Multi-Format Digital HDTV Production Camera

SK-HD1300
Progressive Image Capture

CAUTION: To ensure safe operation, please read the instruction manual before using this product.

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**Hitachi SK-HD1300**

**Multi-format HDTV Production Camera**

**Multi-format HDTV production camera**

The SK-HD1300 is a multi-format portable HDTV Studio camera. Its new MOS sensor, each having 2.6 million pixels, provides outstanding imaging performance. Due to Hitachi's implementation of the latest 3-MOS imaging technology, the SK-HD1300 achieves high levels in high sensitivity and has no vertical smear.

**Hitachi's advanced digital signal processing**

Each essential part of the Hitachi SK-HD1300 camera system has its own DSP processor. Different DSP ICs are used independently for the HDTV camera head processing, the transmission system and the Camera Control Unit (CCU) processing. The new, power-efficient Hitachi's DSP processors are designed to work with any new 2K imaging technology that is in the near future thus, offering a high R.O.I. (return on investment).

An outstanding overall signal-to-noise ratio specification of 62dB is achieved by use of our low-noise circuit technology. The standard sensitivity is rated at F10/159.94Hz (SK-HD1300)/ F11/150Hz (SK-HD1300E) with 2000 lx. Even at high gain, clear images are obtained with little noise. Also high horizontal resolution performance of 1100TVL (Luminance channel) is the pinnacle of picture sharpness and is an attribute to the claim of having the most transparent signal processing path of any Hitachi digital camera manufactured to date.

**Digital signal transmission via Hybrid Fiber Optical Cable**

The SK-HD1300 camera system utilizes industry standard Hybrid Fiber-optic cable (HFCO) connectors made of high-strength materials that ensure durability and reliable performance under the most critical TV production conditions. The maximum HFCO length with applied camera power and fully operational facilities is 4,000m (13,200 feet) without utility power.

The Optical power meters at the camera head, control panel and CCU front panel indicate the optical condition of both transmitting and receiving signals independently to accurately depict proximity to the “digital cliff” (maximum cable distance) or provide basic HFDCO diagnostics.

**Real-time Lens Aberration Correction (RLAC)**

Modern HDTV lenses can still produce optical distortions. One of these called “lateral chromatic aberration” can be reduced in certain lens models when used with the SK-HD1300 camera system.

The Hitachi function is called RLAC (Real-time Lens Aberration Correction) and it dynamically corrects images using correction data provided by the lens, through a digital interface with the camera.

**Color reproduction excellence**

**Triple-masking**

The triple-masking function includes 12-vector, linear matrix and skin tone masking providing users wide latitude in subject image color control. The 12-vector color corrector provides independent control of hue and saturation for six primary and six secondary combinations of colors. A 6-axis linear matrix provides overall color control for excellent, precise color rendition control. The Skin tone masking function provides “fine painting” (hue and saturation) of skin tones without affecting other colors in the scene.

**Picture sharpness enhancement**

**Absolute detail control**

Hitachi provides 3 major detail controls designed to precisely control, shape and control the picture sharpness characteristics of the SK-HD1300 camera system.

**Master Detail items**

Master Detail items are available to adjust various parameters of the detail signal to taste or to achieve a desired “look” in your productions. Some of these adjustments are: H/V detail, edge dependency, knee detail, limiter, source, frequency and balance.

**Skin Tone Detail**

The Skin-tone Detail function allows a skin-tone color-based softening of the image to achieve the impression of more youthful TV personalities. Three individual memories exist as well as a function to automatically detect the hue, saturation and luminance of the Skin-tone to be affected. This function is not limited to skin-tones only; it can increase or decrease the sharpness of any pair of colors in the image. Furthermore, the Skin-tone Detail level can be adjusted to follow the lens zoom position so that a natural overall enhancement is realized at wide angle shots of the talent.

**Other Useful Production Camera Features**

**Prompter and floor monitor power**

The SK-HD1300 camera system provides plenty of power to drive 24" LCD monitors with either hybrid-fiber or digital triax cable CCU/CCU.

**Floor Monitor Digital Video**

The studio floor or talent monitor can be driven with SDI (digital) video for critical viewing by the talent.

**Professional Audio Connectors**

Hitachi uses expandable I/O professional type audio connectors for the 2 intercom headsets and 2 MIC/ LINE audio connections.

