

Ikegami

Full Digital HDTV Camera System

HDK-790E

HDK-79E



***Anticipating Digital Broadcasting.
Ushering in a New Era.
The Heart of the New Evolution.***

HDK-790E/HDK-79E

Full Digital HDTV Camera System

- 0.18mm design rule next generation ASICs.
- 2.2 Million pixel 2/3-inch FIT CCDs
- 12bit A/D Conversion/38-bit internal digital processing circuits
- Multi-standard / Simulcast Broadcasting
(1080i / 480i interlace output standard, 720p / 480p progressive output Option)
- Various Accessories available for different operating styles.



Multi-standard / Simulcast Broadcasting

■2/3-inch 2,200,000-pixel FIT CCDs

2/3-inch 2,200,000-pixel 1080i FIT CCD image sensors are employed to achieve superb picture quality with a horizontal resolution of 1,000 lines and a S/N ratio of 56dB.

■Designed for DTV

HDK-790E/79E is designed as a Multi-use Camera to meet the format requirements of HDTV (1080i/720p) and SDTV (480i/480p). The CCD read out can be switched between interlace and progressive scan modes. The signal can be converted in the CCU to different formats.

■Simulcast (High-end HDTV and NTSC Camera)

Using a down converter incorporated in the CCU as standard, the HDK-790E/79E can be operated as a high-end NTSC studio camera. A high sampling frequency of 28.64MHz achieves maximum resolution of 900TV lines in the NTSC format. Both HDTV video and SDTV (NTSC) are provided simultaneously from the CCU and in both digital and analog form. Monitoring video signals (WFM and PM) are likewise provided in both HDTV and SDTV to adapt to different system installations and to permit continued use of conventional monitoring.



CCU-790 front



CCU-790 rear

12bit Full Digital

■Incorporating a new, next-generation digital process ASIC

Using newly developed full digital process lcs, precision designed at 0.18 μ m rule, the video signals are digitalized with 12-bit A/D conversion and up to 38-bit internal digital processing (quantization) circuits.

■DTL Correction

A detail correction system, including digitally processed horizontal, vertical and diagonal correction signal for red, green and blue video, is incorporated into the camera head, and obtains noise-free full resolution HDTV picture quality even if the camera is used in stand-alone configuration.

■Independent DTL

With Independent DTL system in the CCU, the type and amount of compensation can be optimized for the different requirements of HDTV and SDTV.



Next-generation digital process ASIC 0.18 μ m rule

Sophisticated features made Possible with digital technologies

■Six-axis + Two-axis Color Corrector

Includes a color correction function that enables hue and saturation to be adjusted for each the six primary colors (R, G, B, Cy, Y, Mg), plus another function to make color correction of two user-selected colors of the subject.

■Enhanced Digital DTL

Improved sensuous expressions such as texture and sheen, and richer reproduction of details in skin tone in dark backgrounds.

■Super KNEE

The Knee system makes corrections without changing the hue of the highlighted parts and produces a more natural highlight appearance, rather than washing it out.

■Clear VF DTL function

This function makes a difference in the edging of the image exclusively in the viewfinder, to make the precise point of focus easier to find, and to make it easier for the cameraperson to focus.

■Wide-band DTL function

Wide-band edging gives the impression that fine parts of subjects or high frequency images have a higher resolution.



Easy to Use, attention to the details

■ Perfect Match Between Studio and Portable Cameras

The portable and studio cameras use the same CCD, same analog and digital video processing, same optical filters, and in most cases, the same PC boards, providing an unparalleled similarity in performance and function between the two camera types.

■ HD SDI Output from the Camera Head

HD SDI output is provided from the camera head, and by using VTR connector (option), direct connection is possible with HD digital equipment, such as an HD VTR.

■ RET Video and Teleprompter Video

The CCU-790 accepts two channels of return video input as standard. It is available with up to 4ch as a factory option. Input signals can be selected from HD-SDI, D1 component and D2 composite signals. The CCU includes an up converter permitting an SDTV return video signal (D1 & D2) to be viewed on the HD viewfinder. The CCU transmits the HD return video signal (each Y, Pb, Pr) and two NTSC Q-TV video signals (Q-TV1*, Q-TV2*) to the camera for teleprompter and external monitoring purposes.

