Ikegami

Unicam HD

Top of the line

16-bit Full Digital 3G HDTV Camera System

HDK-970A/970AP

16-bit Full Digital 3G HDTV Portable Camera System

HDK-97A/97AP

The highest picture quality, functionality and reliability with Ikegami's superb and latest camera technology

- High-band 3G HDTV-SDI video output
- 2 times slo-motion
- 4K Upscaling Processer
- Native support for 23.98p formats (HDK-970AP/HDK-97AP)
- Custom gamma
- 16-bit full digital

High-band 3G-SDI(1080p59.94/50Hz) video output

The camera supports 3G-SDI 1080p (59.94/50Hz) wide-band video output as a standard feature for higher picture quality. The single and dual link output is available with BS-98/CCU-980 camera control unit/base station supporting 3G-SDI signal.

2 times slo-motion (1080i 119.88/100Hz)

Switchable for live and slo-motion picture with one camera. It is possible to get a slo-motion picrure without changing the camera positon. (Option)

4K Upscaling Processer (factory option)

Native support for 23.98P

The camera supports not only 23.98Psf, but also 23.98P in native (HDK-970AP/HDK-97AP)
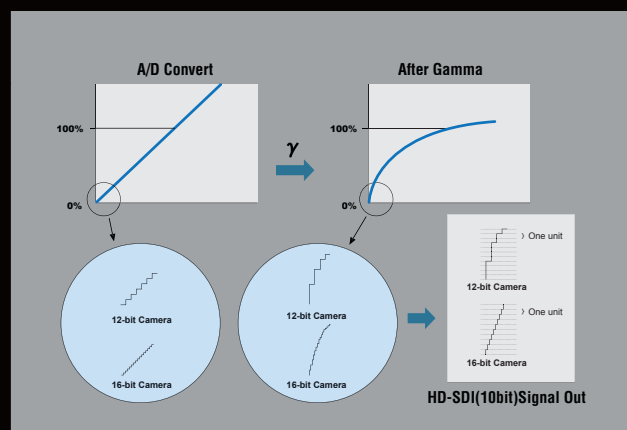
Custom gamma

Various kinds of gamma curve can be flexibly set by users.

Newly developed 2.3 Mega pixel progressive sensors

New 2/3-inch 2.3 Mega pixel 1080 progressive CCDs are employed to support not only the usual 1080i 59.94/50Hz 4:2:2, 720p 59.94/50Hz 4:2:2, 1.5G formats, but also 3G formats such as 1080p 59.94/50Hz 4:2:2 and 1080i 59.94/50Hz 4:4:4. Futhermore, 1080i (119.88/100Hz), 1080p (29.97/25Hz) are available as an option.
The HDK-970AP/HDK-97AP adds support for the 1080p (23.98Hz) format.

Newly developed FPGA

Using mass memory type FPGA, 45um design rule, the video signals are digitized with 16-bit A/D conversion
to achieve the highest possible picture quality.

Multi-format

The camera supports various HDTV formats of 1080p (59.94/50Hz), 1080i (59.94/50Hz 4:2:2, 4:4:4), 1080i (119.88/100Hz), 1080p (29.97/25Hz) and 720p (59.94/50Hz), achieving flexible picture representation.

* 1080i (119.88/100Hz), 1080p (29.97/25Hz) are option.
Futhermore, 23.98P format is also available with the model HDK-970AP/ HDK-97AP.

16-bit full digital

Integrating Ikegami's advanced picture processing technology and digital processing technology maximizes the effect of 16-bit A/D conversion, increasing gradation in dark areas where the processing is perfromed for more natual reproduction of dark colors.

Two HD-SDI outputs from the camera head

Two HD-SDI output signals (1.5G) are selectable among Camera, VF, RET and MON (monitor) for external monitoring at the camera head.

* HD QTV is added to the line up of selectable HD SDI signals when the optional HD QTV (Video Trunk) module is installed in the CCU.

2 Channels QTV

Two channels of QTV output (VBS) are available as a factory option for prompter and external monitoring purposes.

