	Integer 32		✓
	Output Signalling Config SMPTE S2016 Output Line Status	usf1044UdcSig2016Status	Status acquisition	420	Octet string		
	Output Signalling Config VI Mode	usf1044UdcSigViOutMode	1: sigViOutModeFrmAuto 2: sigViOutModeFrmPass 3: sigViOutModeFrmForce 4: sigViOutModeFrmDelete	421	Integer		✓
	Output Signalling Config VI Output Format	usf1044UdcSigViOutFormat	1: sigViOutFormatFrmSmpte 2: sigViOutFormatFrmAfd	422	Integer		✓

Object group	Web GUI	MIB Object Name	Value	OID	Type	Trap	Set
OID : 1.3.6.1.4.1.20175.1.325.1.							
ARC (Continued)	Output Signalling Config VI VI Pass Data	usf1044UdcSigViPassData	1: true 2: false	423	Integer		✓
	Output Signalling Config Line 23 Mode	usf1044UdcSigWssOutMode	1: sigWssOutModeFrmAuto 2: sigWssOutModeFrmPass 3: sigWssOutModeFrmForce 4: sigWssOutModeFrmDelete	424	Integer		✓
	Output Signalling Config Line 23 Output Format	usf1044UdcSigWssOutFormat	1: sigWssOutFormatFrmEtsi 2: sigWssOutFormatFrmAfd	425	Integer		✓
	Output Signalling Config Line 23 Input Line	usf1044UdcSigWssInLine	10-23 Lines	426	Integer 32		✓
	Output Signalling Config Line 23 Output Line	usf1044UdcSigWssOutLine	10-23 Lines	427	Integer 32		✓
	Output Signalling Config Line 23 Output Line Status	usf1044UdcSigWssLineStatus	Status acquisition	428	Octet string		
	Output Signalling Config Line 23 AFD User Bits Force User Bits Value	usf1044UdcSigForceUserBits	1: true 2: false	429	Integer		✓
	Output Signalling Config Line 23 AFD User Bits User Bits Value	usf1044UdcSigWssUserBits	0-15	430	Integer 32		✓
	Force Mode Config SMPTE S2016	usf1044UdcSigForce2016	1-16: sigForce2016Frm43Afd0-15 17-32: igForce2016Frm169Afd0-15	431	Integer		✓
	Force Mode Config SMPTE RP186	usf1044UdcSigForceRp186	1: sigForceRp186Frm43 2: sigForceRp186Frm169	432	Integer		✓
	Force Mode Config AFD	usf1044UdcSigForceAfd	1-8: sigForceAfdFrm43Afd0-7 9-16: sigForceAfdFrm169Afd0-7	433	Integer		✓
	Force Mode Config ETSI EN 300	usf1044UdcSigForceEtsi	1: forceEtsiFormat43ff 2: forceEtsiFormat149Centre 3: forceEtsiFormat149Top 4: forceEtsiFormat169Centre 5: forceEtsiFormat169Top 6: forceEtsiFormatOver169Centre 7: forceEtsiFormat43sp149 8: forceEtsiFormat169ff	434	Integer		✓
Genlock	Source	usf1044UdcGenlockSource	1: genlockSourceFrmGenlock1 2: genlockSourceFrmGenlock2 3: genlockSourceFrmInput 4: genlockSourceFrmFreeRun	500	Integer		✓
	Status Genlock 1	usf1044UdcGenlockRef1Status	Same as *1.	501	Integer	✓	
	Status Genlock 2	usf1044UdcGenlockRef2Status	Same as *1.	502	Integer	✓	
	Status Genlock	usf1044UdcGenlockModeStatus	Status acquisition	503	Octet string		
	Timing Horizontal	usf1044UdcGenlockHphase	-2640 to +2640 pxs	504	Integer 32		✓
	Timing Vertical:	usf1044UdcGenlockVphase	-562 to +562 lines	505	Integer 32		✓

Object group	Web GUI	MIB Object Name	Value	OID	Type	Trap	Set
OID : 1.3.6.1.4.1.20175.1.325.1.							
Audio Control	Audio Gain Master	usf1044UdcAudioGainMaster	-180～+180	600	Integer 32		✓
	Audio Gain Ch 1	usf1044UdcAudioGain1	-180～+180	601	Integer 32		✓
	Audio Gain Ch 2	usf1044UdcAudioGain2	-180～+180	602	Integer 32		✓
	Audio Gain Ch 3	usf1044UdcAudioGain3	-180～+180	603	Integer 32		✓
	Audio Gain Ch 4	usf1044UdcAudioGain4	-180～+180	604	Integer 32		✓
	Audio Gain Ch 5	usf1044UdcAudioGain5	-180～+180	605	Integer 32		✓
	Audio Gain Ch 6	usf1044UdcAudioGain6	-180～+180	606	Integer 32		✓
	Audio Gain Ch 7	usf1044UdcAudioGain7	-180～+180	607	Integer 32		✓
	Audio Gain Ch 8	usf1044UdcAudioGain8	-180～+180	608	Integer 32		✓
	Audio Gain Ch 9	usf1044UdcAudioGain9	-180～+180	609	Integer 32		✓
	Audio Gain Ch 10	usf1044UdcAudioGain10	-180～+180	610	Integer 32		✓
	Audio Gain Ch 11	usf1044UdcAudioGain11	-180～+180	611	Integer 32		✓
	Audio Gain Ch 12	usf1044UdcAudioGain12	-180～+180	612	Integer 32		✓
	Audio Gain Ch 13	usf1044UdcAudioGain13	-180～+180	613	Integer 32		✓
	Audio Gain Ch 14	usf1044UdcAudioGain14	-180～+180	614	Integer 32		✓
	Audio Gain Ch 15	usf1044UdcAudioGain15	-180～+180	615	Integer 32		✓
	Audio Gain Ch 16	usf1044UdcAudioGain16	-180～+180	616	Integer 32		✓
	Audio Delay Master	usf1044UdcAudioGlobalDelay	-40～+1000	617	Integer 32		✓
	Audio Delay Ch 1/2	usf1044UdcAudioDelaySetPair1	-40～+1000	618	Integer 32		✓
	Audio Delay Ch 3/4	usf1044UdcAudioDelaySetPair2	-40～+1000	619	Integer 32		✓
	Audio Delay Ch 5/6	usf1044UdcAudioDelaySetPair3	-40～+1000	620	Integer 32		✓
	Audio Delay Ch 7/8	usf1044UdcAudioDelaySetPair4	-40～+1000	621	Integer 32		✓
	Audio Delay Ch 9/10	usf1044UdcAudioDelaySetPair5	-40～+1000	622	Integer 32		✓
	Audio Delay Ch 11/12	usf1044UdcAudioDelaySetPair6	-40～+1000	623	Integer 32		✓
	Audio Delay Ch 13/14	usf1044UdcAudioDelaySetPair7	-40～+1000	624	Integer 32		✓
	Audio Delay Ch 15/16	usf1044UdcAudioDelaySetPair8	-40～+1000	625	Integer 32		✓
	Delay Statuses Video Delay	usf1044UdcVideoTotalDelay	Status acquisition	626	Octet string		
	Delay Statuses Audio Ch 1/2 Delay	usf1044UdcAudioDelayPair1	Status acquisition	628	Octet string		
	Delay Statuses Audio Ch 3/4 Delay	usf1044UdcAudioDelayPair2	Status acquisition	629	Octet string		
	Delay Statuses Audio Ch 5/6 Delay	usf1044UdcAudioDelayPair3	Status acquisition	630	Octet string		
	Delay Statuses Audio Ch 7/8 Delay	usf1044UdcAudioDelayPair4	Status acquisition	631	Octet string		
	Delay Statuses Audio Ch 9/10 Delay	usf1044UdcAudioDelayPair5	Status acquisition	632	Octet string		
	Delay Statuses Audio Ch 11/12 Delay	usf1044UdcAudioDelayPair6	Status acquisition	633	Octet string		
	Delay Statuses Audio Ch 13/14 Delay	usf1044UdcAudioDelayPair7	Status acquisition	634	Octet string		
	Delay Statuses Audio Ch 15/16 Delay	usf1044UdcAudioDelayPair8	Status acquisition	635	Octet string		
Audio Mapping	Audio Mapping Output Channel1	usf1044UdcAudioMappingOutCh1	1-16: audioMappingOutFormat1-16	700	Integer		✓
	Audio Mapping Output Channel2	usf1044UdcAudioMappingOutCh2	Same as above	701	Integer		✓
	Audio Mapping Output Channel3	usf1044UdcAudioMappingOutCh3	Same as above	702	Integer		✓
	Audio Mapping Output Channel4	usf1044UdcAudioMappingOutCh4	Same as above	703	Integer		✓
	Audio Mapping Output Channel5	usf1044UdcAudioMappingOutCh5	Same as above	704	Integer		✓
	Audio Mapping Output Channel6	usf1044UdcAudioMappingOutCh6	Same as above	705	Integer		✓
	Audio Mapping Output Channel7	usf1044UdcAudioMappingOutCh7	Same as above	706	Integer		✓
	Audio Mapping Output Channel8	usf1044UdcAudioMappingOutCh8	Same as above	707	Integer		✓
	Audio Mapping Output Channel9	usf1044UdcAudioMappingOutCh9	Same as above	708	Integer		✓
	Audio Mapping Output Channel10	usf1044UdcAudioMappingOutCh10	Same as above	709	Integer		✓
	Audio Mapping Output Channel11	usf1044UdcAudioMappingOutCh11	Same as above	710	Integer		✓
	Audio Mapping Output Channel12	usf1044UdcAudioMappingOutCh12	Same as above	711	Integer		✓