*For the HDK-79E, either Q-TV1 or Q-TV2 can be selected for output.

■ High Performance Viewfinders

For the HDK-79E, a 2-inch 16:9 high resolution VF for portable application and a 5-inch B/W VF (option) for studio application are available. Employing a magnifying eye-piece in the 2-inch VF, visibility is further improved. For the HDK-790E, 7" B/W VF and 7" color VF (option) are available.

7-inch VF attaches to the camera with a mechanism allowing easy panning and tilting for VF. Cable connection between the camera and the 7-inch VF is integrated into the pan and tilt mechanism and fully protected against possible damage.

In addition, a 6-inch color LCD viewfinder is also available as an option for both studio and portable camera models.



HDK-790E Rear Panel



HDK-79E Rear Panel

■ Low Center of Gravity

Both the studio and portable cameras are compact with low center-of-gravity. Especially for the portable camera there is excellent balance when operated on the shoulder. Regarding the 7-inch viewfinder for HDK-790E, the position is lower and closer to the optical axis of the camera head.

■ Return Switch

A Return select switch is located on the handle grip of the portable camera to control the selection when the camera is held off the shoulder, such as on the hip for low angle shots.



Return Switch on the handle grip

■ On-Line Diagnostics

An On-line Diagnostic System monitors a range of circuits including video, control, fiber optic transmission, pulse and power supply.

■ Application of Standard 2/3-inch Lenses

The camera incorporates the HDTV lens mount (BTA S-1005B type) as standard. But the Ikegami 2/3-inch lens mount can be specified as a factory order option to use lenses from conventional NTSC Ikegami HK-series cameras such as HK-388/377/366/355, etc.

■ Rotating Camera Cable Connection

The SMPTE standard fiber camera cable connector is provided with a pivoting mount on both the portable and studio camera heads. This permits a natural bend to the cable, even for example, when the portable camera is placed on the ground.



HDK-790E



■ Strong Hand Grips

HDK-790E has its side handle directly attached to the camera head, which ensures the solid structure of the handle. It also has a loop to attach a rope, by which the camera head can be hoisted.



HDK-79E



Improved Operability, With Abundant Peripherals

■TFC-TFH-790 Fiber/Triax Converter System

The TFH-790/TFC-790 can transmit high-quality pictures from the camera head without signal degradation, at the maximum transmission distance of 1,550m, using a triax cable. This system consists of the TFH-790 camera side unit and the TFC-790 CCU side unit. With its compact half rack size and power supplied from the CCU, it is easy to install, and to make use of existing triax cables.

●Transmission Distance

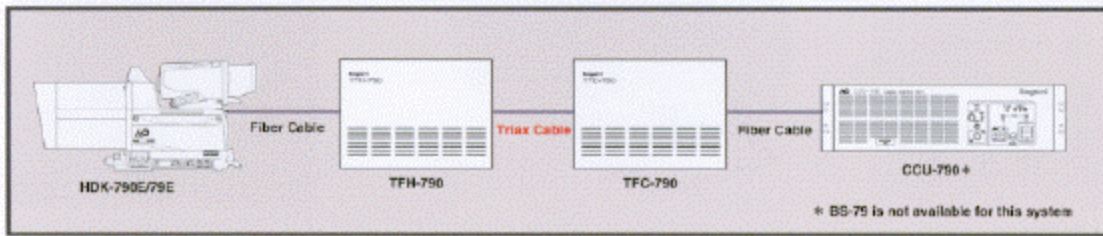
Up to 850m (2,800ft.)	by 8.8mm diameter triax / Fujikura type II-21479
Up to 1,550m (5,100ft.)	by 14.5mm diameter triax / Fujikura type II-21479
Up to 500m (1,600ft.)	by 9.2mm diameter triax / Belden type 9267
Up to 1,000m (3,300ft.)	by 13.2mm diameter triax / Belden type 9267



TFH-790 F/T Converter
(Camera side)



TFC-790 T/F Converter
(CCU side)



■Control Panel System

The desired control panel which matches the needs of user can be selected, and connected to the CCU.