**Focus Assist**

Precise focus can be easily achieved by the camera operator with the aid of the Hitachi viewfinder focus assist function. They consist of a linear bar graph on the bottom of the VF screen and detail level control just for the VF video.

**Gray-Scale Automatic Setup**

Hitachi’s Gray-scale auto setup accurately adjusts the video parameters of the camera by using an external known reference, under actual lighting conditions thus, optimizing the performance of the lens used. Color matching can easily be accomplished by employing this unique function.

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**Superb High Definition picture reproduction & enhancement tools**

**High Dynamic Range (HDR)**

High Dynamic Range (HDR) is a significant advancement in camera technology that dramatically improves picture quality and is easily visible at all viewing distances. HDR enhances images with finely than conventional black stretch. Independent Initial Gamma controls are provided for the Red, Green and Blue channels for the HDTV camera head processing, the transmission system and the Camera Control Unit (CCU) processing. The new, power-efficient Hitachi's DSP processors are designed to work with any new 2K imaging technology that is in the near future thus, offering a high R.O.I. (return on investment).

An outstanding overall signal-to-noise ratio specification of 62dB is achieved by use of our low-noise circuit technology. The standard sensitivity is rated at F10/159.94Hz (SK-HD1300)/ F11/150Hz (SK-HD1300E) with 2000 lx. Even at high gain, clear images are obtained with little noise. Also high horizontal resolution performance of 1100TVL (Luminance channel) is the pinnacle of picture sharpness and is an attribute to the claim of having the most transparent signal processing path of any Hitachi digital camera manufactured to date.

**Luminance response tools**

**Black Stretch**

The Black stretch function allows for better reproduction of dark or underexposed areas by evenly raising the luminance response without changing the pedestal, white clip or knee settings. It is especially useful in high contrast shooting conditions.

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**Multi-format HDTV Studio production camera**

**Hitachi SK-HD1300**

**Progressive Image Capture**

**High-Chroma detail**

The High-Chroma detail adjustments allow precise control of the detail level in highly color-saturated portions of the picture such as the petals of a rose or a colorful fabric.

**Auto Chroma**

Auto Chroma automatically reduces over-saturated colors in the image caused by extremely bright and colorful objects such as emergency vehicle lights or stage lighting LEDs. Also it has the effect of ‘legalizing’ the color gamut of a particular preset masking setting.

**Other Useful Production Camera Features**

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Flexible Choice of Camera Control Units

3 different Camera Control Units (CCU) are offered for every budget, physical size and signal requirement for the SK-HD1300 camera system.

The budget priced CU-HD500 Fiber CCU is a full rack model that outputs either 1080i or (special order) 720p.

Full HD 1080 Progressive CCUs include the CU-HD1300T and CU-HD1300FT that offers fiber, triax or both camera cable options. The dual fiber and triax cable CCU is particularly suitable for venues that may have multiple cable types connecting to mobile production/OB units*.

All CCUs have an easy-to-maintain modular design, employ the same control panels, data cables and peripherals.

CCU Common Features and Benefits

- Multi Format outputs : 3G/1080p/SD/59.94 / 1.5G 1080i (50/59.94) / 720p (50/59.94) / SD-SDI (CU-HD1300FT / 1300T)
- TCP/IP Network connectivity via RJ45 (CU-HD1300T/FT, CU-HD500-S5)
- HD-SDI and SD-SDI outputs
- 4 auxiliary returns (CU-HD1300T/FT)
- Dedicated teleprompter channel
- SMPTE color bar output
- 2 channel balanced analog Mic audio outputs or embedded HD-SDI digital audio
- Genlock with composite or tri-level sync
- 2-tally (Red/Green) system.
- 2-channel, 2W/4W intercom system.
- RS-232C remote control (CU-HD500)

* (See detailed specifications on the last page of this brochure)

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Large lens adaptor

The SA-1100 serves primarily as a mechanical large lens supporter and it also offers these important features: the ability to use “Hanger-type” box lenses and “Bayonet-type” hand-held portable lenses without removing the camera from the actual SA-1100.

Functions routinely required by the cameraperson in Studio and Field production are brought out from the camera menu and presented in the SA-1100’s rear operation panel for easy access. This Studio Adaptor includes a “Cable-less” and “tool-less” camera interface which increases the systems’ reliability and retains the flexibility of having multiple choices for viewfinders when using big lenses.

