

# Ikegami

# Unicam HD

## State-of-the-Art

16-bit Full Digital HDTV Camera System

# HDK-790GX

16-bit Full Digital HDTV Portable Camera System

# HDK-79GX



The HDK-790GX and HDK-79GX are high quality multi-purpose high end camera models reproducing the quality of Ikegami's EX-series cameras, and adding new features and accessories associated with the new Unicam HD series. They can be used for studio, as well as, field applications.



### 2/3-inch 2.3 Mega pixel AIT CCDs

Three 2/3-inch 2.3 Mega pixel AIT CCDs are employed to achieve 1000 TVL horizontal resolution with high signal to noise ratio of 61dB at F10 (1080/59.94i) or F11 (1080/50i) sensitivity.

### Newly developed FPGA with advanced full digital process ASIC

The HDK-79GX incorporates a newly developed FPGA together with advanced full digital process ASIC to achieve outstanding picture performance.

### Video processing technology to maximize the benefit of 16-bits

This camera is designed from the start based on 16-bit A/D and matching 16-bit DSP to maximize the benefits of high bit quantization. Especially for the dark areas of the picture, the higher gradation for gamma and other circuits improves the reproduction, providing for more natural color in the shadow areas of the picture.

### Advanced features made possible with digital technology

Advanced features such as Master Gain Control, Variable Color Temp., Custom Gamma functions are incorporated.

### Digital Extender

There is the selection of x1.5, x2, x3, x4 digital extender available to enlarge the image at the center of shot without any loss in image sensitivity.



### Built-in Triple Layer Filter (ND/EFF/ECC)

The triple layer filter system can be remotely controlled from OCP/MCP. The three layers are ND (100%, 25%, 6.2%, 1.6%), EFFECT (Clear, Cross, Snow, Fog) and Electronic Color Compensation (ECC: 3200K/4300K/5600K/6300K/8000K).

In addition, there is Variable Color Temp. function that enables the camera operator to continuously vary the color temperature from 2,000k to 20,000k for easy and precise adjustment.

### 2 Channels QTV

Two channels of QTV output (VBS) are available at the camera for prompter and external monitoring purposes. The AUX OUT (VBS) connector can be assigned to QTV-1, QTV-2, or Main video by menu. (FA-55)

\* 2 channel QTV is standard. (FA-55)

\* 2 channel QTV is option in 50Hz. (FA-97)

\* BS/CCU should support 2 channels of QTV.

### HD SDI Trunk

When the camera is operating with FA-97 fiber adaptor and CCU-970M, the system allows 3G (1.5G x2) transmission from the camera head to the CCU, and a second 1.5G video 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.

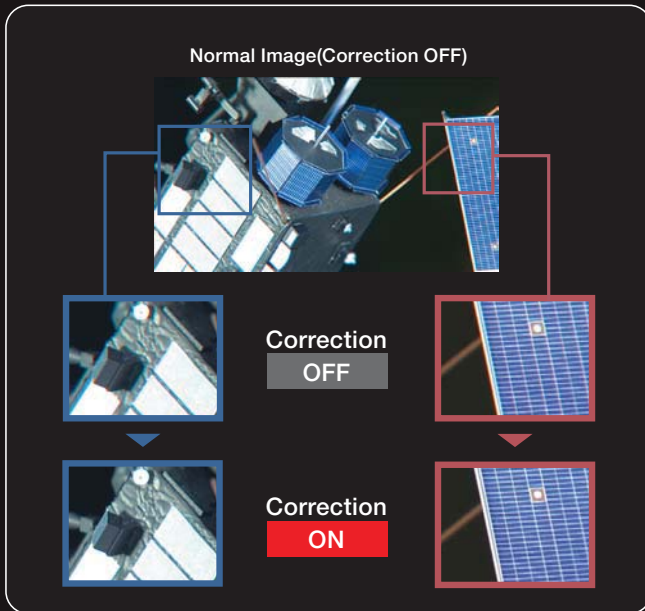
### Docking style camera body (HDK-79GX)