MCP (Maintenance Control Panel)

An MCP control panel is used for maintenance and fine adjustment purposes. Up to 40 cameras can be controlled from an MCP when the MCP is used with the CSU Camera Select Unit.

OCP (Operation Control Panel)

An OCP control panel is used for normal operation, and includes the primary operating control functions. The OCP is available in joystick and rotary versions.



MCP-100



OCP-790



CSU-100

■SE-79D System Expander

The SE-79D System Expander enables the use of the 7-inch viewfinder and full studio lenses with the HDK-79E, converting the portable camera into a full facility studio camera. Installation of the camera into the SE-79D is very easy, and conversion back to portable configuration is quick for maximum operating flexibility.



SE-79D System Expander



HD Location Shooting

Provides Operation with HDTV VTR similar to location shooting in SDTV.

■ Camera Adaptors

There are two kinds of camera adaptors available: the small camera adaptor CA-79D, which best suits local VTR operation, and the fiber adaptor FA-79, which enables the co-use of CCU operation and local VTR operation. You can select the appropriate type of adaptor depending on the desired manner of operation.

■ Camera Control Unit for reliable picture production

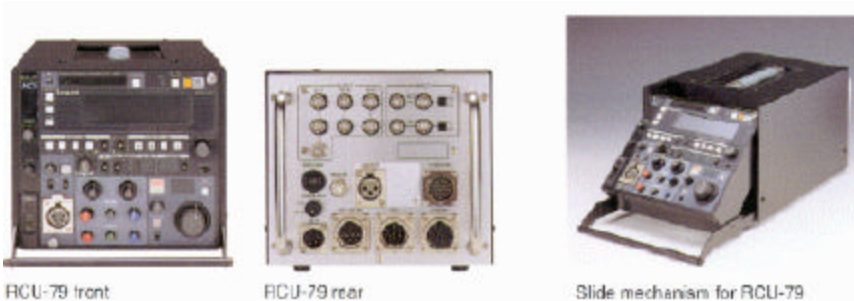
Configurations available: the RCU-79, a combination remote control panel and extension device system, and the RCU-70, with the remote control panel detached from the unit. Together with a DC power supply, this system provides complete camera control and system interconnect for high quality field production for location shooting.



HDK-79E+CA-79D



The VTR connector is provided on the rear side panel of the CA-79D to prevent the cable from being a hindrance in tight locations sites or low-angle shooting.

