

4K UP/DOWN/CONVERTER USF-1044UDC

4K (UHD) up/down^{*1} conversion module for USF-212S

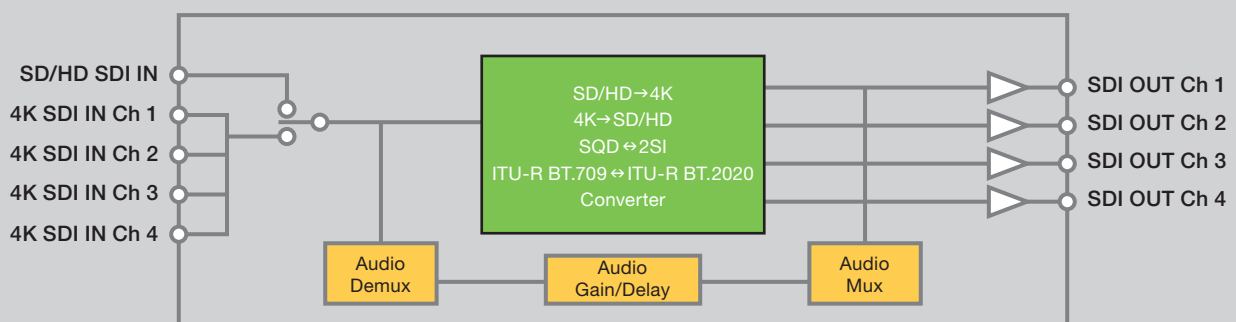


Actual product may differ in appearance from the image above.

- SQD and 2SI 4K signals supported
- ITU-R BT.2020/709 color space supported
- Clean edge
- Aperture
- H/V enhancement
- Noise reducer
- Audio gain, audio delay
- Embedded audio: 16 channels (12 for SD output)

^{*1} Up/down conversion between SD and HD is not available.

Block diagram



Video format conversion

HD → 4K (UHD)		Upconversion			
Input	Output	4K (3G-SDI x 4)			
		1080/59.94p (Level-A/B) SQD	1080/59.94p (Level-A/B) 2SI	1080/50p (Level-A/B) SQD	1080/50p (Level-A/B) 2SI
3G-SDI	1080/59.94p (Level-A/B)	Yes	Yes	No	No
	1080/50p (Level-A/B)	No	No	Yes	Yes
HD-SDI	1080/60i	Yes	Yes	No	No
	1080/59.94i	Yes	Yes	No	No
	1080/50i	No	No	Yes	Yes
	1080/30p	Yes	Yes	No	No
	1080/29.97p	Yes	Yes	No	No
	1080/25p	No	No	Yes	Yes
	1080/24p	No	No	Yes	Yes
	1080/24PsF	No	No	Yes	Yes
	1080/23.98p	Yes	Yes	No	No
	1080/23.98PsF	Yes	Yes	No	No
	720/60p	Yes	Yes	No	No
	720/59.94p	Yes	Yes	No	No
	720/50p	No	No	Yes	Yes
	720/30p	Yes	Yes	No	No
	720/29.97p	Yes	Yes	No	No
	720/25p	No	No	Yes	Yes
	720/24p	No	No	Yes	Yes
720/23.98p	Yes	Yes	No	No	

SD → UHD		Upconversion			
Input	Output	4K (3G-SDI x 4)			
		1080/59.94p (Level-A/B) SQD	1080/59.94p (Level-A/B) 2SI	1080/50p (Level-A/B) SQD	1080/50p (Level-A/B) 2SI
SD-SDI	525/59.94i	Yes	Yes	No	No
	625/50i	No	No	Yes	Yes

4K → HD **Downconversion**

Input \ Output		3G-SDI		HD-SDI			
		1080/59.94p (Level-A/B)	1080/50p (Level-A/B)	1080/59.94i	1080/50i	1080/29.97p	1080/25p
4K (3G-SDI x 4)	1080/59.94p (Level-A/B) SQD	Yes	No	Yes	No	Yes	No
	1080/59.94p (Level-A/B) 2SI	Yes	No	Yes	No	Yes	No
	1080/50p (Level-A/B) SQD	No	Yes	No	Yes	No	Yes
	1080/50p (Level-A/B) 2SI	No	Yes	No	Yes	No	Yes

