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

Hitachi Kokusai Electric Inc.
Hitachi Kokusai Electric Europe GmbH
Hitachi Kokusai Linear Equipamentos Eletrônicos S.A.
Hitachi Kokusai Electric Turkey Elektronik Ürünleri Sanayi ve Ticaret A.Ş.

Hitachi Kokusai Electric (Shanghai) Co., Ltd.
Hitachi Kokusai Electric America, Ltd.
Hitachi Kokusai Electric Canada, Ltd.
Hitachi Kokusai Electric Korea Co., Ltd.
Hitachi Kokusai Linear Equipamentos Eletrônicos S.A.
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These Specifications are subject to change without notice.
Hitachi’s advanced digital signal processing

Each essential part of the Hitachi Z-HD6000 camera system has its own DSP processor. Unique, independent DSP IC’s are used for camera head processing, the transmission system and Camera Control Unit (CCU) processing. Hitachi’s new, power-efficient digital signal processors are designed to work with future 2K imaging technologies, offering excellent return on investment. The Z-HD6000 achieves an outstanding signal-to-noise ratio specification of 60dB using Hitachi’s proprietary low-noise circuit technology. Standard sensitivity is rated at F12 (69.94-%/F13 (59.4%) at 2000 lx. Clear images are obtained with little noise, even at high gain. High horizontal resolution performance of 1100TVL (Luminance channel) is the pinnacle of picture sharpness and is an attribute of the most transparent signal processing path of any Hitachi digital camera manufactured to date.

Dockable design

2-Piece Chassis Design
Hitachi's 2-piece chassis allows the use of Digital Fiber, Digital Triax and Wireless camera adapters to offer the greatest flexibility of any camera in this price class.

Streamlined Chassis
The Z-HD6000 chassis is a fully integrated, 2-piece design with no domes or external adapters making it a fully functional HDTV production camera.

Digital signal transmission via Hybrid Fiber Optical Cable
The Z-HD6000 camera system utilizes industry standard Hybrid Fiber-optic cable (HFOC) connectors made of high-strength materials that insures durability and reliable performance under the most demanding TV production conditions. The maximum HFOC length with applied camera power and fully operational facilities is 4,000m (13,220 feet) with no utility power. It provides 10X the distance of Multicore cable. Optical power meters at the camera head (via engineering menu) 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 length) or provide basic HFOC diagnostics.

*HFOC distance with applied CCU power differs depending on system configuration. It is dependent on type of lens used, viewfinder, studio adapter, teleprompter and other accessories that may be connected thereby consuming power otherwise available for the camera head.

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 8-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.

Luminance response tools
Black Stretch
The Z-HD6000’s Black stretch function allows for better reproduction of dark or underexposed areas by evenly raising the luminance response without changing the pedestal or white clip/ knee settings. It is especially useful in high contrast image venues.

Ultra-Gamma
A new and useful function implemented in the Z-HD6000 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.

Picture sharpness enhancement
Skin tone Detail
The Skin tone Detail functions allow 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.

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.

Hitachi Z-HD6000
HDTV Studio Production Camera

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 Z-HD6000 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

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Other Useful Production Camera Features
Prompter and Floor Monitor Power
The Z-HD6000 provides enough AC power to drive both a teleprompter and monitor through a Hybrid Fiber or Digital Triax CCU.

Floor Monitor Digital Video
The studio ON-AIR or Floor Monitor can be connected by SDI (digital) video directly from the camera head offering high quality critical viewing.

Preset Masking
The Preset Masking function recalls known industry standard colorimetry values that are precisely calibrated at the factory. These color standards are: STANDARD (Hitachi standard) / ITU-709 / SMPTE240M / SMPTE-WIDE / NTSC / EBU.

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Professional Audio Intercom Connectors
Hitachi uses dependable XLR-professional type audio connectors for the 2 intercom and 2 MIC/LINE audio facilities.