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

# Unicam HD

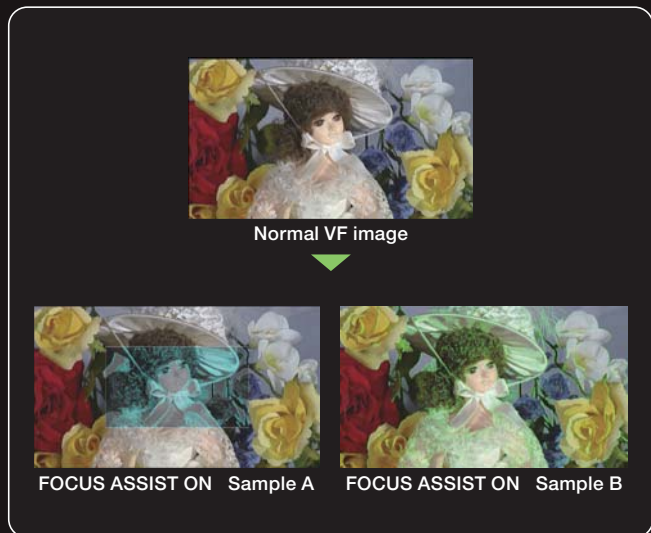
## Lens Aberration Correction Function

The Lens Aberration Correction Function is newly incorporated for minimizing the loss of resolution and colored edges caused mainly by lens chromatic aberration.



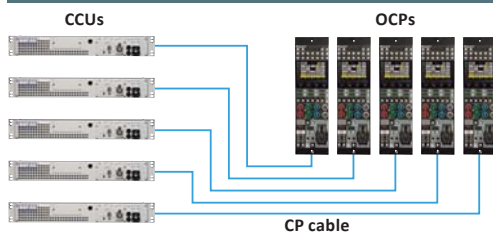
## Camera Operator Assist Functions

There are two types of camera operator assist functions incorporated in the HDK-790GX and HDK-79GX camera head. The viewfinder detail(VF DTL) function allows the camera operator to increase the detail edges to the viewfinder video for easy-focusing. In addition, the Quick EZ Focus (Focus Assist) function is a newly incorporated useful tool, providing very distinct enhancement to the viewfinder signal to enable the camera operator to make critical focus adjustment.



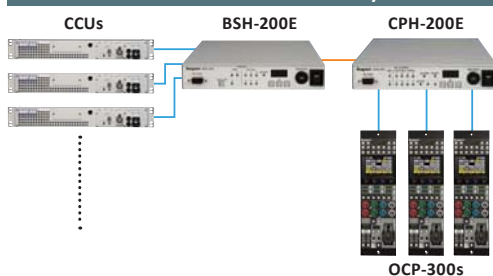
## Sophisticated Camera Control Panel System

### Conventional one by one camera control connection



New and traditional control panels can be directly connected to the cameras on a one-by-one basis.

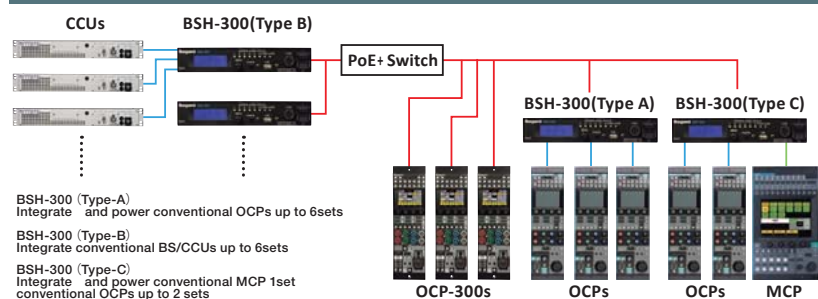
### Arc net based camera control system



Three different control architectures are supported by the new OCP-300 Operation Control Panel and BSH-300 Ethernet/ICCP command converter, each with a wide range of camera control capability. The OCP-300 supports not only Ikegami's conventional one-by-one ICCP control and Arcnet based control systems, but also an Ethernet based control system, allowing customers the flexibility to choose the camera control system based on their needs. The OCP-300 includes a touch screen LCD with rotary encoders, and SD Memory Card slot for full camera setup and filing capability. The depth-of-control feature allows the OCP-300 control to be selected from basic to complete to fit the customer's operating discipline. The OCP-300 also supports PoE, Powering over Ethernet, so separate power supplies are not necessary. The BSH-300 is used for converting command between Ethernet and ICCP, allowing previous control panels such as the OCP-200 and MCP-200, to be integrated into the Ethernet network system.

\* There are three types of BSH-300, Type-A, Type-B and Type-C, each with a different type and number of connectors.

