Multi-Format Digital HDTV Production Camera

SK-HD1300
Progressive Image Capture

Hitachi Kokusai Electric
Inspire the Next

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

These Specifications are subject to change without notice.

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Hitachi SK-HD1300
Multi-format HDTV Studio production camera

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 own low-noise circuit technology. The standard sensitivity is rated at F10@59.94Hz (SK-HD1300)/ F11@50Hz (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 new MOS sensors, each having 2.6 million pixels, provide 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.

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

**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.

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

**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.

**Black Gamma**

The Black Gamma function can control initial gamma gain more finely than conventional black stretch. Independent Initial Gamma controls are provided for the Red, Green and Blue channels providing a fine granularity control over dark colors.

**Ultra-Gamma**

A new and useful function is Ultra-Gamma, which provides seven different responses to dramatically increase exposure latitude of the camera in shooting conditions where lighting and scenery vary widely in intensity.

**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 to achieve a more youthful look for on-camera personalities. Two individual memories exist as well as a function to automatically detect the hue, saturation and luminance of the skin tone to be affected. Furthermore, the Skin-Tone Detail level can be adjusted to follow the lens’ zoom to avoid “rubber faces” in wide angle shots while using the function.

**Skin-tone masking**

The Skin-tone masking function provides “fine painting” (hue and saturation) of Skin tones without affecting other colors in the scene. This function additionally and independently from the linear and 12-vector-masking functions thereby adding an additional color correction (Triple-masking) channel to the overall image color control.

**Skin-tone masking OFF**

**Skin-tone masking ON (Simulated image)**

**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 LED’s. Also it has the effect of ‘legalizing’ the color gamut of a particular preset masking setting.

**Picture sharpness enhancement**

**Absolute detail control**

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

**Master Detail items**

Master Detail items are available to adjust varied parameters of the detail signal to taste or to achieve a desired “look” in your productions. Some of these adjustments are: HV detail, contrast, level dependence, knee detail, limiter, source, frequency and balance.

**Skin-Tone Detail**

The Skin-Tone Detail function allows a flesh-color based softening of the image to achieve a more youthful look for on-camera personalities. Two individual memories exist as well as a function to automatically detect the hue, saturation and luminance of the skin tone to be affected. Furthermore, the Skin-Tone Detail level can be adjusted to follow the lens’ zoom to avoid “rubber faces” in wide angle shots while using the function.

**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.

**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.

**Other Useful Production Camera Features**

Prompter and floor monitor power

The SK-HD1300 camera system provides plenty of power to drive two 24-inch LCD monitors with either hybrid-fiber or digital triax cable COU. The studio floor or talent monitor can be driven with SDI (digital) video for critical viewing by the talent.

Professional Audio Connectors

Hitachi uses industry standard XLR 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’s 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.
Flexible Choice of Camera Control Units

Optical Fiber System
The SK-HD1300 camera system can employ 3 different model control units to suit your budget for studio and field production. The CU-HD1200, CU-HD1000-S8 and CU-HD500 optical fiber CCUs (camera control units) can be used worldwide due to their 50/60Hz switchable universal power supplies. They furthermore comply with RoHS and WEEE directives.

RoHS is abbreviation “Restriction of Hazardous Substances” in electrical and electronic equipment. It is a European Directive that restricts the use of certain hazardous substances in the production commonly used in electrical and electronic equipment (EEE).

The CU-HD1200 has 3G transmission in progressive scan signal formats. Creative productions can be achieved with the provision of 23.98/50 and 29.97/59.94Hz signal formats.

The CU-HD500 is 88mm high, 2-RU EIA 19-inch rack width, and weighs 9kg. (approx.). All CCUs employ the same control panels, data cables, accessories and peripherals.