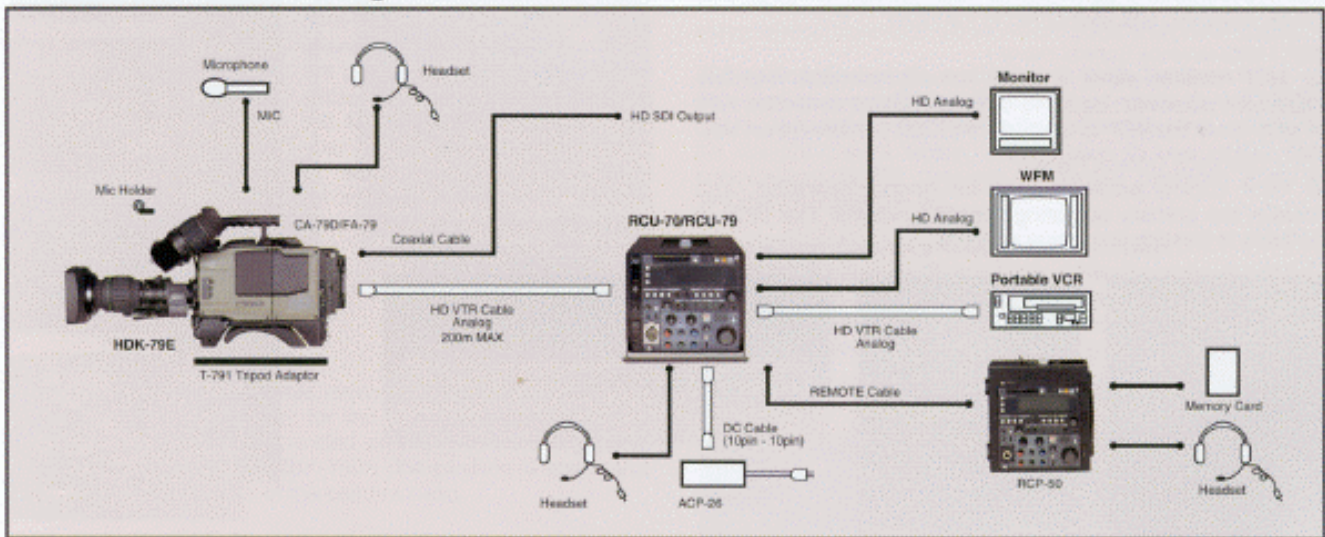


RCU-79 front

RCU-79 rear

Slide mechanism for RCU-79

■ HD Location Shooting



Space-Saving Design

Suitable for small-sized HD vans and rental / flight-pack systems.

■ BS-79 Half-Rack Base Station

A half-rack base station BS-79 is available, permitting full SMPTE fiber cable extension with a compact base station. It supports HDTV/SDTV simulcast operation with an up converter / down converter built into its half-rack size. It is suitable for small sized HD vans and rental / flight-pack systems.

* The BS-79 can only be connected with the HDK-79E.