### Ethernet based camera control system





## Various Camera Systems

### 19-Inch Full-rack Camera Control Unit CCU-970M



The full rack width 3RU CCU-970M permits full SMPTE fiber cable extension with longer cable distance and more utility power. The CCU-970M supports 2 channels of QTV plus HD SDI QTV and 4 channel RET selection. In addition, an optional board set can be built-in providing full bandwidth uncompressed triax (1.5G) with simple front panel switching between fiber and triax cable use, in combination with mounting FA or TA to the HDK-79GX.

#### HD SDI QTV (Option)

One channel of HD SDI is sent from CCU to camera head for an external purpose such as a vanity monitor for the talent to see the program video in HDTV (option). This channel is independent of RET video. Note: fitted as alternate to SDTV RET in CCU-970M.

#### 4 Return Video Input

Standard configuration includes 4 inputs for HD RET and 4 inputs for SD RET (with up conversion to HD). Camera operator selects the RET input to be sent to the camera. When required a Frame Sync function can be selected for the RET video minimizing lock up disturbance (supports only 2 RET SDI inputs).

#### 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.

#### Simulcast

Using a down converter and up converter incorporated in the CCU-970M, both HDTV and SDTV signals are provided simultaneously from the CCU.

### Compact Half-rack Base Station BS-89A



A half-rack base station, BS-89A, is also available, permitting full SMPTE fiber cable extension with a compact base station, suitable for small sized OB vans and rental / flight-pack systems. The BS-89A supports 2 channels of QTV and 4 channel RET selection to match the camera head features.

### Fiber Extension Device FA-55 / BSF-55



The FA-55 Fiber Adapter and BSF-55 Base Station offer cost effective operation in 1080i formats, in combination with the HDK-79GX. The BSF-55 is newly designed in the compact size of 1.5RU height with 19-inch rack mount width, transmitting uncompressed high quality pictures with use of SMPTE fiber cable between camera and base station. Both HDTV and SDTV formats are supported simultaneously in both digital and analog form with a wide range of built-in interfaces. The BSF-55 also features embedded audio in the SDI output signals.

### Digital Triax Extension Device DTA-55 / BST-55



The DTA-55 / BST-55 is a triax transmission system, using Ikegami's original super low latency digital transmission to minimize degradation and deliver the full resolution and SNR of the camera head to the base station regardless of the triax cable distance. This new transmission system allows customers to transition from SD to HD while still using their existing triax camera cable infrastructure, saving cost and continuing to use a rugged easy to repair cable/connector type.

\* DTA-55/BST-55 can not be used for HDK-790GX.

## 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-79GX, 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-79GX, 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