Input \ Output		HD-SDI					
		1080/24p	1080/24PsF	1080/23.98p	1080/23.98PsF	720/59.94p	720/50p
4K (3G-SDI x 4)	1080/59.94p (Level-A/B) SQD	No	No	Yes	Yes	Yes	No
	1080/59.94p (Level-A/B) 2SI	No	No	Yes	Yes	Yes	No
	1080/50p (Level-A/B) SQD	Yes	Yes	No	No	No	Yes
	1080/50p (Level-A/B) 2SI	Yes	Yes	No	No	No	Yes

4K → SD **Downconversion**

Input \ Output		SD-SDI	
		525/59.94i	625/50i
4K (3G-SDI x 4)	1080/59.94p (Level-A/B) SQD	Yes	No
	1080/59.94p (Level-A/B) 2SI	Yes	No
	1080/50p (Level-A/B) SQD	No	Yes
	1080/50p (Level-A/B) 2SI	No	Yes

4K → 4K

Input \ Output		4K (3G-SDI x 4)			
		1080/59.94p (Level-A) SQD	1080/59.94p (Level-B) SQD	1080/59.94p (Level-A) 2SI	1080/59.94p (Level-B) 2SI
4K (3G-SDI x 4)	1080/59.94p (Level-A) SQD	Yes	Yes	Yes	Yes
	1080/59.94p (Level-B) SQD	Yes	Yes	Yes	Yes
	1080/59.94p (Level-A) 2SI	Yes	Yes	Yes	Yes
	1080/59.94p (Level-B) 2SI	Yes	Yes	Yes	Yes

Input \ Output		4K (3G-SDI x 4)			
		1080/50p (Level-A) SQD	1080/50p (Level-B) SQD	1080/50p (Level-A) 2SI	1080/50p (Level-B) 2SI
4K (3G-SDI x 4)	1080/50p (Level-A) SQD	Yes	Yes	Yes	Yes
	1080/50p (Level-B) SQD	Yes	Yes	Yes	Yes
	1080/50p (Level-A) 2SI	Yes	Yes	Yes	Yes
	1080/50p (Level-B) 2SI	Yes	Yes	Yes	Yes

Specifications

Video inputs		One system is selected for conversion
	4K	3G-SDI: 3 Gbps, 75Ω, BNC x 4 (1080/59.94p, 1080/50p, Level-A/B) Signal format: SQD or 2SI, color space: ITU-R BT.709 or ITU-R BT.2020
	HD (3G/1.5G), SD	3G-SDI: 3 Gbps, HD-SDI: 1.5 Gbps, SD-SDI: 270 Mbps, 75Ω, BNC x 1
Genlock input		Supplied from the USF-212S frame (BB or Tri-level sync)
Video outputs		Produces either as output, depending on conversion (3G/HD/SD: distributed to four outputs)
	4K	3G-SDI: 3 Gbps, 75Ω, BNC x 4 (1080/59.94p, 1080/50p, Level-A/B) Signal format: SQD or 2SI, color space: ITU-R BT.709 or ITU-R BT.2020
	HD (3G/1.5G), SD	3G-SDI: 3 Gbps, HD-SDI: 1.5 Gbps, SD-SDI: 270 Mbps, 75Ω, BNC x 4
Conversion delay*2		0.3 msec to 160 msec
Audio inputs	Embedded	4K/HD (3G/1.5G): 16 channels (Group 1 to 4), 48 kHz, 16-bit to 24-bit, synchronous/asynchronous SD: 12 channels (Group 1 to 3), 48 kHz, 16-bit to 24-bit, synchronous only
Audio outputs	Embedded	4K/HD (3G/1.5G): 16 channels (Group 1 to 4), 48 kHz, 24-bit, synchronous only SD: 12 channels (Group 1 to 3), 48 kHz, 24-bit, synchronous only
Video processing		H/V enhancement, Noise reducer
Audio delay		0 msec to 1000 msec (1 msec steps)
Control		Browser-based setup (via USF-212S frame)
Monitoring		SNMP v2c (via USF-212S frame)
Temperature / humidity		0°C to 40°C / 30% to 85% (no condensation)
Power / Consumption		DC +12V (supplied from the USF frame) / 1.5 A
Dimensions / Weight		106 (W) x 356 (D) mm (front), 114 (W) x 40.7 (H) mm (rear) / 0.3 kg
Slots required		2 slots
Consumables		None
Accessories		Operation manual (CD-ROM)

*2 The value varies depending on the video format.



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