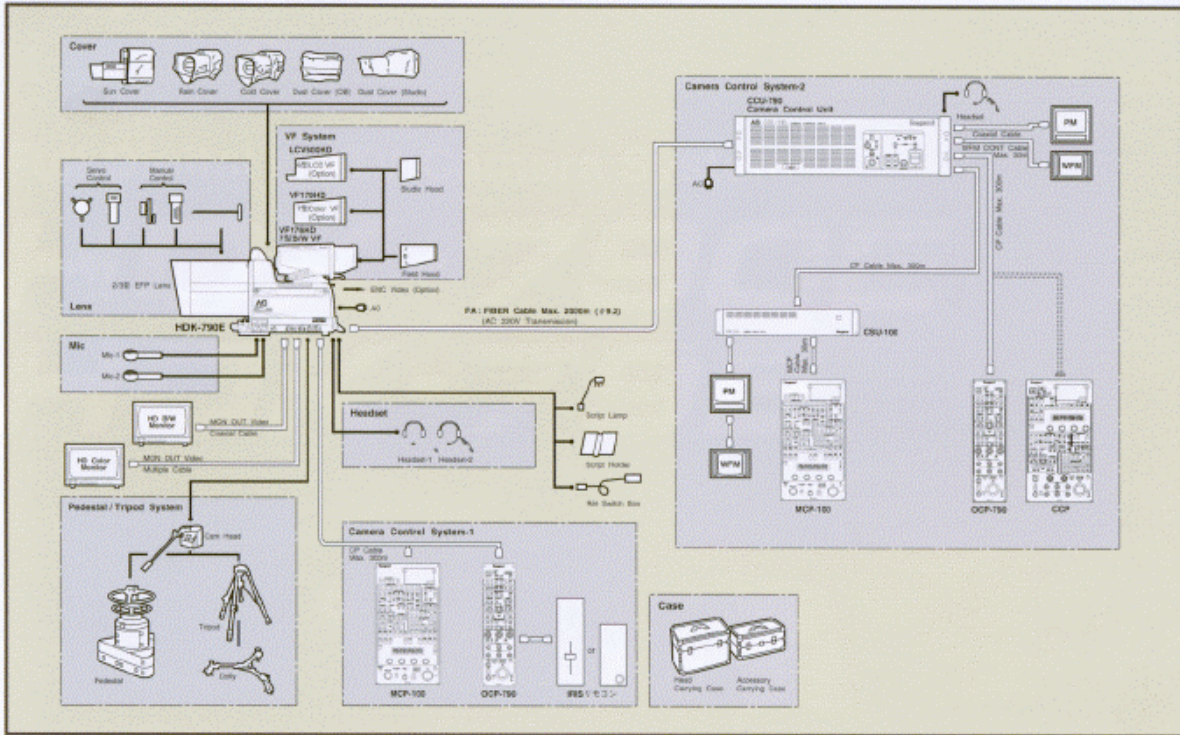


BS-79 front

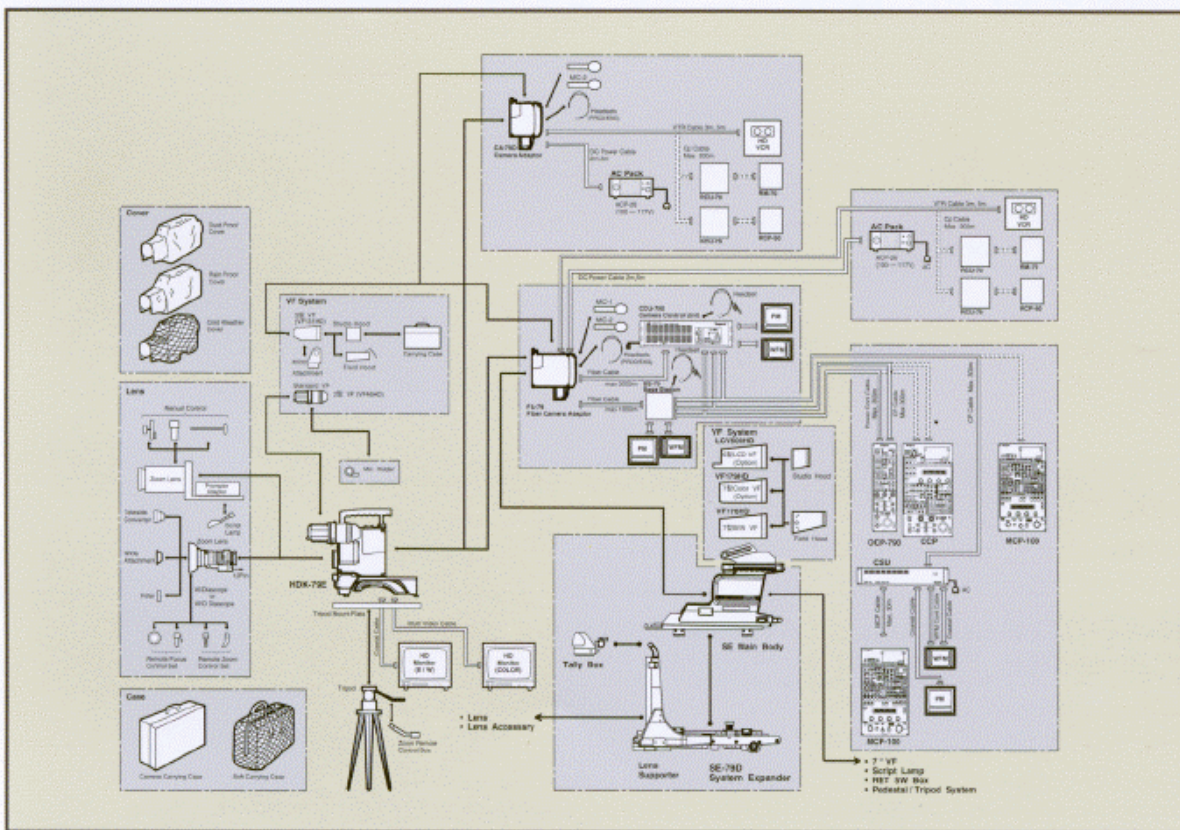
BS-79 rear

System Applications

HDK-790E



HDK-79E



■ Ratings

<ul style="list-style-type: none"> ■ Scanning system <ul style="list-style-type: none"> ● HDK-790E/79E 1125(59.94Hz or 60Hz, 1080i/540p) ● CCU-790 1080 lines 59.94 or 60Hz 2:1 interlaced 480 lines 59.94Hz 2:1 interlaced 480 lines 59.94Hz 1:1 non-interlaced (option) 720 lines 59.94Hz 1:1 non-interlaced (option) 		<ul style="list-style-type: none"> WFM signal RGB, Y select 1.0Vp-p 75Ω 2ch PM signal RGB, Y select 1.0Vp-p 75Ω 2ch Phase reference signal SYNC 0.6Vp-p 75Ω 1ch [Progressive system (option)] 480p serial signal (294M, option) 4:2:2p 720 x 480 (main/sub) 75Ω each 2ch 4:2:0p 720 x 480 75Ω 2ch 720p SDI signal (Option: needs exchange of modules) 1280 x 720 75Ω 3ch 																		
<ul style="list-style-type: none"> ■ CCD image sensor 2/3-inch 2,200,000-pixel FIT CCD ■ Optical system 2/3-inch 3CCD f1.4 ■ Lens mount BTA S-1005B(standard) or 2/3-inch Ikegami mount (factory option) 		<ul style="list-style-type: none"> Audio signal Mic 0dBm 600Ω 2ch Digital audio AES 3ID 1Vp-p 75Ω 1ch Intercom/Tally Intercom (ENG/PROD) 4-wire or Clearcom or RTS 4-wire 0dBm 600Ω 2ch Clearcom -15dBs RTS 0dBm 																		
<ul style="list-style-type: none"> ■ Viewfinder <ul style="list-style-type: none"> ● HDK-790E 7-inch B/W viewfinder(standard) or 7-inch color viewfinder (option) or 6-inch color LCD (option) ● HDK-79E 2-inch B/W viewfinder (standard) or 5-inch B/W viewfinder (option) or 6-inch color LCD viewfinder (option) 		<ul style="list-style-type: none"> ■ Filter <table border="0" style="margin-left: 20px;"> <tr> <td></td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>ND</td> <td>CAP</td> <td>100%</td> <td>25%</td> <td>6.2%</td> <td>1.6%</td> </tr> <tr> <td>CC</td> <td>CROSS</td> <td>3200K</td> <td>4300K</td> <td>6300K</td> <td>8000K</td> </tr> </table> ■ Electric color temperature 5600K ■ Ambient temperature HDK-790E/79E: -20°C ~ +45°C (-4°F ~ +112°F) CCU-790: 0°C ~ +45°C (+32°F ~ +112°F) ■ Relative