SONY

HDRC-4000

HDR Production Converter Unit

Overview

Simultaneous real-time 4K* HDR and HD SDR streams for SR Live for HDR workflows

The HDRC-4000 HDR production converter unit provides simultaneous real-time streams for multi-purpose 4K HDR (High Dynamic Range) live production as part of powerful Sony SR Live for HDR workflows. The unit can output a variety of video signals, including 4K HDR (S-Log3, BT.2020), HD HDR, 4K SDR and HD SDR, without loss. The compact 1.5RU chassis is ideal for operation in an outside broadcast environment. The AIR (Artistic Intent Rendering) Matching function faithfully retains the producer's artistic intent to any distribution format while achieving greater workflow efficiency. The unit can also be controlled by the MSU-1000/1500/3000/3500, RCP-1500/3500 series remote controllers and software master control HZC-CSM10.

Real-time conversion of both 4K HDR and HD HDR

Simultaneous output of 4K HDR (S-Log3, BT.2020), HD HDR, 4K SDR and HD SDR.

AIR Matching function to retain artistic intent across distribution platforms

AIR (Artistic Intent Rendering) Matching function retains the producer's artistic intent while converting the intermediate production format to any desired distribution format.

Enables powerful SR Live for HDR workflows

Compact unit forms part of Sony's powerful SR Live for HDR production environment controllable with existing MSU-1000/1500/3000/3500, RCP-1500/3500 series remote controllers and software master control HZC-CSM10.

Features

Real-time conversion of both 4K HDR and HD HDR

The HDRC-4000 offers multiple signal conversion capabilities to accommodate various distribution standards – spatial conversion, HDR/SDR conversion, colour space conversion, and OETF (opto-electronic transfer function) conversion. The unit supports HD 1920 x 1080 / 1280 x 720 (input only) and 4K (3840 x 2160) signal formats.

AIR Matching function to retain artistic intent across distribution platforms

AIR (Artistic Intent Rendering) Matching function enables conversion of the intermediate production master (Sony recommends using 4K UHD resolution, S-Log3 OETF and BT.2020 colour space for HDR production) to any desired distribution format, such as HLG (Hybrid Log-Gamma), PQ (Perceptual Quantizer), or SDR on an "as-seen" basis. With this feature turned on, the HDRC-4000 faithfully retains the producer's creative/artistic intent – in other words, the final look and feel of the picture – onto the master monitor in the OB truck/master control room in the process of converting the intermediate production master to any desired distribution master format for broadcast. In addition to SR (Scene Refereed) conversion, DR(Display Referred) conversion is also available such as for CG or archiving materials.

Compact design ideal for outside broadcast operations
The compact 1.5RU chassis provides 12G-SDI/6G-SDI/3G-SDI/1.5G-SDI, inputs/outputs, switchable either to 4K or HD, as well as supporting 16-channel embedded audio.

Multi System Operation with Camera/CCU/HDRC by MSU
The simul-setting feature has been added to an MSU (Master Setup Unit) for simple setup and reducing mistakes for entire HDR production. The MSU distributes single settings to each device in the system at once. Sony cameras, CCUs, BPUs and HDRC-4000 converters can be identically configured from a single control panel.

SR Live Metadata
The “SR Live metadata” packet reacts in real time.* It captures changes of parameter values as camera adjustments are made, under the creative control of the camera shader. The packet is embedded within the SDI signal and is ultimately recorded in files, making both signal feeds and files self-explanatory at every stage of the production chain. SR Live metadata from the selected production camera, can be read by the HDRC-4000 converter to indicate the exact conditions of the camera during shooting. This provides the information required by the converter for exact duplication of the SDR program from the HDR layer. It also allows each metadata parameter to be visually checked, both live and during post-production.

* With a few frame delay

HDR Look and HDR Black Compression
For flexible and creative control of the HDR images, Sony has added “HDR Look” and “HDR Black Compression” that are highly sophisticated signal processing tools for SR Live.. The setting of the “HDR look” is used to adjust the picture appearance throughout the full range of the video signal. The adjustment for “HDR Black Compression”, on the other hand, affects the look in the dark regions of an image. The Introduction of this new feature is intended to clarify the signal settings of the video camera and HDRC-4000 HDR converter by clearly separating the selection of the OETF from the setting of the image looks.