CCU Features and Benefits
- Front panel Optical Power meter.
- Simultaneous HD-SDI and SD-SDI outputs with 2 channel embedded audio.
- Digital audio.
- Analog RGB or Y, B-Y, R-Y component outputs (CU-HD1000-S8).
- 4 auxiliary returns (CU-HD1200 and CU-HD1000-S8).
- Dedicated teleprompter channel and AC power.
- ARBS-type color bar output.
- 2 channel balanced analog Mic audio outputs.
- Gainblock with tri-axial level sync.
- 2-fally (Red/Green) system.
- 2-channel, 2/4/6 inter system.
- RS-232C remote control.
- TC/IP Network connectivity via RJ45 (CU-HD1200, CU-HD1000-S8, CTV/H-D1000, SU-1000 and RU-1500JY).
- Fiber cable. These cable types are selected on CCU menu.
- CU-HD1200 and CU-HD500 now work with either Hybrid fiber cable or Single mode fiber cable. These cable types are selected on CCU menu. Single mode fiber up to 10km (CU-HD1200) and 6km (CU-HD500).
- Single mode fiber cable. These cable types are selected on CCU menu.
- RU-1500JY is a high performance touch-screen remote operation panel designed for ease of use. The 3.5 inch color TFT-LCD screen provides layers of control via menu pages in addition to actual SA-1000.
- RU-1000VR is a compact remote operation panel designed with large lenses in studio or field HD productions, Hitachi offers the SA-1000 studio adaptor for the SK-HD1300.
- The SU-1000 serves primarily as a mechanical lens supporter and it also offers these important features.
- It provides the ability to use large box-style lenses and portable hand held lenses without removing the camera body from the actual SA-1000.
- Functions routinely required by the cameraperson in Studio and Field production are brought out from the camera body and grouped in the SU-1000 rear operation panel for easy access.

SA-1000 Studio Adaptor
With high regards to our customer’s needs and advancements in production workflows that require hand held cameras to be used with large lenses in studio or field HD productions, Hitachi offers the SA-1000 studio adaptor for the SK-HD1300.

The SA-1000 serves primarily as a mechanical lens supporter and it also offers these important features.

- It provides the ability to use large box-style lenses and portable hand held lenses without removing the camera body from the actual SA-1000.
- Functions routinely required by the cameraperson in Studio and Field production are brought out from the camera body and grouped in the SU-1000 rear operation panel for easy access.

Studio and Field Production Viewfinders

Our Studio and Field production viewfinders can be outfitted with ample mounts thereby decreasing the overall system cost.

Serial remote control cable with a distance of up to 100 meters, 12 cameras can be directly accessed from the SU-1000. Camera control can be extended from 12 cameras up to 48 cameras (option) or 128 cameras in Ethernet operation.

Remote Control Units and Setup Control Unit

The SU-1000 Setup Control Unit is used for the adjustment of camera parameters in a multi-camera production environment. This unit provides full control of the SK-HD1300 camera systems by utilizing a new wide touch screen LCD panel that expands control functions. It is connected directly to each CCU in parallel via serial data cable with a distance of up to 100 meters. 12 cameras can be directly accessed from the SU-1000. Camera control can be extended from 12 cameras up to 48 cameras (option) or 128 cameras in Ethernet operation.
## SPECIFICATIONS

### Progression Capture Camera Head

**Model Number**: SK-HD1300 / SK-HD1300E

**Camera Head**:
- **Model**: SK-HD1300 / SK-HD1300E
- **Color**: Gray
- **Weight**: 2.1kg (4.6 lbs)
- **Dimensions**: 133 (W) x 191 (H) x 262 (D) mm
- **Electronic Shutter**: 1/100, 1/250, 1/500, 1/1000
- **Registration**: 0.01 %
- **Resolution**:
  - Horizontal: 1100TVL
  - Vertical: 1000TVL
- **Signal to Noise Ratio**: 62dB (1080i)
- **TV System**: 1920(H) × 1080(V) / 59.94i/p, 1920(H) × 1080(V) / 50i/p
- **Input & Output**:
  - 1x BNC HD-SDI VF out (Character ON/OFF)
  - 1/200, AES