Object group	Web GUI	MIB Object Name	Value	OID	Type	Trap	Set
OID : 1.3.6.1.4.1.20175.1.325.1.							
Audio Mapping (Continued)	Audio Mapping Output Channel13	usf1044UdcAudioMapping OutCh13	1-16: audioMappingOutFormat1-16	712	Integer		✓
	Audio Mapping Output Channel14	usf1044UdcAudioMapping OutCh14	Same as above	713	Integer		✓
	Audio Mapping Output Channel15	usf1044UdcAudioMapping OutCh15	Same as above	714	Integer		✓
	Audio Mapping Output Channel16	usf1044UdcAudioMapping OutCh16	Same as above	715	Integer		✓
	Invert Phase Output Channel1	usf1044UdcAudioInvert1	1: true 2: false	716	Integer		✓
	Invert Phase Output Channel2	usf1044UdcAudioInvert2	Same as above	717	Integer		✓
	Invert Phase Output Channel3	usf1044UdcAudioInvert3	Same as above	718	Integer		✓
	Invert Phase Output Channel4	usf1044UdcAudioInvert4	Same as above	719	Integer		✓
	Invert Phase Output Channel5	usf1044UdcAudioInvert5	Same as above	720	Integer		✓
	Invert Phase Output Channel6	usf1044UdcAudioInvert6	Same as above	721	Integer		✓
	Invert Phase Output Channel7	usf1044UdcAudioInvert7	Same as above	722	Integer		✓
	Invert Phase Output Channel8	usf1044UdcAudioInvert8	Same as above	723	Integer		✓
	Invert Phase Output Channel9	usf1044UdcAudioInvert9	Same as above	724	Integer		✓
	Invert Phase Output Channel10	usf1044UdcAudioInvert10	Same as above	725	Integer		✓
	Invert Phase Output Channel11	usf1044UdcAudioInvert11	Same as above	726	Integer		✓
	Invert Phase Output Channel12	usf1044UdcAudioInvert12	Same as above	727	Integer		✓
	Invert Phase Output Channel13	usf1044UdcAudioInvert13	Same as above	728	Integer		✓
	Invert Phase Output Channel14	usf1044UdcAudioInvert14	Same as above	729	Integer		✓
	Invert Phase Output Channel15	usf1044UdcAudioInvert15	Same as above	730	Integer		✓
	Invert Phase Output Channel16	usf1044UdcAudioInvert16	Same as above	731	Integer		✓
	Router output Output Channel1	usf1044UdcAudioOut1	1: audioRouterOutFormatRouting 2: audioRouterOutFormatTone 3: audioRouterOutFormatSilence	732	Integer		✓
	Router output Output Channel2	usf1044UdcAudioOut2	Same as above	733	Integer		✓
	Router output Output Channel3	usf1044UdcAudioOut3	Same as above	734	Integer		✓
	Router output Output Channel4	usf1044UdcAudioOut4	Same as above	735	Integer		✓
	Router output Output Channel5	usf1044UdcAudioOut5	Same as above	736	Integer		✓
	Router output Output Channel6	usf1044UdcAudioOut6	Same as above	737	Integer		✓
	Router output Output Channel7	usf1044UdcAudioOut7	Same as above	738	Integer		✓
	Router output Output Channel8	usf1044UdcAudioOut8	Same as above	739	Integer		✓
	Router output Output Channel9	usf1044UdcAudioOut9	Same as above	740	Integer		✓
	Router output Output Channel10	usf1044UdcAudioOut10	Same as above	741	Integer		✓
	Router output Output Channel11	usf1044UdcAudioOut11	Same as above	742	Integer		✓
	Router output Output Channel12	usf1044UdcAudioOut12	Same as above	743	Integer		✓
	Router output Output Channel13	usf1044UdcAudioOut13	Same as above	744	Integer		✓
	Router output Output Channel14	usf1044UdcAudioOut14	Same as above	745	Integer		✓
	Router output Output Channel15	usf1044UdcAudioOut15	Same as above	746	Integer		✓
	Router output Output Channel16	usf1044UdcAudioOut16	Same as above	747	Integer		✓