humidity 30% ~ 90% (non-condensing) ■ Operating voltage HDK-790E: AC100/117/220/240V ± 10% HDK-79E: 11 ~ 16V ■ Weight HDK-790E 24kg (53 lbs) without lens 7-inch B/W VF 4.5kg (10 lbs) 7-inch color VF 5kg (11 lbs) HDK-79E 6.0kg (13.2 lbs) including FA-79, no lens 2-inch B/W VF 0.8kg (1.8 lbs) CCU-790 30kg (66 lbs) ■ Dimensions HDK-790E W310 x H410.5 x D380mm (W12 x H16 x D15 inches) HDK-79E W105 x H222 x D375mm (W4.1 x H8.7 x D14.8 inches) CCU-790 W438 x H132 x D430mm (W17.2 x H5.2 x D16.9 inches) 		1	2	3	4	5	ND	CAP	100%	25%	6.2%	1.6%	CC	CROSS	3200K	4300K	6300K	8000K
	1	2	3	4	5															
ND	CAP	100%	25%	6.2%	1.6%															
CC	CROSS	3200K	4300K	6300K	8000K															
<ul style="list-style-type: none"> ■ Input signals <ul style="list-style-type: none"> ● HDK-790E/79E <ul style="list-style-type: none"> Ext sync signal SYNC 0.6Vp-p ± 6dB Audio signal* -60, -50, -40, -30, -20, -10, 0, +4dB 600Ω (2ch, balanced) (after selecting variable ± 5dB available) *option for HDK-79E ● CCU-790 <ul style="list-style-type: none"> [HDTV system (SMPTE 274M and SMPTE 292M)] Phase reference error SYNC 0.6Vp-p ± 6dB 75Ω bridged 1ch Return video signal PS 1.0Vp-p 75Ω 2ch (standard) 4ch(factory option) Input signal is SDI signal. [NTSC system] Return video signal VBS 1.0Vp-p 75Ω 2ch (standard) 4ch (factory option) External genlock signal VBS 1.0Vp-p 75Ω bridged, 1ch Q-TV signal VBS or PS 1.0Vp-p 75Ω bridged 2ch Intercom/Tally Intercom(ENG/PROD) 4-wire or Clearcom or RTS 4-wire 0dBm 600Ω 2ch Clearcom -15dBs 200Ω 2ch RTS 0dBm 200Ω 2ch Tally contact/voltage R.G. 2ch Program sound 0dBs 600Ω 2ch ■ Output signals <ul style="list-style-type: none"> ● HDK-790E/79E <ul style="list-style-type: none"> Video signals Analog signal R,G,B or Y, Pb, Pr each 1ch, 75Ω (multi-pin connector) HD SDI signal Y, Pb, Pr 4:2:2 serial digital 2ch (BNC connector, Camera cable conn) Q-TV 1,2 signal Analog signal, 1ch 75Ω (BNC) (*HDK-79E: Q-TV1 or 2 selectable) Return out HD analog signal 75Ω(BNC) VTR signal (option) BTA S-1005B Monitor signal R,G,B or Y, Pb, Pr select 1ch 75Ω BNC Intercom signal 