Focus Assist
Focus Assist aids the camera operator in finding correct focus in the viewfinder . The Area Marker detects edges inside the area, while a focus indicator shows the actual detail level by a horizontal line.

Gray-Scale Automatic Setup
Z-HD6000 offers a Gray-Scale Auto-Setup function which automatically adjusts video parameters that can negatively affect images you are trying to capture and faithfully reproduce. Gain, Gamma, and Flare are connected using a common 11-step gray scale chart and stored in memory.

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**Flexible Choice of Camera Control Units**

**Optical Fiber System**
The Z-HD6000 camera system can employ 2 different model control units to suit your budget for Studio and Field production. The 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/ WEEE directives.

The CU-HD1000-S8 additionally has the ability to output 1080i (50/59.94) or 720p (50/59.94) and is a half-rack size 3RU’s high, weighing 8.5kg (approx.).

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

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

**CU-HD1000-S8**
- Unique Optical Power Meter
- Built in, high-performance SDTV up/down converters.
- 2-channel, 2W/4W intercom system.
- Genlock with composite or tri-level sync.
- 2-channel balanced analog Mic audio outputs.
- ARIB-type color bar output.
- Analog RGB or Y, B-Y, R-Y component outputs. (CU-HD1000-S8)
- 2 auxiliary returns. (CU-HD1000-S8)
- RS-232C remote control.
- TCP/IP Network connectivity via RJ45. (CU-HD1000-S8)

**CU-HD500**
- Front panel Optical Power meter.
- Simultaneous HD-SDI and SD-SDI outputs with 2 channel embedded digital audio.
- Analog RGB or Y, B-Y, R-Y component outputs. (CU-HD1000-S8)
- 2-channel balanced analog Mic audio outputs.
- Genlock with composite or tri-level sync.
- 2-channel 2W/4W intercom system.
- RS-232C remote control.
- TCP/IP Network connectivity via RJ45. (CU-HD1000-S8)

**Digital Triax System**
Hitachi’s Digital Triaxial cable transmission system addresses two application requirements from our customers worldwide.

1. It is the next best, completely digital, signal transport after fiber-optic cable. No other HDTV triaxial cable transmission system comes close.
2. In applications where traditional triax is already in use, substantial savings in cabling infrastructure costs can be realized.

Hitachi’s patented Digital Triax System consists of the camera head triax adapter and the corresponding TU-HD1000 camera control unit. The main advantages and characteristics are:

- Hitachi’s patented, fully digital, bi-directional signal transmission system.
- Completely Digital - Employs no RF modulation or modems.
- Little to no signal degradation.
- Capabilities on reduced costs and maintainability of triaxial cable & connectors.
- CCU includes 1080i (50/59.94) / 720p (50/59.94) cross-converter for D-SDI outputs.
- Can also operate on simple Coax cable with local head power.
- Built in, high-performance SDTV up/down converters.
- Similar IO’s as the CU-HD1000.

**Remote Control Unit**
- The RU-1000VR is a compact remote operation panel designed for easy operation of standard camera functions. Its master black adjustments employ “VR-type” rotary knobs controls and commonly used controls and functions are directly and instantaneously accessible to the video control engineer.

- The RU-1500JV is a high performance touchscreen remote operation panel designed for ease of use. Easily adjustable using the 3.5” LCD touchscreen panel and rotary encoders, plus custom switches to further support the professional user in designing a personal workflow. The RU-1500JV provides an integrated SD card slot for transferring user setup and Scene File information, and Ethernet connectivity for control over an IP network.

**Studio and Field Production Viewfinders**
The Z-HD6000 camera system offers three choices for Studio or Field production viewfinders. Model VF-L90HD is a color 9-inch TFT-LCD screen and Model HDF-700H is a color 7-inch TFT-LCD screen which are designed for critical color viewing of the image. The LCD screen offers a wide viewing angle and fast response time for a lag free, crisp image.