* 2 channel QTV is option and not available operating at 720p/50Hz.
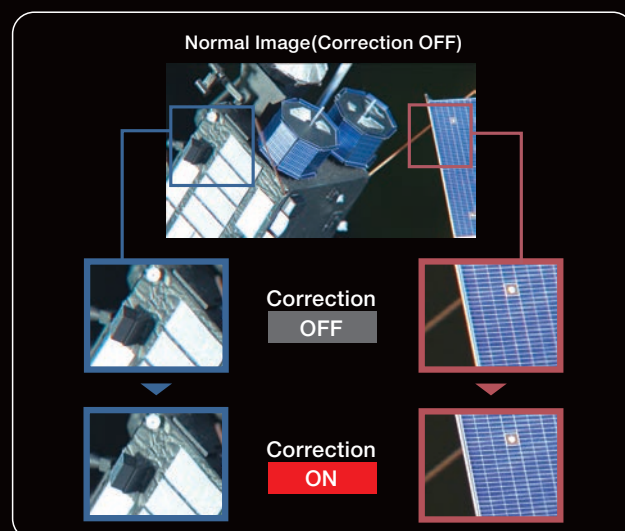
HD SDI Trunk

When the camera is operating in a conventional 1.5G format, a second 1.5G video from an external source can be transmitted to the CCU as a video trunk channel. For POV or 3D applications this will reduce the cables which need to be run. (factory option)

Docking style camera body

With a docking style camera body, either an FA (Fiber Adaptor) or TA (Triax Adaptor) can be mounted depending on the use.

Lens Aberration Correction function

The Lens Aberration Correction function is newly incorporated for minimizing the blur and colored edges caused mainly by lens chromatic aberration.

A/D Convert — After Gamma

12-bit Camera / 16-bit Camera — HD-SDI(10bit)Signal Out

Normal Image(Correction OFF)

Correction OFF
Correction ON

HDK-970A/AP HDK-97A/AP Accessories

3G capable fiber adaptor
FA-97

3G capable base station
BS-98

3G capable camera control unit
CCU-980

High Band 3G Transmission

3G-SDI transmission is available between camera head and CCU/BS.

Simulcast

Using a down converter and up converter incorporated in the BS-98/CCU-980, both HDTV and SDTV signals are provided simultaneously from the CCU/BS. And the CCU/BS offers not only the usual 1080i 59.94/50Hz 4:2:2 1.5G signal outputs, but also 3G outputs like 1080p 59.94/50Hz 4:2:2 and 1080i 59.94/50Hz 4:4:4.

RET/QTV Video

The CCU/BS accepts 4 channels of return video input as standard. The return input signals can be either 3G-SDI or HD-SDI. QTV signals can be transmitted to the camera with not only the usual analog composite, but also HD-SDI (Option for CCU only).

* The return input signal can only be HDTV when this option is installed.

Frame Synchronizer for RET video

The return signal can be synchronized by a frame sync circuit, supporting non-sync return sources.
* The RET input signal quantity is fixed to 2 channels when the frame synchronizer is applied.
* VBS return signal can not be synchronized.

Downward Compatibility

The CCU/BS are compatible with existing Ikegami HDK-79EX series cameras in 1.5G mode.

Embedded audio available as standard

All SDI outputs can be embedded with the audio signals of MIC-1 and MIC-2. Each channel has variable adjustment for delay time and independent On/Off switching for embedded audio.

Ethernet Port available

Ethernet ports are available on BS-98, CCU-980, BSH-300, OCP-300 and OCP-10.

Sophisticated System Accessories, Expanding HDTV

SE-H750 System Expander

The SE-H750 System Expander enables the use of the 9-inch viewfinder and full studio lenses with the HDK-97A/AP,converting the portable camera into a full facility studio camera. Installation of the camera into the SE-H750 is very easy, and conversion back to portable configuration is quick for maximum operating flexibility.

Variety of viewfinders

For the HDK-97A/AP, a 2-inch 16:9 high definition LCD color viewfinder for portable application is available.
In addition, a 7.4-inch OLED and a 9-inch LCD color studio viewfinders are available as options.