0dBm 2ch (ENG/PROD) 110type/XLR ● CCU-790 <ul style="list-style-type: none"> [HDTV system] Analog video signal (SMPTE 274M) Y, PB,Pr 75Ω each 2ch (RGB signal Output is selected by internal switch) HD SDI signal (294M) 75Ω 3ch WFM signal RGB select 1.0Vp-p 75Ω 2ch PM signal RGB select 1.0Vp-p 75Ω 2ch Phase reference signal SYNC 0.6Vp-p 75Ω 1ch [NTSC system] Composite video signal VBS 1.0Vp-p 75Ω 3ch Component video signal RGB 0.7Vp-p 75Ω each 1ch (Y, PB, Pr signal output is selected by internal switch) Component serial digital(D1) SMPTE 259M 270Mbps 0.8Vp-p 75Ω 4ch Composite serial digital (D2) 143Mbps 0.8Vp-p 75Ω 4ch (serial digital signal output is selectable by internal switch) 		<ul style="list-style-type: none"> ■ Performance ■ Sensitivity F8/2000 lux ■ S/N HDTV system 56dB NTSC system 64dB ■ Modulation depth HDTV system 45% or more (800TV lines, 27.5MHz) NTSC system 90% or more (400TV lines, 5MHz) ■ Limiting resolution HDTV system 1,000 TV lines NTSC system 900 TV lines ■ Video frequency response (Base Station output) <ul style="list-style-type: none"> ● Y output Below 60Hz... falling 60Hz ~ 30MHz... within ± 1.0dB Over 30MHz... falling ● Pb, Pr output signal Below 60Hz... falling 60Hz ~ 15MHz... within ± 1.0dB Over 15MHz... falling ● NTSC output signal (Ych 100kHz, output signal from external camera) Below 60Hz... falling 60Hz ~ 4.5MHz... within ± 0.5dB 4.5MHz ~ 8.0MHz... within ± 1.0dB Over 8.0MHz... falling ■ Audio frequency response (Base Station output) <ul style="list-style-type: none"> ● Y output Below 100Hz... falling 100Hz ~ 10KHz... within ± 1.0dB Over 10KHz... falling ■ Contour correction Vertical 5 line Horizontal Boost frequency, 13MHz~24MHz (HDTV) Boost frequency, 2.7MHz~8.9MHz(SDTV) ■ Gamma OFF, 0.35, 0.4, 0.45 ■ Gain -3dB, 0dB, +3dB, +6dB, +12dB or +18dB ■ Power consumption <ul style="list-style-type: none"> ● HDK-790E Approx. 500VA (including 7-inch color VF and CCU) ● HDK-79E Head + FA-79: 36W (on site VTR location) Head + CA-79D: 34W 2-inch VF: 6W 																		

Design and specifications are subject to change without notice.