

# 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.

## Various Camera Systems

### 19-inch Full-rack Camera Control Unit **CCU-970**



The full rack width 3RU CCU-970 permits full SMPTE fiber cable extension with longer cable distance and more utility power. The CCU-970 supports 2 channels of QTV plus HD SDI QTV and 4 channel RET selection.

#### 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-970.

#### 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-970, 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

### System Expander

The 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 is very easy, and conversion back to portable configuration is quick for maximum operating flexibility.

### Variety of viewfinders

For the HDK-79GX, 2-inch 16:9 high definition VFs for portable application are available in CRT and color LCD versions. In addition, 7-inch color LCD and 9-inch color LCD viewfinder is also available.



**2-inch CRT  
B/W viewfinder**



**2-inch LCD  
color viewfinder**



**7-inch LCD  
color viewfinder**



**9-inch LCD  
color viewfinder**

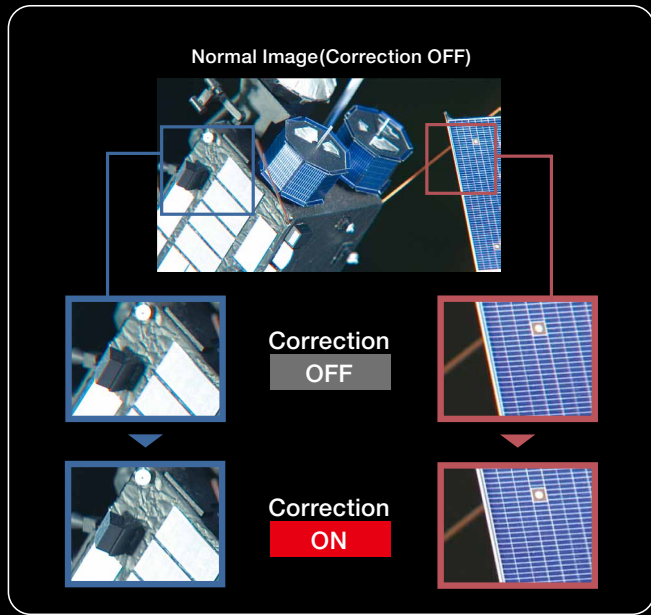


# Unicam HD



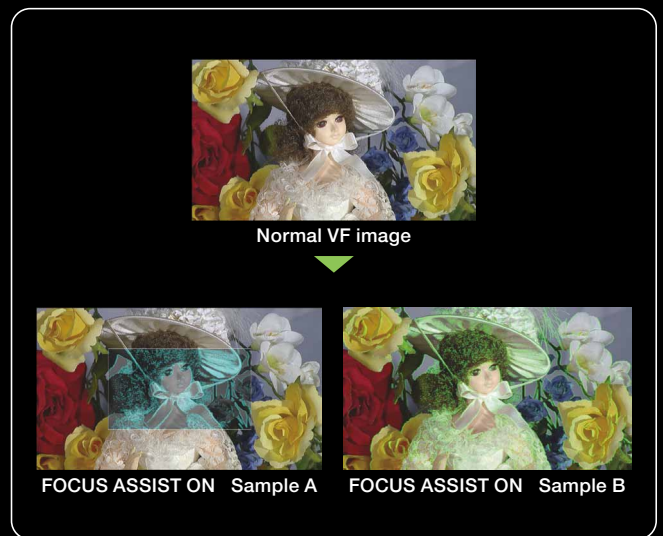
## Lens Aberration Correction Function

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

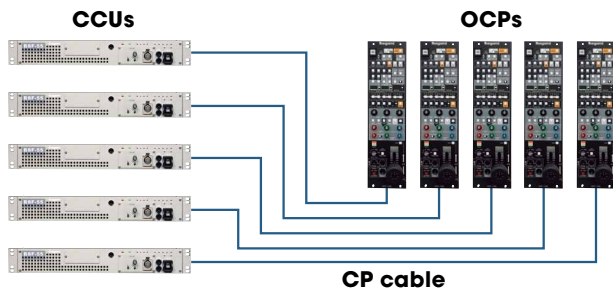
There are two types of camera operator assist functions incorporated in the HDK-790GX and HDK-79GX camera head. The viewfinder detail (VF DTL) function allows the camera operator to increase the detail edges to the viewfinder video for easy-focusing. In addition, the Quick EZ Focus (Focus Assist) function 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

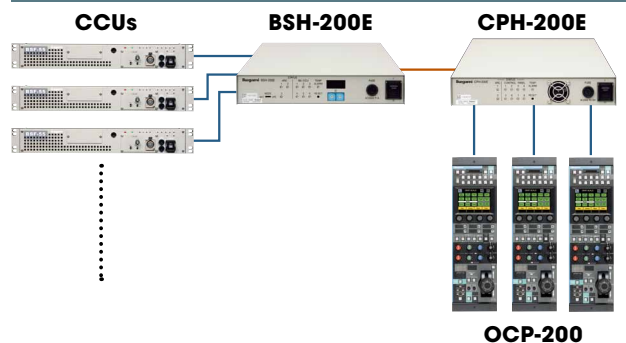
There are two types of camera control panel systems, each with a wide range of camera control capability. The conventional OCP allows direct and quick control of various camera parameters using dedicated buttons on the panel. The OCP-200 / MCP-200 Network based control panel system allows any OCP to control any camera with assignment set at the OCP itself. System wiring is simplified with control of up to 100 cameras via a single coax cable between CCU locations and video control locations. The OCP-200 and MCP-200 include touch screen LCDs. The depth-of-control of the OCP-200 can be selected from basic to complete to fit the customers' operating discipline. Conventional one by one camera control connection is also available with the OCP-200.