Object group	Web GUI	MIB Object Name	Value	OID	Type	Trap	Set
OID : 1.3.6.1.4.1.20175.1.325.1.							
Metadata Timecode	Source SD Source	usf1044UdcTcSdSource	1: tcSdSourceFrmVitc 2: tcSdSourceFrmEmbeddedLtc	801	Integer		✓
	Source Status	usf1044UdcTcInStatus	Status acquisition	802	Octet string		
	Timecode Insertion	usf1044UdcTcInsertLTC	1 tcInsertLTCFrmVitc 2: tcInsertLTCFrmLtc 3: tcInsertLTCFrmGenerate	810	Integer		✓
	Timecode Insertion	usf1044UdcTcInsertVITC	1 tcInsertLTCFrmVitc 2: tcInsertLTCFrmLtc 3: tcInsertLTCFrmGenerate	811	Integer		✓
	Processing 29.94fps	usf1044UdcTcDropFrame	1: tcDropFrameFrmDropFrame 2: tcDropFrameFrmNonDropFrame	805	Integer		✓
	SD Embedding VITC Enable	usf1044UdcTcSdInsertion	1: true 2: false	806	Integer		✓
	SD Embedding Output Line (625)	usf1044UdcTc625InsertLine	7～20	807	Integer 32		✓
	SD Embedding Output Line (525)	usf1044UdcTc525InsertLine	11～17	808	Integer 32		✓
	SD Embedding Output Line Status	usf1044UdcTcOutLineStatus	Status acquisition	809	Octet string		
Metadata Closed Captions	Input Status	usf1044UdcCcInStatus	Status acquisition	900	Octet string		
	CEA 608 SD Output Enable	usf1044UdcCc608Enable	1: true 2: false	901	Integer		✓
	CEA 708 HD/UHD Output Enable	usf1044UdcCc708Enable	1: true 2: false	902	Integer		✓
	CEA 708 Output Line	usf1044UdcCc708OutLine	8～20	903	Integer 32		✓
	CEA 708 Output Line Status	usf1044UdcCc708OutLineStatus	Status acquisition	904	Octet string		
Metadata Teletext	WST Origin & Status Line7	usf1044UdcTtWstInLine7	1: true 2: false	1000	Integer		✓
	WST Origin & Status Line7	usf1044UdcTtWstInStatus7	Status acquisition	1001	Octet string		
	WST Origin & Status Line8	usf1044UdcTtWstInLine8	1: true 2: false	1002	Integer		✓
	WST Origin & Status Line8	usf1044UdcTtWstInStatus8	Status acquisition	1003	Octet string		
	WST Origin & Status Line9	usf1044UdcTtWstInLine9	1: true 2: false	1004	Integer		✓
	WST Origin & Status Line9	usf1044UdcTtWstInStatus9	Status acquisition	1005	Octet string		
	WST Origin & Status Line10	usf1044UdcTtWstInLine10	1: true 2: false	1006	Integer		✓
	WST Origin & Status Line10	usf1044UdcTtWstInStatus10	Status acquisition	1007	Octet string		
	WST Origin & Status Line11	usf1044UdcTtWstInLine11	1: true 2: false	1008	Integer		✓
	WST Origin & Status Line11	usf1044UdcTtWstInStatus11	Status acquisition	1009	Octet string		
	WST Origin & Status Line12	usf1044UdcTtWstInLine12	1: true 2: false	1010	Integer		✓
	WST Origin & Status Line12	usf1044UdcTtWstInStatus12	Status acquisition	1011	Octet string		
	WST Origin & Status Line13	usf1044UdcTtWstInLine13	1: true 2: false	1012	Integer		✓
	WST Origin & Status Line13	usf1044UdcTtWstInStatus13	Status acquisition	1013	Octet string		
	WST Origin & Status Line14	usf1044UdcTtWstInLine14	1: true 2: false	1014	Integer		✓
	WST Origin & Status Line14	usf1044UdcTtWstInStatus14	Status acquisition	1015	Octet string		
	WST Origin & Status Line15	usf1044UdcTtWstInLine15	1: true 2: false	1016	Integer		✓
	WST Origin & Status Line15	usf1044UdcTtWstInStatus15	Status acquisition	1017	Octet string		
	WST Origin & Status Line16	usf1044UdcTtWstInLine16	1: true 2: false	1018	Integer		✓
	WST Origin & Status Line16	usf1044UdcTtWstInStatus16	Status acquisition	1019	Octet string		
	WST Origin & Status Line17	usf1044UdcTtWstInLine17	1: true 2: false	1020	Integer		✓
	WST Origin & Status Line17	usf1044UdcTtWstInStatus17	Status acquisition	1021	Octet string		

Object group	Web GUI	MIB Object Name	Value	OID	Type	Trap	Set
OID : 1.3.6.1.4.1.20175.1.325.1.							
Metadata Teletext (Continued)	WST Origin & Status Line18	usf1044UdcTtWstInLine18	1: true 2: false	1022	Integer		✓
	WST Origin & Status Line18	usf1044UdcTtWstInStatus18	Status acquisition	1023	Octet string		
	WST Origin & Status Line19	usf1044UdcTtWstInLine19	1: true 2: false	1024	Integer		✓
	WST Origin & Status Line19	usf1044UdcTtWstInStatus19	Status acquisition	1025	Octet string		
	WST Origin & Status Line20	usf1044UdcTtWstInLine20	1: true 2: false	1026	Integer		✓
	WST Origin & Status Line20	usf1044UdcTtWstInStatus20	Status acquisition	1027	Octet string		
	WST Origin & Status Line21	usf1044UdcTtWstInLine21	1: true 2: false	1028	Integer		✓
	WST Origin & Status Line21	usf1044UdcTtWstInStatus21	Status acquisition	1029	Octet string		
	WST Origin & Status Line22	usf1044UdcTtWstInLine22	1: true 2: false	1030	Integer		✓
	WST Origin & Status Line22	usf1044UdcTtWstInStatus22	Status acquisition	1031	Octet string		
	SD Output Status Line7	usf1044UdcTtWstOutStatus7	Status acquisition	1032	Octet string		
	SD Output Status Line8	usf1044UdcTtWstOutStatus8	Status acquisition	1033	Octet string		
	SD Output Status Line9	usf1044UdcTtWstOutStatus9	Status acquisition	1034	Octet string		
	SD Output Status Line10	usf1044UdcTtWstOutStatus10	Status acquisition	1035	Octet string		
	SD Output Status Line11	usf1044UdcTtWstOutStatus11	Status acquisition	1036	Octet string		
	SD Output Status Line12	usf1044UdcTtWstOutStatus12	Status acquisition	1037	Octet string		
	SD Output Status Line13	usf1044UdcTtWstOutStatus13	Status acquisition	1038	Octet string		
	SD Output Status Line14	usf1044UdcTtWstOutStatus14	Status acquisition	1039	Octet string		
	SD Output Status Line15	usf1044UdcTtWstOutStatus15	Status acquisition	1040	Octet string		
	SD Output Status Line16	usf1044UdcTtWstOutStatus16	Status acquisition	1041	Octet string		
	SD Output Status Line17	usf1044UdcTtWstOutStatus17	Status acquisition	1042	Octet string		
	SD Output Status Line18	usf1044UdcTtWstOutStatus18	Status acquisition	1043	Octet string		
	SD Output Status Line19	usf1044UdcTtWstOutStatus19	Status acquisition	1044	Octet string		
	SD Output Status Line20	usf1044UdcTtWstOutStatus20	Status acquisition	1045	Octet string		
	SD Output Status Line21	usf1044UdcTtWstOutStatus21	Status acquisition	1046	Octet string		
	SD Output Status Line22	usf1044UdcTtWstOutStatus22	Status acquisition	1047	Octet string		
	SMPTE RDD08/SMPTE S2031 VANC Packet Input Packet Type:	usf1044UdcTtInPktTypeFrm	1: ttInPktTypeFrmSmpteRdd08 2: ttInPktTypeFrmSmpteS2031	1048	Integer		✓
	SMPTE RDD08/SMPTE S2031 VANC Packet Output Packet Enable	usf1044UdcTtOutEnable	1: true 2: false	1049	Integer		✓
	SMPTE RDD08/SMPTE S2031 VANC Packet Output Packet Type	usf1044UdcTtOutPktType	1: ttOutPktTypeFrmSmpteRdd08 2: ttOutPktTypeFrmSmpteS2031	1050	Integer		✓
	SMPTE RDD08/SMPTE S2031 VANC Packet SMPTE RDD08 Output Line Packet 1	usf1044UdcTtRdd8OutLine1	Sets the insertion line for Teletext RDD008 Packet1: 8-20	1051	Integer 32		✓
	SMPTE RDD08/SMPTE S2031 VANC Packet SMPTE RDD08 Output Line Status Packet 1	usf1044UdcTtRdd8PktStatus1	Status acquisition	1052	Octet string		