Specifications

General	
Power requirements	100 V to 240 V AC, 50/60 Hz
Current consumption	1.4 A (max.)
Operating temperature	5 °C to 40 °C (41 °F to 104 °F)
Storage temperature	-20 °C to +60 °C (-4 °F to +140 °F)
Weight	Approx. 6.8 kg (15 lb)

Input/output connectors	
RCP / CNU	8-pin multi-connector (2)
LAN 1 to 2	RJ-45 (8-pin) (1) (for MSU/RCP connection)
Input Signal Format	4K：3840 x 2160/59.94P, 50p, 29.97P, 29.97PsF, 25P, 25PsF, 24P, 24PsF, 23.98P, 23.98PsF HD：1920 x 1080/59.94P, 59.94i, 50P, 50i, 29.97PsF, 25PsF, 24PsF, 23.98PsF 1280 x 720/59.94P, 50P

Input/output connectors	
4K INPUT-A, 4K INPUT-B (3G/HD-SDI INPUT)	BNC (4+4) 12G-SDI (Link1 only): SMPTE ST2082 0.8 Vp-p, 75 ohms, 11.880 Gbps/11.868Gbps 6G-SDI (Link1 only): SMPTE ST2081, 0.8 Vp-p, 75 ohms, 5.940 Gbps/5.934 Gbps 3G-SDI: SMPTE ST424/425 Level-A/B, 0.8 Vp-p, 75 ohms, 2.970 Gbps/2.967 Gbps HD-SDI: SMPTE ST292, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps
HD INPUT-A, HD INPUT-B (3G/HD-SDI INPUT)	BNC (1+1) 3G-SDI: SMPTE ST424/425 Level-A/B, 0.8 Vp-p, 75 ohms, 2.970 Gbps/2.967 Gbps HD-SDI: SMPTE ST292, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps
Output Signal Format	4K：3840 x 2160/59.94P, 50P, 29.97P, 29.97PsF, 25P, 25PsF, 24P, 24PsF, 23.98P, 23.98PsF HD：1920 x 1080/59.94P, 59.94i, 50P, 50i, 29.97PsF, 25PsF, 24PsF, 23.98PsF
4K OUT-A, 4K OUT-B (3G/HD-SDI OUTPUT)	BNC (8+8) 12G-SDI (Link1 only): SMPTE ST2082 0.8 Vp-p, 75 ohms, 11.880 Gbps/11.868Gbps 6G-SDI (Link1 only): SMPTE ST2081, 0.8 Vp-p, 75 ohms, 5.940 Gbps/5.934 Gbps 3G-SDI: SMPTE ST424/425 Level-A/B, 0.8 Vp-p, 75 ohms, 2.970 Gbps/2.967 Gbps HD-SDI: SMPTE ST292, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps
HD OUT-A MAIN, HD OUT-B MAIN (3G/HD-SDI OUTPUT)	BNC (1+1) 3G-SDI: SMPTE ST424/425 Level-A/B, 0.8 Vp-p, 75 ohms, 2.970 Gbps/2.967 Gbps HD-SDI: SMPTE ST292, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps 3G-SDI/HD-SDI selectable
HD OUT-A MONITOR, HD OUT-B MONITOR (HD-SDI OUTPUT)	BNC (1+1) HD-SDI: SMPTE ST292, 0.8 Vp-p, 75 ohms, 1.485 Gbps/1.4835 Gbps
REFERENCE IN/OUT	BNC (2) Loop through output HD: SMPTE ST274, tri-level sync, 0.6 Vp-p, 75 ohms SD: Black burst (NTSC: 0.286 Vp-p, 75 ohms/PAL: 0.3 Vp-p, 75 ohms)
AC IN	100 V to 240 V AC (1)

Supplied accessories	
Supplied accessories	Number plates (1 set) Operation Guide (1) Operation Manual (CD-ROM) (1)

Related products

HDC-5500

2/3-type 4K 3-CMOS sensor portable system camera with 4K 4x HFR capability

HDC-3500

2/3-type 4K 3-CMOS sensor portable system camera with HD 4x HFR capability

HDC-3100

2/3-type 3-CMOS sensor portable system camera for fibre operation

HDC-4800

UHFR 4K/HD Camera System

UHC-8300

1.25-type 8K 3-CMOS sensor portable system camera with 8K 2x HFR capability

HDC-P50

2/3-type 4K 3-CMOS sensor POV system camera with HD 6x HFR capability

HDC-P31

2/3-type 3-CMOS sensor POV system camera

HXC-FB80

Three 2/3-inch Exmor™ CMOS sensor HD colour studio camera

MSU-3000

Master setup unit, multi camera remote control panel for system cameras (horizontal type)

MSU-3500

Master setup unit, multi camera remote control panel for system cameras (vertical type)

RCP-3500

Remote-control panel for HDC/HSC/HXC series cameras

RCP-3501

Remote-control panel for HDC/HSC/HXC series cameras

Gallery