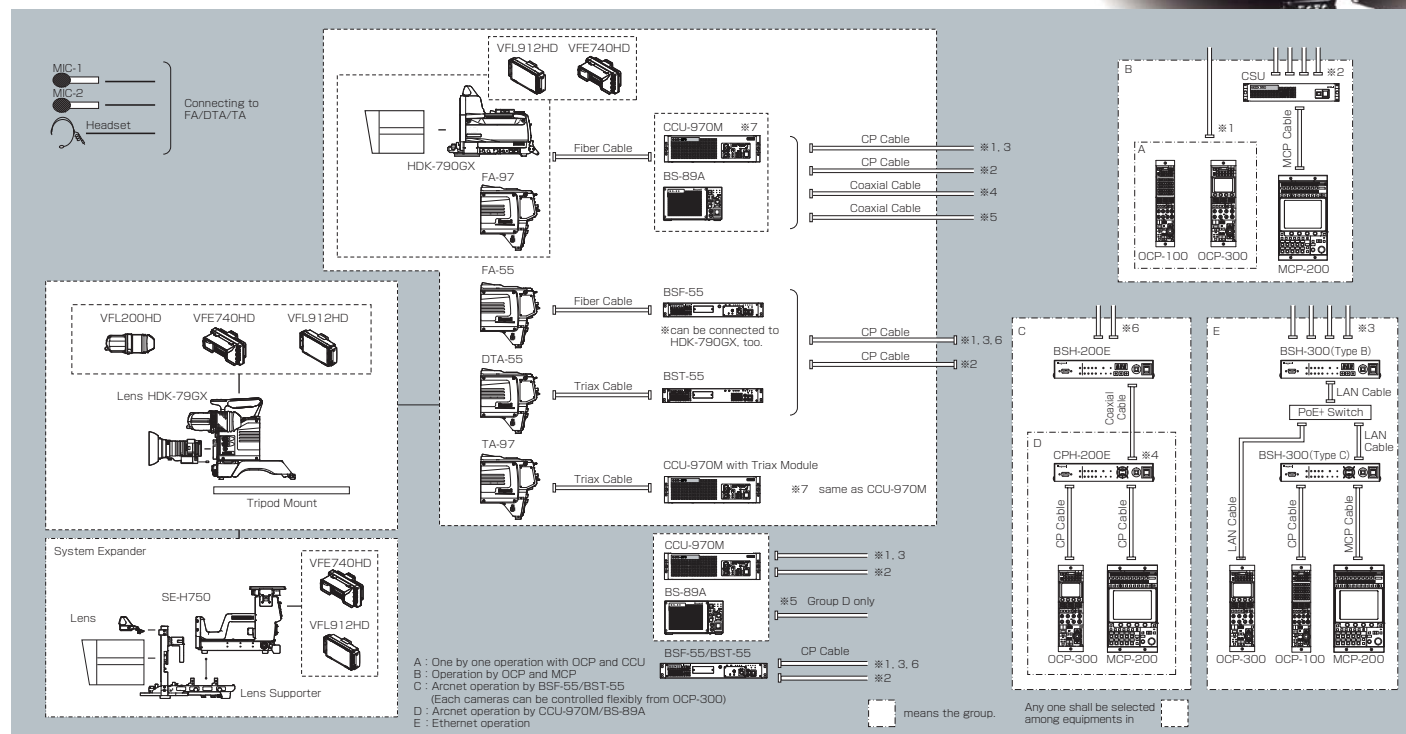


9-inch LCD

### 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.





## Ratings

Supporting Formats	1080i (59.94Hz or 50Hz) Y,Pb,Pr 4:2:2 Interlaced (50Hz Option) 1080psf (29.97Hz or 25Hz) Y,Pb,Pr 4:2:2 Interlaced (Option)						
Image Sensors	2/3-inch 2.3 million pixel AIT CCD						
Optical system	2/3-inch RGB prism, f1.4						
Lens Mount	BTA-S1005B						
Filter	Optical Filter (servo)		1	2	3	4	5
		ND	100%	25%	6.2%	1.6%	CAP
		I	II	III	IV	V	
	Electronic Color Compensation	EFF	CLEAR	CROSS	SNOW	FOG	-
			A	B	C	D	E
Sensitivity	F10 (1080/59.94i) / F11 (1080/50i) typical at 2000 lx (White reflection 89.9%)						
S/N	61dB typical (HDTV)						
Limiting Resolution	1000TV lines						
Variable Color Temperature	2,000K~20,000K variable						
Electric Shutter	1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000						
Detail Correction							
Vertical	5 lines						
Horizontal	Boost frequency: 13MHz~22MHz (HDTV)						
Gamma	OFF, 0.35, 0.4, 0.45						
Gain	-6, -3dB, 0dB, +3dB, +6dB, +9dB, +12, +18dB						
Ambient Temperature	-20℃ ~ +45℃ (-4°F ~ 113°F)						
Relative Humidity	30% ~ 90% (Non-condensing)						
Operating Voltage							
HDK-790GX	AC100/110/117/220/240V ±10%						
HDK-79GX	+11~16V						
Weight							
HDK-790GX	Approx 24kg (52.9lbs)						
HDK-79GX	Approx 4.6kg (10.1lbs) (Head + FA or TA, excluding VF)						
Dimensions							
HDK-790GX	W315 x H328 x D398mm (excluding VF) (W12.37 x H12.87 x D15.62 inches)						
HDK-79GX	W138.5 x H270 x D337mm (Head + FA or TA, excluding VF) (W5.5 x H10.62 x D13.25 inches)						