Object group	Web GUI	MIB Object Name	Value	OID	Type	Trap	Set
OID : 1.3.6.1.4.1.20175.1.325.1.							
Metadata Teletext (Continued)	SMPTE RDD08/SMPTE S2031 VANC Packet SMPTE RDD08 Output Line Packet 2	usf1044UdcTtRdd8 OutLine2	Sets the insertion line for Teletext RDD008 Packet2: 8-20	1053	Integer 32		✓
	SMPTE RDD08/SMPTE S2031 VANC Packet SMPTE RDD08 Output Line Status Packet 2	usf1044UdcTtRdd8 PktStatus2	Status acquisition	1054	Octet string		
	SMPTE RDD08/SMPTE S2031 VANC Packet SMPTE RDD08 Output Line Packet 3	usf1044UdcTtRdd8 OutLine3	Sets the insertion line for Teletext RDD008 Packet3: 8-20	1055	Integer 32		✓
	SMPTE RDD08/SMPTE S2031 VANC Packet SMPTE RDD08 Output Line Status Packet 3	usf1044UdcTtRdd8 PktStatus3	Status acquisition	1056	Octet string		
	SMPTE RDD08/SMPTE S2031 VANC Packet SMPTE S2031 Data Unit ID Select Output Packet 1	usf1044UdcTt2031 DataUnitId1	1: ttPktFormatTeletextSubtitle 2: ttPktFormatTeletextNonSubtitle 3: ttPktFormatInvertedTeletext	1057	Integer		✓
	SMPTE RDD08/SMPTE S2031 VANC Packet SMPTE S2031 Data Unit ID Select Output Packet 2	usf1044UdcTt2031 DataUnitId2	1: ttPktFormatTeletextSubtitle 2: ttPktFormatTeletextNonSubtitle 3: ttPktFormatInvertedTeletext	1058	Integer		✓
	SMPTE RDD08/SMPTE S2031 VANC Packet SMPTE S2031 Data Unit ID Select Output Packet 3	usf1044UdcTt2031 DataUnitId3	1: ttPktFormatTeletextSubtitle 2: ttPktFormatTeletextNonSubtitle 3: ttPktFormatInvertedTeletext	1059	Integer		✓
	SMPTE RDD08/SMPTE S2031 VANC Packet SMPTE S2031 Data Unit ID Select Output Packet 4	usf1044UdcTt2031 DataUnitId4	1: ttPktFormatTeletextSubtitle 2: ttPktFormatTeletextNonSubtitle 3: ttPktFormatInvertedTeletext	1060	Integer		✓
	SMPTE RDD08/SMPTE S2031 VANC Packet SMPTE S2031 Data Unit ID Select Output Packet 5	usf1044UdcTt2031 DataUnitId5	1: ttPktFormatTeletextSubtitle 2: ttPktFormatTeletextNonSubtitle 3: ttPktFormatInvertedTeletext	1061	Integer		✓
	SMPTE RDD08/SMPTE S2031 VANC Packet Output Line All Packets	usf1044UdcTt2031 OutLine	8～20	1062	Integer 32		✓
	SMPTE RDD08/SMPTE S2031 VANC Packet Output Line Status All Packets	usf1044UdcTt2031 OutLineStatus	Status acquisition	1063	Octet string		
Metadata SMPTE S2020	Output Enable	usf1044UdcTc2020OutEnable	1: true 2: false	1100	Integer		✓
	Output Line	usf1044UdcTc2020OutLineNum	8～22	1101	Integer 32		✓
	Output Line Status	usf1044UdcTc2020OutLineStatus	Status acquisition	1102	Octet string		
	Packet Type	usf1044UdcTc2020PacketType	1: tc2020PacketTypeFrmA 2: tc2020PacketTypeFrmB	1103	Integer		✓
Status Module	Rear Card Status	usf1044UdcStatus RearCard	Status acquisition	1201	Octet string		
	Temperature	usf1044UdcStatus Temperature	Status acquisition	1202	Octet string		
	Power Supply	usf1044UdcStatus PowerSupply	Status acquisition	1203	Octet string		

