

## 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 1.5-RU 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.

## Features

### **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.

### **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, color-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 color 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 Referred) conversion, DR (Display Referred) conversion is also available for things like CG or archiving materials.

### **Compact design ideal for outside broadcast operations**

The compact 1.5-RU 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, BPU, 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," highly sophisticated signal-processing tools for SR Live. The "HDR look" settings 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
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Current consumption	1.4 A (max.)
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Operating temperature	5 °C to 40 °C (41 °F to 104 °F)
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Storage temperature	-20 °C to +60 °C (.4 °F to +140 °F)
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Mass	Approx. 6.8 kg (15 lb)
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### Input/output connectors

I/O PORT	D-Sub 15-pin connector
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REMOTE A, B	8-pin multi-connector (2)
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LAN	RJ-45 (8-pin) (1) (for MSU/RCP connection)
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### Input connectors

AC IN	100 V to 240 V AC (1)
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	4K: 3840 x 2160/59.94P, 50p, 29.97P,
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Input Signal Format

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

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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/11.868 Gbps

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

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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

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BNC (2) Loop through output  
HD: SMPTE ST274, tri-level sync,

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REFERENCE IN/OUT 0.6 Vp-p, 75 ohms  
SD: Black burst (NTSC: 0.286 Vp-p, 75 ohms/PAL: 0.3 Vp-p, 75 ohms)

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## Output connectors

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

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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/11.868 Gbps  
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

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HD OUT-A MAIN, HD BNC (1+1)  
3G-SDI: SMPTE ST424/425 Level-A/B, 0.8 Vp-p, 75 ohms, 2.970

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OUT-B MAIN (3G/HD-SDI OUTPUT)	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
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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
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## Supplied accessories

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



### HDC-5500

High performance three 2/3-inch 4K CMOS sensor portable system camera with direct 4K output



### HDC-3500

Three 2/3-inch 4K CMOS sensors portable system camera for fiber operation



### HDC-3100

Three 2/3-inch CMOS sensors portable system camera for fiber operation



### UHC-8300

UHC-8300 8K 3CMOS sensor Camera system includes UHCU-8300 8K Camera Control Unit, UKCU-8001 (8K ST 2110 Interface), UZCU-SNMP80 (SNMP for 8K ST 2110), UKCU-IP01F (Networked Media Interface)



## HDC-P50

4K/HD compact POV system camera



## HDC-P31

HD compact POV system camera with enhanced remote features and advanced HDR workflows



## HXC-FB80

Three 2/3-inch Exmor™ CMOS sensor HD color 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