Input Signals	
External Sync Signal	SYNC 0.6Vp-p $\pm$ 6dB 75ohm 1ch * DTA-55 does not have external sync signal input in self-contained operation.
Audio Signal	-60dB $\sim$ +4dB (Variable) / -20dB (Fixed) 2ch (600 ohm Balanced)
Intercom Signal	XLR Type or 110 Type CN 2ch
Video Trunk	Serial Digital 75ohm 1ch (Option) * FA-97 is needed for this option.
Output Signals	
Analog Video Signal	R, G, B D-Sub CN 1ch (for System Expander)
HD SDI Signal	
HDK-790GX	Serial Digital 75ohm 1ch  Serial Digital 75ohm 1ch  * The output signal should be fixed with main video signal in self-contained operation and fixed to RET signal in triax operation.
HDK-79GX with FA-97/FA-55	
HDK-79GX with DTA-55	
Q-TV Signal	
HDK-790GX	VBS signal 2ch * Option in 50Hz, and BS/CCU must support 2channels of QTV.
HDK-79GX with FA-97	VBS signal 2ch * Option in 50Hz, and BS/CCU must support 2channels of QTV.
HDK-79GX with FA-55	VBS signal 1ch
HDK-79GX with DTA-55	SD-SDI signal 1ch
AUX OUT Signal	VBS signal 1ch (QTV-1, QTV-2, or Main video selectable by menu) * Available with FA-55 only. * QTV-2 can not be selected if BS/CCU does not support 2channels of QTV.
MON Video Signal	VF / RET / MON (MENU Selection) Serial Digital 75ohm BNC 1ch OR VF / RET / MON / HD-QTV (MENU Selection) Serial Digital 75ohm BNC 1ch (Factory Option) * FA-97+CCU-970M should be needed for HD-QTV output. * Optional HD-QTV(Trunk) module should be installed in the CCU.
HD QTV	Serial Digital 75ohm 1ch (Option) * FA-97+CCU-970M are needed for HD-QTV output. * Optional HD-QTV(Trunk) module must be installed in the CCU.
Intercom Signal	0 dBs 4ch (ENG/PROD/PGM1/PGM2) XLR Type or 110 Type CN
DC Output	+12VDC 500mA (max), 4-pin type 1ch * Option for DTA-55 * Not available with HDK-790GX

## CCU-970M/BS-89A/BSF-55/BST-55

## Ratings

Dimensions	
CCU-970M	W483 x H133 x D454 mm (W19.00 x H5.25 x D17.88 inches) (excluding protrusions)
BS-89A	W218.6 x H124.8 x D457 mm (W8.63 x H4.88 x D18.00 inches) (excluding protrusions)
BSF-55/BST-55	W483 x H66.4 x D405 mm (W19.00 x W2.63 x D16.00 inches) (excluding protrusions)
Weight	
CCU-970M	Approx. 28kg (61.73 lbs)
BS-89A	Approx. 9kg (19.84 lbs)
BSF-55	Approx. 7kg (15.43 lbs)
BST-55	Approx. 8kg (17.64 lbs)
Ambient Temperature	0°C ~ +40°C (32°F ~ 104°F)
Relative Humidity	30% ~ 90% (Non-condensing)
Operating Voltage	
CCU-970M/BS-89A	AC100/110/117/220/240V ±10%
BSF-55/BST-55	AC100V to 120V / 200V to 240V ±10%
Power Consumption	
CCU-970M	Approx. 110VA (CCU only) Power for camera head: less than 400VA
BS-89A	Approx. 80VA (BS only) Power for camera head: less than 180VA
BSF-55	Approx. 55VA (BS only) Power for camera head: less than 180VA
BST-55	Approx. 80VA (BS only) Power for camera head: less than 180VA
Maximum Cable Distance	
HDK-790GX/79GX	2000m with 9.2mmφ Fiber Cable
CCU-970M	
FA-97/BS-89A	2000m with 9.2mmφ Fiber Cable
FA-55/BSF-55	2000m with 9.2mmφ Fiber Cable
DTA-55/BST-55	800m with Fujikura 8.8mmφ Triax Cable
Input Signals	
External Sync Signal	
CCU-970M/BS-89A	1ch (HDTV/SDTV auto detect)
	HDTV: PS (1Vp-p) or SYNC (0.6Vp-p±6dB) 75ohm bridged connection
	SDTV: VBS (1Vp-p) or BBS, BBS+10Field ID 75ohm bridged connection
BSF-55/BST-55	1ch (HDTV/SDTV auto detect)
	HDTV: PS 1Vp-p 75ohm bridged or Tri-sync signal 0.6Vp-p ± 6dB 75ohm bridged connection
	SDTV: VBS 1Vp-p 75ohm bridged connection or BBS 75ohm bridged connection
Return Video Signal	
CCU-970M	75ohm Single End HD-SDI 4ch 75ohm Single End SD-SDI 4ch or SD-SDI/VBS 2ch (Option) * SDTV Return is not available when optional HD-QTV (Trunk) module is installed. * The total number of return input channels is 4 in HDTV and SDTV.
BS-89A	75ohm Single End HD-SDI 4ch or 75ohm Single End SD-SDI 4ch or SD-SDI/VBS 2ch (Option) * HD-QTV (Trunk) module is not available for BS-89A.
BSF-55/BST-55	HD/SD-SDI: 75ohm single end 2ch (HD/SD SDI Selectable) VBS: 75ohm single end 2ch
Q-TV Signal	
CCU-970M	HDTV: HD SDI 75ohm single end 1ch (Factory Option) * The signal is transmitted to the camera head in Y, Pb, Pr 4:2:2 8bit. SDTV: VBS 75ohm single end 2ch