### Conventional one by one camera control connection



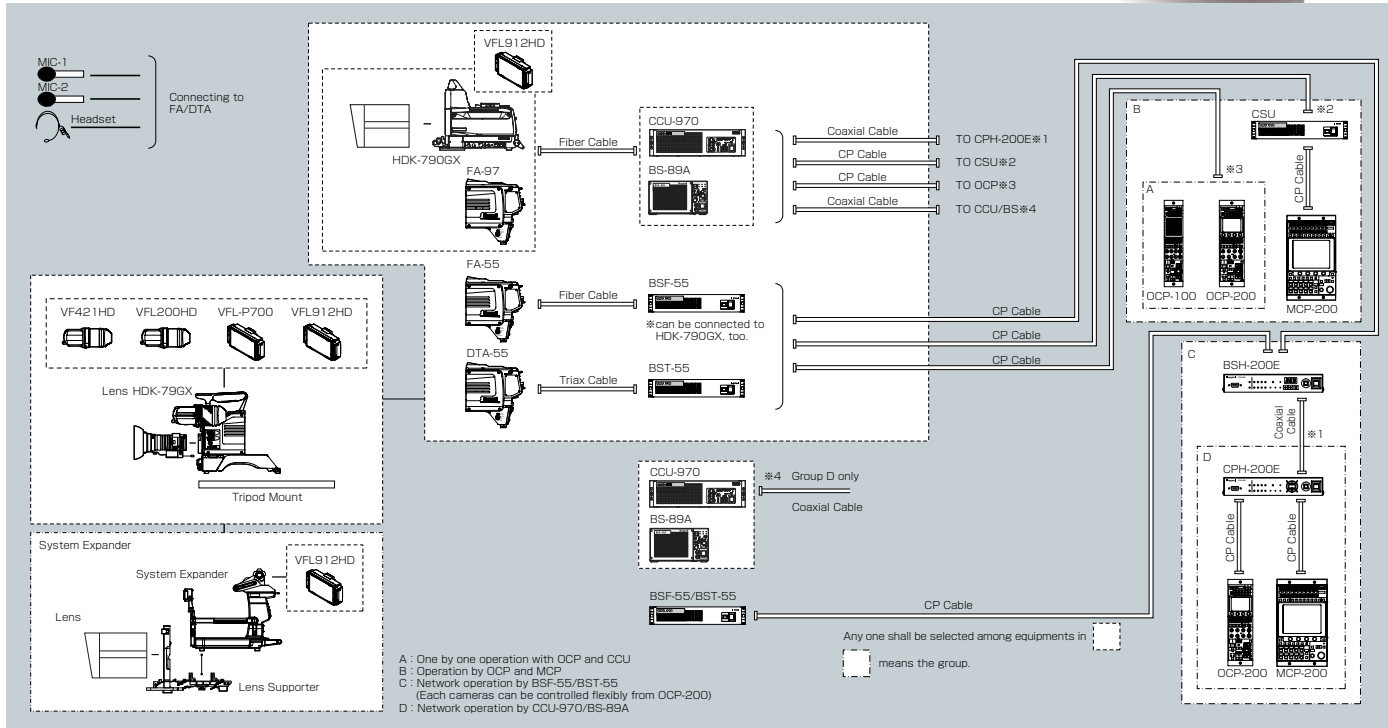
New and traditional control panels can be directly connected to the cameras on a one-by-one basis.

### Arc net based camera control system





## SYSTEM CONFIGURATION FOR HDK-790GX/79GX



## HDK-790GX/79GX

### Ratings

Supporting Formats	1080i (59.94Hz or 50Hz) Y,Pb,Pr 4:2:2 Interlaced 1080psf (29.97Hz or 25Hz) Y,Pb,Pr 4:2:2 Interlaced					
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%	6.20%	1.60%
	Electronic Color Compensation	A	B	C	D	E
	ECC	3200K	4300K	5600K	6300K	8000K
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					
Modulation Depth	45% or more					
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				
Gamma	OFF, 0.35, 0.4, 0.45					
Gain	-6, -3dB, 0dB, +3dB, +6dB, +9dB, +12, +18dB					
Ambient Temperature	-20°C ~ +45°C (-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 ±6dB 75ohm 1ch * DTA-55 does not have external sync signal input in self-contained operation.
Audio Signal	-60dB ~ +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
(HDK-79GX with FA-97/FA-55)	Serial Digital 75ohm 1ch
(HDK-79GX with DTA-55)	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.
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-970 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-970 are needed for HD-QTV output. * Optional HD-QTV(Trunk) module should 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-970/BS-89A/BSF-55/BST-55

### Ratings

Dimensions	
(CCU-970)	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-970)	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-970/BS-89A)	AC100/110/117/220/240V ±10%
(BSF-55/BST-55)	AC100V to 120V / 200V to 240V ±10%
Power Consumption	
(CCU-970)	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 CCU-970)	2000m with 9.2mmφ Fiber Cable (with HDK-790GX) 3000m with 9.2mmφ Fiber Cable (with HDK-79GX)
(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-970/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-970)	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-970)	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	4-wire or Clearcom or RTS
Clearcom	0dBm 600ohm 2ch
RTS	-15dBs 200ohm 2ch
PGM (Program Sound)	0dBs 600ohm/10k ohm switchable 2ch
Tally	
(CCU-970/BS-89A)	R/G 2ch MAKE/POWER selectable
(BSF-55/BST-55)	R/G 2ch
Output Signals	
【Main Video Signal】	
(CCU-970/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-970)	
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-970)	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	4-wire or Clearcom or RTS
Clearcom	0dBm 600ohm 2ch
RTS	-15dBs 200ohm 2ch
MIC	
(CCU-970/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
*Option for camera side	
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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