Object group	Web GUI	MIB Object Name	Value	OID	Type	Trap	Set
OID : 1.3.6.1.4.1.20175.1.325.1.							
Status Audio	Embedded Audio Input Ch1/2	usf1044UdcStatusAudioPairIn1	1: pcm 2: nonpcm 3: dolbyE 9998: unknown 9999: loss	1400	Integer	✓	
	Embedded Audio Input Ch3/4	usf1044UdcStatusAudioPairIn2	Same as above	1401	Integer	✓	
	Embedded Audio Input Ch5/6	usf1044UdcStatusAudioPairIn3	Same as above	1402	Integer	✓	
	Embedded Audio Input Ch7/8	usf1044UdcStatusAudioPairIn4	Same as above	1403	Integer	✓	
	Embedded Audio Input Ch9/10	usf1044UdcStatusAudioPairIn5	Same as above	1404	Integer	✓	
	Embedded Audio Input Ch11/12	usf1044UdcStatusAudioPairIn6	Same as above	1405	Integer	✓	
	Embedded Audio Input Ch13/14	usf1044UdcStatusAudioPairIn7	Same as above	1406	Integer	✓	
	Embedded Audio Input Ch15/16	usf1044UdcStatusAudioPairIn8	Same as above	1407	Integer	✓	
	Embedded Audio Output Ch1/2	usf1044UdcStatusAudioPairOut1	1: silence 2: tone 3: pcm 4: nonpcm 9998: unknown 9999: forcedSilence	1408	Integer		
	Embedded Audio Output Ch3/4	usf1044UdcStatusAudioPairOut2	Same as above	1409	Integer		
	Embedded Audio Output Ch5/6	usf1044UdcStatusAudioPairOut3	Same as above	1410	Integer		
	Embedded Audio Output Ch7/8	usf1044UdcStatusAudioPairOut4	Same as above	1411	Integer		
	Embedded Audio Output Ch9/10	usf1044UdcStatusAudioPairOut5	Same as above	1412	Integer		
	Embedded Audio Output Ch11/12	usf1044UdcStatusAudioPairOut6	Same as above	1413	Integer		
	Embedded Audio Output Ch13/14	usf1044UdcStatusAudioPairOut7	Same as above	1414	Integer		
	Embedded Audio Output Ch15/16	usf1044UdcStatusAudioPairOut8	Same as above	1415	Integer		

9-2. Trap

Object Group	Trap Name	OID	Ref. OBJ	Ref. OID	Description
OID 1.3.6.1.4.1.20175.1.325.0					
Video	usf1044UdcInFormatChange	1	usf1044UdcSlotNumber usf1044UdcSdhdInStatus	6 102	
	usf1044UdcInCh1FormatChange	2	usf1044UdcSlotNumber usf1044UdcUhdStdStatus1	6 106	
	usf1044UdcInCh2FormatChange	3	usf1044UdcSlotNumber usf1044UdcUhdStdStatus2	6 107	
	usf1044UdcInCh3FormatChange	4	usf1044UdcSlotNumber usf1044UdcUhdStdStatus3	6 108	
	usf1044UdcInCh4FormatChange	5	usf1044UdcSlotNumber usf1044UdcUhdStdStatus4	6 109	
	usf1044UdcRef1Change	6	usf1044UdcSlotNumber usf1044UdcGenlockRef1Status	6 501	
	usf1044UdcRef2Change	7	usf1044UdcSlotNumber usf1044UdcGenlockRef2Status	6 502	
Audio	usf1044UdcAudioPair1Change	8	usf1044UdcSlotNumber usf1044UdcStatusAudioPairIn1	6 1400	
	usf1044UdcAudioPair2Change	9	usf1044UdcSlotNumber usf1044UdcStatusAudioPairIn2	6 1401	
	usf1044UdcAudioPair3Change	10	usf1044UdcSlotNumber usf1044UdcStatusAudioPairIn3	6 1402	
	usf1044UdcAudioPair4Change	11	usf1044UdcSlotNumber usf1044UdcStatusAudioPairIn4	6 1403	
	usf1044UdcAudioPair5Change	12	usf1044UdcSlotNumber usf1044UdcStatusAudioPairIn5	6 1404	
	usf1044UdcAudioPair6Change	13	usf1044UdcSlotNumber usf1044UdcStatusAudioPairIn6	6 1405	
	usf1044UdcAudioPair7Change	14	usf1044UdcSlotNumber usf1044UdcStatusAudioPairIn7	6 1406	
	usf1044UdcAudioPair8Change	15	usf1044UdcSlotNumber usf1044UdcStatusAudioPairIn8	6 1407	

10. Conversion List

Cadence insertion or removal is performed only when **Film Cadence** is set to **ON**.
If **Film Cadence** is set to **Off**, signals are converted standardly with linear algorithm.
See Sec, 4-4 “Video > Cadence” for more details.
Only measured delay values are shown in the following tables. For more delay information, consult your FOR-A service representative.

Cadence Inserted (Timing Delay in msec)
Cadence Removed (Timing Delay in msec)
Standard Linear Conversion (Timing Delay in msec)
---: Not allowed

10-1. 59.94Hz (NTSC) Family

◆ 4K UHD > 4K UHD (Cross-conversion)

Input	Output: Video Format			4K (3G-SDI x 4) BT.709 OR BT.2020				4K (HD-SDI x 4) BT.709 OR BT.2020			
				2160/59.94p				2160/29.97p		2160/23.98p	
				Level A		Level B					
				2SI	SQD	2SI	SQD	2SI	SQD	2SI	SQD
4K (3G-SDI x 4) BT.709 OR BT.2020	2160/59.94p	Level A	2SI	(0.1-16.7)	UHD->UHD (0.1-16.7)	UHD->UHD Level A->B SQD->2SI (8.1-24.7)	UHD->UHD Level A->B SQD->2SI (8.1-24.7)	---	---	---	---
			SQD	UHD->UHD Level B->A (0.1-16.7)	(0.1-16.7)	UHD->UHD Level A->B SQD->2SI (8.1-24.7)	UHD->UHD Level A->B SQD->2SI (8.1-24.7)	---	---	---	---
		Level B	2SI	UHD->UHD Level B->A (8.1-24.7)	UHD->UHD Level B->A 2SI->SQD (8.1-24.7)	(0.1-16.7)	UHD->UHD 2SI->SQD (0.1-16.7)	---	---	---	---
			SQD	UHD->UHD Level B->A SQD->2SI (8.1-24.7)	UHD->UHD Level B->A (8.1-24.7)	UHD->UHD Level B->A SQD->2SI (0.1-16.7)	(0.1-16.7)	---	---	---	---
4K (HD-SDIx4) BT.709 OR BT.2020	2160/29.97p		2SI	---	---	---	---		UHD->UHD SQD->2SI	---	---
			SQD	---	---	---	---	UHD->UHD 2SI->SQD		---	---
	2160/23.98p		2SI	---	---	---	---	---	---		UHD->UHD SQD->2SI
			SQD	---	---	---	---	---	---	UHD->UHD 2SI->SQD	
	2160/23.98PsF		SQD	---	---	---	---	---	---	---	---

◆ 3G/HD/SD > 4K UHD (Up-conversion)