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System configuration chart
**MCU connector**
- 4-pin D-type female connector (LUM) [SAM-1324/25]

**Program audio**
- 2-pin, PGM audio line control w/ Chnl1 & Chnl2 intercom mix (depending on configuration accessories)

**Microphones**
- 4-pin, XLR, 0 dBm/600Ω, external prompter / BO tally out (depending on configuration accessories)
- 6-pin, XLR, 0 dBm/600Ω, external prompter / BO tally out (depending on configuration accessories)

**Program audio level**
- XLR, 0 dBm/600Ω, external prompter / BO tally out (depending on configuration accessories)
- XLR, 0 dBm/600Ω, external prompter / BO tally out (depending on configuration accessories)

**Phantom power**
- +48 V phantom power/off

**Video Inputs / Outputs**
- 6-pin remote AUX / MIC video select connector (RET control)
- 4-pin video select connector (RET control)
- 4-pin video select connector (RET control)

**Dimensions**
- 142 (W) x 188 (H) x 202 (D)

**Operating temperature**
- 0°C to 40°C, 32°F to 104°F

**View Finder**
- 2" Color Viewfinder VF-L20HD

**Dimensions**
- 107 x 85 x 22.5 mm (main body)

**Power Consumption**
- Approx. 5.0 W (at Heater-OFF)

**camera control unit**
- 4-pin, XLR, 0 dBm/600Ω, external prompter / BO tally out (depending on configuration accessories)

**MIC OUT 1**
- 4-pin, XLR, 0 dBm/600Ω, external prompter / BO tally out (depending on configuration accessories)

**MIC OUT 2**
- 4-pin, XLR, 0 dBm/600Ω, external prompter / BO tally out (depending on configuration accessories)

**Remote 1/Remote 2**
- 4-pin, XLR, 0 dBm/600Ω, external prompter / BO tally out (depending on configuration accessories)

**Remote OUT**
- 4-pin, XLR, 0 dBm/600Ω, external prompter / BO tally out (depending on configuration accessories)

**REMOTE IN**
- 4-pin, XLR, 0 dBm/600Ω, external prompter / BO tally out (depending on configuration accessories)

**REMOTE OUT**
- 4-pin, XLR, 0 dBm/600Ω, external prompter / BO tally out (depending on configuration accessories)

**Power Consumption**
- Approx. 5.0 W (at Heater-OFF)

**Camera Control Unit CU-HD500U (59.94Hz) / CU-HD500E (50Hz)**

**Dimensions**
- 133 x 189 x 194 mm (main body)

**Power Consumption**
- Approx. 5.0 W (at Heater-OFF)

**Camera Head SK-HD1300 / SK-HD1300E**

**Dimensions**
- 142 (W) x 188 (H) x 202 (D)

**Operating temperature**
- 0°C to 40°C, 32°F to 104°F

**View Finder**
- 2" Color Viewfinder VF-L20HD

**Dimensions**
- 107 x 85 x 22.5 mm (main body)

**Power Consumption**
- Approx. 5.0 W (at Heater-OFF)

**Camera Control Unit CU-HD500U (59.94Hz) / CU-HD500E (50Hz)**

**Dimensions**
- 133 x 189 x 194 mm (main body)

**Power Consumption**
- Approx. 5.0 W (at Heater-OFF)

**2-inch Color Viewfinder VF-L20HD**

**Dimensions**
- 107 x 85 x 22.5 mm (main body)

**Power Consumption**
- Approx. 5.0 W (at Heater-OFF)

**7-inch Viewfinder HDF-700H**

**Dimensions**
- 220 x 155 x 30 mm (main body)

**Power Consumption**
- Approx. 5.0 W (at Heater-OFF)

**7-inch Color OLED viewfinder HDF-EL800H**

**Dimensions**
- 226 x 158 x 31.5 mm (main body)

**Power Consumption**
- Approx. 5.0 W (at Heater-OFF)

**Dimensions**
- 107 x 85 x 22.5 mm (main body)

**Power Consumption**
- Approx. 5.0 W (at Heater-OFF)

**Camera Control Unit CU-HD500U (59.94Hz) / CU-HD500E (50Hz)**

**Dimensions**
- 133 x 189 x 194 mm (main body)

**Power Consumption**
- Approx. 5.0 W (at Heater-OFF)

**Camera Control Unit CU-HD500U (59.94Hz) / CU-HD500E (50Hz)**

**Dimensions**
- 133 x 189 x 194 mm (main body)

**Power Consumption**
- Approx. 5.0 W (at Heater-OFF)