2-inch LCD   9-inch LCD

VFE740HD 7.4-inch OLED Color Viewfinder

The VFE740HD is an OLED Color Viewfinder, employing a 7.4-inch QHD OLED panel, achieving high resolution, high brightness, high contrast and wide viewing angle. Its true color reproduction and high quality gradation provide optimum monitoring in the full range of uses. Especially its fast response achieves superb fast motion images for shooting sports, etc.

Unicam HD

Ratings and Performances

HDK-970A/AP HDK-97A/AP

■ Scanning System	1080p (59.94Hz or 50Hz) Y,Pb,Pr 4:2:2 Progressive (above SMPTE425 Level B)
	1080i (59.94Hz or 50Hz) Y,Pb,Pr 4:2:2 Interlaced
	1080i (59.94Hz or 50Hz) RGB 4:4:4 Interlaced
	1080i (119.88Hz or 100Hz) Y,Pb,Pr 4:2:2 Interlaced (Option)
	1080p (29.97Hz or 25Hz) Y,Pb,Pr 4:2:2 Progressive (Option)
	720p (59.94Hz or 50Hz) Y,Pb,Pr 4:2:2 Progressive
	1080p (23.98Hz) RGB 4:4:4 Progressive (Supported by HDK-970AP/HDK-97AP)
	1080p (23.98Hz) Y,Pb,Pr 4:2:2 Progressive (Supported by HDK-970AP/HDK-97AP)
	480i (59.94Hz) Y,Pb,Pr 4:2:2 Interlaced
	576i (50Hz) Y,Pb,Pr 4:2:2 Interlaced
■ Image Sensors	2/3-inch 2.3 million pixel Progressive CCD Sensors
■ Optical System	2/3-inch, 3CCD, f1.4
■ Lens Mount	BTA- S1005B (B4)

■ Filter		1	2	3	4	5
	ND	CAP	100%	25%	6.2%	1.6%
		A	B	C	D	E
	CC	CROSS	3200K	4300K	6300K	8000K

■ Sensitivity	F10 (1080/59.94i)/F11(1080/50i) at 2000 lx
■ S/N	62dB (Typical)
■ Limiting Resolution	
HDTV System	1000TV lines
■ Detail Correction	
Vertical	5 lines
Horizontal	Boost frequency: 13MHz to 24MHz (HDTV)
■ Gamma	OFF, 0.35, 0.4, 0.45
■ Gain	-3dB, 0dB, +3dB, +6dB, +9dB, +12dB
■ Power Consumption	
• HDK-970A	Power is fed by CCU or BS
• HDK-97A	Camera Head: 35W (in 1080i/59.94) 2-inch VF: 6W
■ Electronic Color Temperature	5600K
■ Ambient Temperature	-20°C to +45°C
■ Relative Humidity	30% to 90% (Non-condensing)
■ Operating Voltage	
• HDK-970A	AC100/110/117/220/240V ±10%
• HDK-97A	DC+11 to 16V
■ Weight	
• HDK-970A	approx. 24kg (52.9lbs) (excluding lens)
• HDK-97A	approx. 4.5kg (9.9lbs) (Head + FA)
■ Dimensions	
• HDK-970A	W315 x H462 x D517mm(W12.37 x H18.25 x D20.37 inches)
• HDK-97A	W138.5 x H270 x D337mm(W5.5 x H10.62 x D13.25 inches)
■ Input Signals	
External Sync Signal	SYNC 0.6Vp-p ±6dB 75ohm BNC CN 1ch (BB/PS Signal)
Audio Signal	-60dB to +4dB (Variable) / -20dB (Fixed) XLR CN 2ch (600 ohm Balanced)
Intercom Signal	XLR Type or 110 Type CN 2ch
■ Output Signals	
Analog Signal	R,G,B D-Sub SE CN 1ch (for System Expander) *Available for HDK-97A only.
3G-SDI/HD SDI Signal	Serial Digital 75 ohm BNC 1ch
Q-TV Signal	75 ohm VBS 2ch (2nd channel is option, and 1ch only in 720p/50Hz)
MON Video Signal(1.5G)	VF / RET / MON (MENU Selection) Serial Digital 75 ohm BNC 1ch
	OR
	VF / RET / MON / HD-QTV (MENU Selection) Serial Digital 75 ohm BNC 1ch (Factory Option)
Intercom Signal	0 dBs 4ch (ENG/PROD/PGM1/PGM2) XLR Type or 110 Type CN
■ Video Frequency Response (CCU • BS Output)	
Y Output Signal (4:2:2)	Below 60Hz Falling 60Hz to 30MHz within±1.0dB Over 30MHz Falling
Pb, Pr Output Signal (4:2:2)	Below 30Hz Falling 30Hz to 15MHz within±1.0dB Over 15MHz Falling
R,G,B Output Signal (4:4:4)	Below 60Hz Falling 60Hz to 30MHz within±1.0dB Over 30MHz Falling