Input	Output: Video Format		4K (3G-SDI x 4) BT.709 OR BT.2020				4K (HD-SDI x 4) BT.709 OR BT.2020			
			2160/59.94p				2160/29.97p		2160/23.98p	
			Level A	Level A	Level B	Level B				
			2SI	SQD	2SI	SQD	2SI	SQD	2SI	SQD
HD (3G-SDI) BT.709 OR BT.2020	1080/59.94p	Level A	HD->UHD Up (13.1-29.8)	HD->UHD Up (13.1-29.8)	HD->UHD Up (6.4-23.1)	HD->UHD Up (6.4-23.1)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
		Level B	HD->UHD Up (13.1-29.8)	HD->UHD Up (13.1-29.8)	HD->UHD Up (6.4-23.1)	HD->UHD Up (6.4-23.1)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
HD(HD-SDI) BT.709 OR BT.2020	1080/59.94i		HD->UHD Up (13.2-29.9)	HD->UHD Up (13.2-29.9)	HD->UHD Up (6.4-23.1)	HD->UHD Up (6.4-23.1)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	1080/29.97p		HD->UHD Up (130)	HD->UHD Up (130)	HD->UHD Up (130)	HD->UHD Up (130)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	1080/29.97PsF		HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	1080/23.98p		HD->UHD Up (155)	HD->UHD Up (155)	HD->UHD Up (155)	HD->UHD Up (155)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	1080/23.98PsF		HD->UHD Up (105)	HD->UHD Up (105)	HD->UHD Up (105)	HD->UHD Up (105)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	720/59.94p		HD->UHD Up (14.1-30.8)	HD->UHD Up (14.1-30.8)	HD->UHD Up (7.4-24.1)	HD->UHD Up (7.4-24.1)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	720/29.97p		HD->UHD Up (130)	HD->UHD Up (130)	HD->UHD Up (130)	HD->UHD Up (130)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	720/23.98p		HD->UHD Up (160)	HD->UHD Up (160)	HD->UHD Up (160)	HD->UHD Up (160)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
SD(SD-SDI)	525/60i		SD->UHD Up (14.3-31)	SD->UHD Up (14.3-31)	SD->UHD Up (7.6-24.3)	SD->UHD Up (7.6-24.3)	SD->UHD Up	HD->UHD Up	SD->UHD Up	SD->UHD Up

◆ 4K UHD > 3G/HD/SD (Down-conversion)

Input	Output: Video Format			HD (3G-SDI) BT.709 OR BT.2020		HD (HD-SDI) BT.709 OR BT.2020								SD (SD-SDI)
				1080/59.94p		1080/ 59.94i	1080/ 29.97p	1080/ 29.97PsF	1080/ 23.98p	1080/ 23.98PsF	720/59.94p	720/ 29.97p	720/ 23.98p	525/60i
				Level A	Level B									
4K (3G-SDI x 4) BT.709 OR BT.2020	2160/ 59.94p	Level A	2SI	UHD->HD Down (14.7-31.4)	UHD->HD Down (14.7-31.4)	UHD->HD Down (13.7-30.4)	UHD->HD Down (98)	UHD->HD Down	UHD->HD Down (105)	UHD->HD Down (80)	UHD->HD Down (13.7-30.4)	UHD->HD Down	UHD->HD Down	UHD->SD Down (15.1-31.8)
			SQD	UHD->HD Down (14.7-31.4)	UHD->HD Down (14.7-31.4)	UHD->HD Down (13.7-30.4)	UHD->HD Down (98)	UHD->HD Down	UHD->HD Down (105)	UHD->HD Down (80)	UHD->HD Down (13.7-30.4)	UHD->HD Down	UHD->HD Down	UHD->SD Down (15.1-31.8)
		Level B	2SI	UHD->HD Down (6.5-25.2)	UHD->HD Down (6.5-25.2)	UHD->HD Down (5.7-22.4)	UHD->HD Down (91)	UHD->HD Down	UHD->HD Down (97)	UHD->HD Down (74)	UHD->HD Down (5.7-22.4)	UHD->HD Down	UHD->HD Down	UHD->SD Down (7.1-23.8)
			SQD	UHD->HD Down (6.5-25.2)	UHD->HD Down (6.5-25.2)	UHD->HD Down (5.7-22.4)	UHD->HD Down (91)	UHD->HD Down	UHD->HD Down (97)	UHD->HD Down (74)	UHD->HD Down (5.7-22.4)	UHD->HD Down	UHD->HD Down	UHD->SD Down (7.1-23.8)
4K (HD-SDI x4) BT.709 OR BT.2020	2160/29.97p		2SI	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->SD Down
			SQD	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->SD Down
	2160/23.98p		2SI	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->SD Down
			SQD	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->SD Down
	2160/23.98PsF		SQD	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->SD Down

◆ 3G/HD/SD > 3G/HD/SD (Cross-conversion)

Input	Output: Video Format		HD (3G-SDI) BT.709 OR BT.2020		HD (HD-SDI) BT.709 OR BT.2020								SD (SD-SDI)
			1080/59.94p		1080/ 59.94i	1080/ 29.97p	1080/ 29.97PsF	1080/ 23.98p	1080/ 23.98PsF	720/ 59.94p	720/ 29.97p	720/ 23.98p	525/60i
			Level A	Level B									
HD (3G-SDI) BT.709 OR BT.2020	1080/ 59.94p	Level A		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down
		Level B	HD->HD		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down
HD (HD-SDI) BT.709 OR BT.2020	1080 / 59.94i		HD->HD	HD->HD		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down
	1080/29.97p		HD->HD	HD->HD	HD->HD		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down
	1080/29.97PsF		HD->HD	HD->HD	HD->HD	HD->HD		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down
	1080/23.98p		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD		HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down
	1080/23.98PsF		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD		HD->HD	HD->HD	HD->HD	HD->SD Down
	720/59.94p		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD		HD->HD	HD->HD	HD->SD Down
	720/29.97p		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD		HD->HD	HD->SD Down
	720/23.98p		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD		HD->SD Down
SD (SD-SDI)	525/60i		SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	

10-2. 50Hz (PAL) Family

◆ 4K UHD > 4K UHD (Cross-conversion)

Input	Output: Video Format			4K (3G-SDI x 4) BT.709 OR BT.2020				4K (HD-SDI x 4) BT.709 OR BT.2020			
				2160/50p				2160/25p		2160/24p	
				Level A		Level B					
				2SI	SQD	2SI	SQD	2SI	SQD	2SI	SQD
4K (3G-SDI x 4) BT.709 OR BT.2020	2160/50p	Level A	2SI	(0.1-20)	UHD->UHD (0.1-20)	UHD->UHD Level A->B (9.6-29.6)	UHD->UHD Level A->B 2SI->SQD (9.6-29.6)	---	---	---	---
		Level A	SQD	UHD->UHD SQD->2SI (0.1-20)	(0.1-20)	UHD->UHD Level A->B SQD->2SI (9.6-29.6)	UHD->UHD Level A->B (9.6-29.6)	---	---	---	---
		Level B	2SI	UHD->UHD Level B->A (9.6-29.6)	UHD->UHD Level B->A 2SI->SQD (9.6-29.6)	(0.1-20)	UHD->UHD 2SI->SQD (0.1-20)	---	---	---	---
		Level B	SQD	UHD->UHD Level B->A SQD->2SI (9.6-29.6)	UHD->UHD Level B->A (9.6-29.6)	UHD->UHD SQD->2SI (0.1-20)	(0.1-20)	---	---	---	---
4K (HD-SDI x 4) BT.709 OR BT.2020	2160/25p		2SI	---	---	---	---		UHD->UHD SQD->2SI	---	---
			SQD	---	---	---	---	UHD->UHD 2SI->SQD		---	---
	2160/24p		2SI	---	---	---	---	---	---		UHD->UHD SQD->2SI
			SQD	---	---	---	---	---	---	UHD->UHD 2SI->SQD	