BS-89A	VBS 75 ohm single end 2ch
BSF-55	VBS 75ohm single end 1ch
BST-55	SD-SDI 75ohm single end 1ch
Intercom (ENG/PROD)	4-wire or Clearcom or RTS
4-wire	0dBm 600ohm 2ch
Clearcom	-15dBs 200ohm 2ch
RTS	0dBs 200ohm 2ch
PGM (Program Sound)	0dBs 600ohm/10k ohm switchable 2ch
Tally	
CCU-970M/BS-89A	R/G 2ch MAKE/POWER selectable
BSF-55/BST-55	R/G 2ch
Output Signals	
【Main Video Signal】	
CCU-970M/BS-89A	
HD-SDI Signal	Serial Digital 75ohm 2ch 4outputs
SD-SDI Signal	Serial Digital 75ohm 1ch 2outputs
VBS Signal	1.0Vp-p 75ohm 1ch 2outputs
BSF-55/BST-55	
HD-SDI/SD-SDI Signal	HD-SDI (SMPTE292M) /SD-SDI (SMPTE259M) 75ohm 2ch 4outputs (HD-SDI/SD-SDI selectable)
VBS Signal	1.0Vp-p 75ohm 1ch 2outputs
【PM Signal】	
CCU-970M	
HD-SDI Signal	Serial Digital 75ohm 2ch 2outputs
SD-SDI/VBS Signal	Serial Digital or VBS 75ohm 2ch 2outputs (MENU SELECTION)
BS-89A	
HD-SDI Signal	Serial Digital 75ohm 1ch 1output
SD-SDI/VBS Signal	Serial Digital or VBS 75ohm 1ch 1output (MENU SELECTION)
BSF-55/BST-55	
HD-SDI/SD-SDI Signal	Serial Digital 75ohm BNC 1ch 1output (MENU SELECTION)
SDTV Analog Signal	1.0Vp-p 75ohm BNC type 1ch 1output
【WFM Signal】	
CCU-970M	75ohm Serial Digital Signal 2ch 2outputs Ch1: HD-SDI / SD-SDI (MENU SELECTION) Ch2: HD-SDI / SD-SDI / SD Analog (MENU SELECTION)
BS-89A	
HD-SDI Signal	Serial Digital 75ohm 1ch 1output
SD-SDI/VBS Signal	Serial Digital or VBS 75ohm 1ch 1output (MENU SELECTION)
BSF-55/BST-55	
HD-SDI/SD-SDI Signal	Serial Digital 75ohm 1ch (HD-SDI/SD-SDI selectable)
Phase Reference Signal	75ohm single end Analog 1ch HDTV: Tri-Sync (0.6Vp-p) / SDTV: HV (2Vp-p) (MENU SELECTION)
Intercom(ENG/PROD)	4-wire or Clearcom or RTS
4-wire	0dBm 600ohm 2ch
Clearcom	-15dBs 200ohm 2ch
RTS	0dBs 200ohm 2ch
MIC	
CCU-970M/BS-89A	0dBs 2ch 2outputs Low impedance
BSF-55/BST-55	0dBs/+4dBs 2ch 2outputs Low impedance (MENU SELECTION)
Tally	R/G 2ch, OPEN (OFF) / GND (ON) 50mA (max)
Data Trunk	RS-422 1ch * In case of the BST-55, the data trunk channel is not supported as standard.
Video Trunk	
HD-SDI Signal	Serial Digital 75ohm 1ch (Option) * Not available with BSF-55/BST-55.
Digital Audio	75ohm Digital Format BNC 1ch 1output 48kHz Sampling, 24bit Pro, 2-pair ch's (AES3 Compliant) * Option for BS-89A. * Not available with BSF-55/BST-55.

Design and specifications are subject to change without notice.



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