TFT-LCD screens are most suitable where precise composition and color evaluation of the image are required. The VF-HD500 model is a monochrome 5-inch CRT-type unit that is more suited for Sports and OB applications where high-brightness and contrast are required. Both our Studio and Field production viewfinders can be outfitted with alternate mounts thereby decreasing the overall system cost.

**System configuration chart**
**SPECIFICATIONS**

**Fully Digital HDTV Production Camera**

**Camera Head Z-HD6000 / Z-HD6000E**

- **Camera Head Z-HD6000**
  - **Weight**: 2.6kg, 5.7lbs
  - **Power consumption**: 15W (approx.)
  - **Input/output**: 1x XLR, 3-pin, 0dBm/ 600Ω
  - **Remote**: 1x D-sub 15-pin, 1.2G GAIN
  - **Power supply voltage**: 100V - 240V, 50/60Hz
- **Camera Head Z-HD6000E**
  - **Weight**: 7.9Kg, 17.4lbs.
  - **Power consumption**: 240W
  - **Input/output**: 1x XLR, 3-pin, 0dBm/ 600Ω
  - **Remote**: 1x D-sub 25-pin, Incom, Tally
  - **Power supply voltage**: 100V - 240V, 50/60Hz

**Fiber Camera Adaptor CA-HF1000 / CA-HF1000E**

- **Camera Control Unit CU-HD1000 / CU-HD1000E**
  - **Power**: 100V - 240V, 50/60Hz
  - **Power supply voltage**: 100V - 240V, 50/60Hz
  - **Power consumption**: 200W

**9-inch viewfinder VF-L90HD**

- **Dimensions**: 330 x 187 x 85 x 85 x 135 (W x H x D x P s t)
- **Mass**: 1.6kg, 3.5lbs
  - AT-951 (mass : 1.6kg, 3.5lbs)
  - AT-90 (mass : 0.7kg, 1.54lbs)
- **Power consumption**: 20-pin Multi VF connector, 12-pin Multi LENS connector
- **Functions**: BRIGHT, CONTRAST, PEAKING knob
- **Number of pixels**: 230,000
- **Dimensions**: 112 x 112 x 112 x 85 x 6 (W x H x D x P s t)

**2-inch Viewfinder VF-402 (59.94Hz) / VF-402E (50Hz)**

- **Construction**: 2-inch BW 16:9 CRT
- **Dimensions**: 100 x 100 x 100 x 100 x 100 (W x H x D x P s t)
- **Mass**: 4.4lbs
- **Power consumption**: 15W (approx.)
- **Remote**: 1x D-sub 15-pin

**2-inch Viewfinder VF-402 (59.94Hz) / VF-402E (50Hz)**

- **Construction**: 2-inch BW 16:9 CRT
- **Dimensions**: 100 x 100 x 100 x 100 x 100 (W x H x D x P s t)
- **Mass**: 4.4lbs
- **Power consumption**: 15W (approx.)
- **Remote**: 1x D-sub 15-pin

**B&W CRT Viewfinder VFH500 (59.94Hz) / VFH500E (50Hz)**

- **Dimensions**: 100 x 100 x 100 x 100 x 100 (W x H x D x P s t)
- **Mass**: 4.4lbs
- **Power consumption**: 15W (approx.)

**Dimensions**

- **VF-L90HD LCD Color Studio Finder**
- **H700H LCD Color Studio Finder**
- **VF-HD500 B&W CRT Studio Finder**
- **H700H LCD Color Studio Finder**

**Trax Base Station TU-HD1000 (59.94Hz) / TU-HD1000E (50Hz)**

- **Power**: 100V - 240V, 50/60Hz
- **Power consumption**: 240W

**Triax Camera Adaptor CX-HD1000 (59.94Hz) / CX-HD1000E (50Hz)**

- **Power**: 100V - 240V, 50/60Hz
- **Power consumption**: 240W

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The maximum length of the cable supplying power to the camera varies with the camera system configuration and with the type of optical fiber cable.