◆ 3G/HD/SD > 4K UHD (Up-conversion)

Input	Output		4K (3G-SDI x 4) BT.709 OR BT.2020				4K (HD-SDI x 4) BT.709 OR BT.2020			
	Video Format		2160/50p				2160/25p		2160/24p	
			Level A		Level B					
			2SI	SQD	2SI	SQD	2SI	SQD	2SI	SQD
HD (3G-SDI) BT.709 OR BT.2020	1080/50p	Level A	HD->UHD Up (13.1-29.8)	HD->UHD Up (13.1-29.8)	HD->UHD Up (6.4-23.1)	HD->UHD Up (6.4-23.1)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
		Level B	HD->UHD Up (13.1-29.8)	HD->UHD Up (13.1-29.8)	HD->UHD Up (6.4-23.1)	HD->UHD Up (6.4-23.1)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
HD (HD-SDI) BT.709 OR BT.2020	1080/50i		HD->UHD Up (13.2-29.9)	HD->UHD Up (13.2-29.9)	HD->UHD Up (6.4-23.1)	HD->UHD Up (6.4-23.1)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	1080/25p		HD->UHD Up (130)	HD->UHD Up (130)	HD->UHD Up (130)	HD->UHD Up (130)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	1080/25PsF		HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	1080/24p		HD->UHD Up (155)	HD->UHD Up (155)	HD->UHD Up (155)	HD->UHD Up (155)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	1080/24PsF		HD->UHD Up (105)	HD->UHD Up (105)	HD->UHD Up (105)	HD->UHD Up (105)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	720/50p		HD->UHD Up (14.1-30.8)	HD->UHD Up (14.1-30.8)	HD->UHD Up (7.4-24.1)	HD->UHD Up (7.4-24.1)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	720/25p		HD->UHD Up (130)	HD->UHD Up (130)	HD->UHD Up (130)	HD->UHD Up (130)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	720/24p		HD->UHD Up (160)	HD->UHD Up (160)	HD->UHD Up (160)	HD->UHD Up (160)	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
SD (SD-SDI)	625/50i		SD->UHD Up (14.3-31)	SD->UHD Up (14.3-31)	SD->UHD Up (7.6-24.3)	SD->UHD Up (7.6-24.3)	SD->UHD Up	SD->UHD Up	SD->UHD Up	SD->UHD Up

◆ 4K UHD > 3G/HD/SD (Down-conversion)

Input	Output			HD (3G-SDI) BT.709 OR BT.2020		HD (HD-SDI) BT.709 OR BT.2020								SD (SD-SDI)
	Video Format			1080/50p		1080/50i	1080/25p	1080/25PsF	1080/24p	1080/24PsF	720/50p	720/25p	720/24p	625/50i
				Level A	Level B									
4K (3G-SDI x 4) BT.709 OR BT.2020	2160/50p	Level A	2SI	UHD->HD Down (16.6-36.6)	UHD->HD Down (16.6-36.6)	UHD->HD Down (17.4-37.4)	UHD->HD Down (120)	UHD->HD Down	UHD->HD Down (120)	UHD->HD Down (120)	UHD->HD Down (18.0-38.0)	UHD->HD Down	UHD->HD Down	UHD->SD Down (19.7-39.7)
			SQD	UHD->HD Down (16.6-36.6)	UHD->HD Down (16.6-36.6)	UHD->HD Down (17.4-37.4)	UHD->HD Down (120)	UHD->HD Down	UHD->HD Down (120)	UHD->HD Down (120)	UHD->HD Down (18.0-38.0)	UHD->HD Down	UHD->HD Down	UHD->SD Down (19.7-39.7)
		Level B	2SI	UHD->HD Down (7.0-27.0)	UHD->HD Down (7.0-27.0)	UHD->HD Down (7.9-27.9)	UHD->HD Down (110)	UHD->HD Down	UHD->HD Down (110)	UHD->HD Down (110)	UHD->HD Down (8.3-28.3)	UHD->HD Down	UHD->HD Down	UHD->SD Down (10.1-30.1)
			SQD	UHD->HD Down (7.0-27.0)	UHD->HD Down (7.0-27.0)	UHD->HD Down (7.9-27.9)	UHD->HD Down (110)	UHD->HD Down	UHD->HD Down (110)	UHD->HD Down (110)	UHD->HD Down (8.3-28.3)	UHD->HD Down	UHD->HD Down	UHD->SD Down (10.1-30.1)
4K (HD-SDI x 4) BT.709 OR BT.2020	2160/25p		2SI	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->SD Down
			SQD	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->SD Down
	2160/24p		2SI	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->SD Down
			SQD	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->SD Down

◆ 3G/HD/SD > 3G/HD/SD (Cross-conversion)

Input	Output		HD (3G-SDI) BT.709 OR BT.2020		HD (HD-SDI) BT.709 OR BT.2020								SD (SD-SDI)
	Video Format		1080/50p		1080/50i	1080/25p	1080/25PsF	1080/24p	1080/24PsF	720/50p	720/25p	720/24p	625/50i
			Level A	Level B									
HD (3G-SDI) BT.709 OR BT.2020	1080/50p	Level A		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down
		Level B	HD->HD		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down
HD (HD-SDI) BT.709 OR BT.2020	1080/50i		HD->HD	HD->HD		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down
	1080/25p		HD->HD	HD->HD	HD->HD		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down
	1080/25PsF		HD->HD	HD->HD	HD->HD	HD->HD		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down
	1080/24p		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD		HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down
	1080/24PsF		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD		HD->HD	HD->HD	HD->HD	HD->SD Down
	720/50p		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD		HD->HD	HD->HD	HD->SD Down
	720/25p		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD		HD->HD	HD->SD Down
	720/24p		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD		HD->SD Down
SD (SD-SDI)	625/50i		SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	

10-3. 60Hz Family

◆ 4K UHD > 4K UHD (Cross-conversion)

Input	Output: Video Format			4K (3G-SDI x 4) BT.709 OR BT.2020				4K (HD-SDI x 4) BT.709 OR BT.2020	
				2160/60p				2160/30p	
				Level A		Level B			
				2SI	SQD	2SI	SQD	2SI	SQD
4K (3G-SDI x 4) BT.709 OR BT.2020	2160/60p	Level A	2SI		UHD->UHD 2SI->SQD	UHD->UHD LevelA->B	UHD->UHD LevelA->B 2SI->SQD	---	---
			SQD	UHD->UHD SQD->2SI		UHD->UHD LevelA->B SQD->2SI	UHD->UHD LevelA->B	---	---
		Level B	2SI	UHD->UHD LevelB->A	UHD->UHD LevelB->A 2SI->SQD		UHD->UHD 2SI->SQD	---	---
			SQD	UHD->UHD LevelB->A SQD->2SI	UHD->UHD LevelB->A	UHD->UHD SQD->2SI		---	---
4K (HD-SDI x 4) BT.709 OR BT.2020	2160/30p		2SI	---	---	---	---		UHD->UHD Up
			SQD	---	---	---	---	UHD->UHD Up	