**LENS**:
- **Focus**: Manual
- **Iris**: Electronic
- **Gain**: Off, SEL, ON
- **F11 @ 2000 lx

**Power Consumption**:
- **Input Voltage**: AC117V / 230V
- **Output Power**: 1.2kW

**Other I/O**:
- **Power**: 10km (with common Single-mode fiber cable (X2)), 6km (with normal single fiber)
- **Telemetry power**: 1x 3G HD-SDI OUT, 1x SD-SDI OUT
- **Input**: 1x XLR, 4-pin, DC12V power input (male)
- **Output**: 1x 29-pin (for SA-1000 cable-less interface) (female)
- **Communication**: 1x D-sub 25-pin (female)
- **Video Inputs & Outputs**:
  - 1x 29-pin (for SA-1000 cable-less interface) (female)
  - 1x 5-pin script lamp DC12V (1.0A max) (female)
- **Prompt**: 1x XLR (VS or VBS 1.0Vp-p/75Ω (loop through)
- **Digital Return**: 1/2 1x BNC, HD SDI or SD SDI

**Dimensions** (SK-HD1300 with CA-HF1200/CA-HF1000):
- **Camera head**: 163 mm (W) x 185 mm (H) x 216 mm (D)
- **View Finder**: 102 mm (W) x 185 mm (H) x 102 mm (D)
- **WFM control**: 1x D-sub 15-pin  WFM 0-7, 0/5V (female)
- **R/G Tally Contact or 24Vdc 10mA (depending on configuration accessories)
- **Mic on/off, volume**: 4x BNC  HD-SDI or SD-SDI selectable (HD-SDI: 3G/1.5G switchable)
- **X-Y mechanical movement**: 5-pin script lamp DC12V (1.0A max) (female)
- **VF angle rotation**: 1x 5-pin script lamp + 120V (1.0A max)
- **TALLY OUT (R,G)**: 1x D-sub 9-pin, 1x D-sub 9-pin

## 1080i Multi-format System

**Fiber Camera Adapter CA-HF1200**

- **Camera Control Unit**:
  - **SMPTE-274M**
  - **SMPTE-292M**
  - **SMPTE-310M**
  - **SMPTE-311M**

**Power Supply Voltage**:
- **Output Voltage**: 10.8V ±0.5V (1.2A)

**Digital Out**:
- **8x BNC**: HD-SDI (3G/1.5G or Dual Link switchable)

**Power Consumption**:
- **Input Voltage**: AC117V / 230V
- **Output Power**: 1.2kW

**Dimensions** (VF-L90HD LCD Color Studio Viewfinder):
- **Dimensions**: 230(W) x 185(H) x 86(D)
- **Mass**: 1.6kg (3.5 lbs)

**View Finder**:
- **2-inch Viewfinder VF-402-S2**
  - **Resolution**: 650 TV lines
  - **Internal tally**: Red/Green
  - **Color temperature**: 6500K
  - **Construction**: Metal DK-cast chassis & mount
  - **Input Signals**: Analog Y/Pb/Pr
  - **Interfacing**: 5-pin XLR, -60dBm
  - **Dimensions**: 196(W) x 153(H) x 50(D)

**Fiber Camera Adapter CA-HF1000**

- **Dimensions** (VF-L90HD LCD Color Studio Viewfinder):
  - **Dimensions**: 196(W) x 153(H) x 50(D)
  - **Mass**: 1.2kg, 2.6lbs approximate

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### View Finder

**2-inch Viewfinder VF-402-S3**

- **Construction**: Metal DK-cast chassis & mount
- **Input Signals**: Analog Y/Pb/Pr
- **Interfacing**: 5-pin XLR, -60dBm
- **Dimensions**: 167(W) x 125(H) x 45(D)

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

- **Picture Transmission**: EDY 56 x 56, 2x 2x
- **Height**: 1000(V) in 700Hz
- **Color Temperature**: 9000K
- **Dimensions**: 196(W) x 153(H) x 50(D) x 33

**9-inch Viewfinder VF-L90HD**

- **Construction**: 900W 700Hz full frequency SB-9450 Hz
- **Color Temperature**: 9000K
- **Dimensions**: 196(W) x 153(H) x 50(D)
- **Mass**: 1.2kg, 2.6lbs approximate