■ Audio Frequency Response (CCU • BS Output)		
Mic-1/2 Output	"Below 100Hz	Falling
	100Hz to 20KHz	within±1.0dB
	Over 20KHz	Falling"
Intercom Output	"Below 100Hz	Falling
	100Hz to 10KH	within±1.0dB
	Over 10KHz	Falling"
■ Viewfinder	2" Color LCD	Viewfinder
	7.4" OLED	Viewfinder
	9" Color LCD	Viewfinder

BS-98/CCU-980

■ HDTV System(Input Signals)		
External Reference Input	GENLOCK : Tri-level sync ot BBS 75 ohm BNC x2 (Loop Through) (HDTV/SDTV automatic detection) SUB REF : 10 Field ID 75 ohm BNC x2 (Loop Through)	
Return Video Input	75 ohm 3G/HD/SD-SDI Single End 4ch or 2ch Active-Through (Menu Selection)	
Q-TV (prompter) Input	HD-QTV: HD-SDI 75 ohm single end 1ch SDTV: VBS 75 ohm single end 1ch (2ch:factory option)	
■ Output Signals		
Line Video Output	3G/HD-SDI	Serial Digital 75 ohm BNC 2ch 4 outputs (OUT1/OUT2) SMPTE 425M, SMPTE 372M, SMPTE292M standard
	*3G-SDI format supports Dual-Link outputs(Menu Selection)	
	SDTV signals	Serial Digital 75ohm BNC 1 ch 2 outputs (OUT3) SMPTE292M
	VBS Signal	1.0Vp-p 75ohm BNC 1ch 2 outputs
Monitor Video Output	3G/HD-SDI	Serial Digital 75 ohm BNC 1ch 1 output (HD PM)
	*SMPTE 425M, SMPTE292M standard	
Trunk Video Output	HD-TRUNK : HD-SDI 75 ohm single end 1ch (factory option)	
■ Intercom(ENG/PROD)	4-wire or Clearcom or RTS	
■ 4-wire	0dBm 600 ohm 2ch	
■ Clearcom	-15dBs 200 ohm 2ch	
■ RTS	0dBs 200 ohm 2ch	
■ MIC	0dBs 2ch 2 outputs Low impedance	
■ Tally	R/G/Y 3ch OPEN (OFF) / GND (ON) 50mA (max)	
■ Control		
Arcnet	BNC x1ch	
Ethernet	RJ-45 x1ch	
ICCP	OCP/CCP x1, CCP/CSU x1	
■ General		
Operating Voltage	AC100/110/117/220/240V±10%	
Power Consumption	BS-98 : approx. 80VA (BS only) CCU-980 : approx. 110VA (CCU only)	
Ambient Temperature	BS-98 : 0°C to +40°C (32°F to 104°F) CCU-980 : 0°C to +45°C (32°F to 113°F)	
Relative Humidity	30% to 90% (Non-condensing)	
Dimensions	BS-98 : W218.6 x H125x D457mm (W8.63 x H4.92 x D18.00 inches)(excluding protrusions) CCU-980 : W483×H133×D454mm (W19.00 x H5.25 x D17.88 inches) (excluding protrusions)	
Weight	BS-98 : approx. 9kg (20 lbs) CCU-980 : approx. 28kg (62 lbs)	

Design and specifications are subject to change without notice.

CE