◆ 3G/HD/SD > 4K UHD (Up-conversion)

Input	Output: Video Format		4K (3G-SDI x 4) BT.709 OR BT.2020				4K (HD-SDI x 4) BT.709 OR BT.2020	
			2160/60p				2160/30p	
			Level A		Level B			
			2SI	SQD	2SI	SQD	2SI	SQD
HD (3G-SDI) BT.709 OR BT.2020	1080/60p	Level A	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
		Level B	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
HD (HD-SDI) BT.709 OR BT.2020	1080 / 60i		HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	1080/30PsF		HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	1080/30p		HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	720/60p		HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
	720/30p		HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up	HD->UHD Up
SD (SD-SDI)	525/60i		SD->UHD Up	SD->UHD Up	SD->UHD Up	SD->UHD Up	SD->UHD Up	SD->UHD Up

◆ 4K UHD > 3G/HD/SD (Down-conversion)

Input	Output: Video Format			HD (3G-SDI) BT.709 OR BT.2020		HD (HD-SDI) BT.709 OR BT.2020					SD (SD-SDI)
				1080/60p		1080/60i	1080/30p	1080/30PsF	720/60p	720/30p	525/60i
				Level A	Level B						
4K (3G-SDI x 4) BT.709 OR BT.2020	2160/60p	Level A	2SI	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->SD Down
			SQD	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->SD Down
		Level B	2SI	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->SD Down
			SQD	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->HD Down	UHD->SD Down
4K (HD-SDI x 4) BT.709 OR BT.2020	2160/30p		2SI	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down
			SQD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down

◆ 3G/HD/SD > 3G/HD/SD (Cross-conversion)

Input	Output: Video Format		HD (3G-SDI) BT.709 OR BT.2020		HD (HD-SDI) BT.709 OR BT.2020					SD (SD-SDI)
			1080/60p		1080/60i	1080/30p	1080/30PsF	720/60p	720/30p	525/60i
			Level A	Level B						
HD (3G-SDI) BT.709 OR BT.2020	1080/60p	Level A		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down
		Level B	HD->HD		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down
HD (HD-SDI) BT.709 OR BT.2020	1080/60i		HD->HD	HD->HD		HD->HD	HD->HD	HD->HD	HD->HD	HD->SD Down
	1080/30PsF		HD->HD	HD->HD	HD->HD		HD->HD	HD->HD	HD->HD	HD->SD Down
	1080/30p		HD->HD	HD->HD	HD->HD	HD->HD		HD->HD	HD->HD	HD->SD Down
	720/60p		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD		HD->HD	HD->SD Down
	720/30p		HD->HD	HD->HD	HD->HD	HD->HD	HD->HD	HD->HD		HD->SD Down
SD (SD-SDI)	525/60i		SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	SD->HD Up	

11. Specifications and Dimensions

11-1. Specifications

Video input		Quad Link 3G/HD-SDI (4K UHD) x 1, 75Ω (BNC x 4) 3G/HD/SD-SDI x 1, 75Ω (BNC x1)
Video output		For 4K UHD: Quad Link 3G/HD-SDI (4K UHD) x 1, 75Ω (BNC x 4) For 3G/HD/SD-SDI: 3G/HD/SD-SDI x 4 (分配出力) , 75Ω (BNC x 4)
Video Formats	4K UHD:	3840 x 2160p / 60, 59.94, 50 (Quad Link 3G-SDI, SQD/2SI, Level-A/B) 3840 x 2160p / 30, 29.97, 25, 24, 23.98 (Quad Link 1.5G-SDI, SQD, Level-A/B) Color gamut: BT.2020/709
	3G/HD:	1080p / 60, 59.94, 50 (3G-SDI Level-A/B) 1080i / 60, 59.94, 50, 1080p / 30, 29.97, 25, 24, 23.98 1080PsF / 30, 29.97, 25, 24, 23.98 720p / 60, 59.94, 50, 60, 29.97, 25, 24, 23.98 Color gamut: BT.2020/709
	SD:	525/60i, 625/50i
Automatic input cable compensation		BNC cable length 3G-SDI: Max.70m (Using 5C-FB-equivalent cable) HD-SDI: Max.100m (Using 5C-FB-equivalent cable) SD-SDI: Max.200m (Using 5C-2V-equivalent cable)
Quantization		Y: 10-bit, C: 10-bit
Sampling frequency		3G-SDI: Y: 148.5MHz C: 74 MHz HD-SDI: Y: 74MHz C: 37MHz SD-SDI: Y: 13.5MHz C: 6.75MHz
Genlock input		BB: 0.429V(p-p) (NTSC), 0.45V(p-p) (PAL), Tri-Level Sync.: 0.6V(p-p) Supplied by the USF frame.
Sync. mode		Genlock, Input selectable.
Sync Adjustment		In Genlock mode: Horizontal: -1H to +1H Vertical: -1/2frame to +1/2frame
Video functions		Up/ Down convert, Proc. amp., Aperture, Enhancement, Cadence Aspect Ratio Converter (To be supported in future)
SDI embedded audio		DOLBY-E: Unavailable
Input	4K UHD:	Link 1, 16 channels (Group 1-4) 48kHz 24-bit. Synchronous only (3G-Level-B-DL: Link-A only)
	3G/HD:	16 channels (Group 1-4) 48kHz 24-bit. Synchronous only. (3G-Level-B-DL: Link-A only)
	SD:	16 channels (Group 1-4) 48kHz 20-bit. Synchronous only.
Output	4K UHD:	Link 1, 16 channels (Group 1-4) 48kHz 24-bit. Synchronous only (Link 1 audio channels are also embedded onto Link 2-4 in up-conversions). (3G-Level-B-DL: Link-A only)
	3G/HD:	16 channels (Group 1-4) 48kHz 24-bit. Synchronous only. (3G-Level-B-DL: Link-A only)
	SD:	16 channels (Group 1-4) 48kHz 20-bit. Synchronous only.
Audio delay adjustment		Adjustable between -40ms to 1,000ms (per ms)

Audio functions	SRC (Sample Rate Converter), Gain Control, Remapping, Mute Polarity reversing (settable per channel)	
Remote control	Web control (Require USF-212S)	
Temperature	0°C to 35°C	
Humidity	30% to 90% (no condensation)	
Power	+12 V DC (Supplied by USF frame)	
Power consumption	0.95 A	
Dimensions	Front Module: Rear Module:	106 (W) x 356 (D) mm 114 (W) x 40.7 (H) mm
Weight	250 g	
Required slot	2	

11-2. External Dimensions

(All dimensions in mm)