SONY

HXC-FZ90
4K Upgradable Portable Camera

HXCU-FZ90
Camera Control Unit

A flexible studio camera for today's live productions and a high-resolution future with 4K Upgradable

Sony introduces an ideal solution for high performance studio camera that easily upgraded to 4K with software option, delivering efficient operation and expanding applications in the business and industry market in addition to the content creation applications. The new HXC-FZ90 4K upgradable portable Camara equipped with 2/3-inch 4K CMOS sensor to provide high sensitivity of F10 (at 59.94Hz) or F11 (at 50Hz) and low noise as -62dB(HD). The HXC-FZ90 is capable in 4K /50P and 59.94P signal processing. Furthermore, HXC-FZ90 offers 4K/HD HDR support (HLG/S-Log3)

Specific features make live operations easier, from focus assists to headset intercom. Total Level Control System (TLCS) provides easy automatic control of Iris, Gain and Shutter. With NETWORK TRUNK, it is possible to control and operate devices such as PTZ camera, as well as giving you high-speed data transmission between the camera and its CCU for remote operation.

HXC-FZ90

HXCU-FZ90

Sony's 2/3-Inch 4K CMOS Sensor

Incorporating 2/3-inch 4K CMOS sensor, delivering especially crisp, rich HD coverage by over sampling from 4K capturing. the HXC-FZ90 offers stunning picture quality and high sensitivity and low noise. These features enhance shooting in a low light environment.

Future-Proof 4K Upgradable and HDR Support

Invest less now by starting with HD shooting, then upgrade by software option to 4K camera later without any hardware changes. Ideally suited to 4K HDR productions and adaptable to the look you need. Embracing wide color BT.2020 and SR Live Support for HDR(HLG/S-Log3)

4K

Upgrade software: HZC-UHD9
HZC-UHD9M (Monthly license)
HZC-UHD9W (Weekly license)

12G SDI Platform Capable of 4K/50p and 60p

Handle 4K output directly from the camera*, via 12G SDI connection, for stand-alone use. Moreover, it enables to operate wirelessly and record directly, with the 3rd party accessories.

*4K SDI-Out is supported in standalone operation mode only.

HD Video Trunk and HD Prompter

With the HD Trunk function, in addition to the HD 50i/59.94i video signal being shot with the HXC-FZ90, another video signal such from PTZ HD camera signal input to the SDI terminal of this unit can be simultaneously transmitted to the CCU via optical fiber cable.

12G/HD/SD-SDI/
HD PROMPTER

HD TRUNK

Model Variations

HXC-FZ90 Camera

● HXC-FZ90HN / HXC-FZ90HL   Body Only
● HXC-FZ90SN / HXC-FZ90SL   Body + Lens + Large Viewfinder

HXCU-FZ90 CCU

● HXCU-FZ90N / HXCU-FZ90L

HXC-FZ90

High Quality HD Picture by Over-sampling from 4K Imager

By oversampling all the pixels of the 4K imager, HD video quality with high resolution is achieved.
Even in Full HD shooting mode, 4K(3840x2160) resolution on 2/3-inch CMOS sensor is all read out
and by signal processing called "Over-Sampling" reducing to full HD(1920x1080) resolution.
Resulting in images with even better picture than normal Full HD's pixel read out video.

Longer Cable Extension and Choice of Fiber Interface

Using a hybrid cable with a power supply, the distance between the camera head
and CCU can be extended up to 300 m. In addition to the Neutrik connector interface,
a LEMO connector interface is also available for the camera head and CCU.
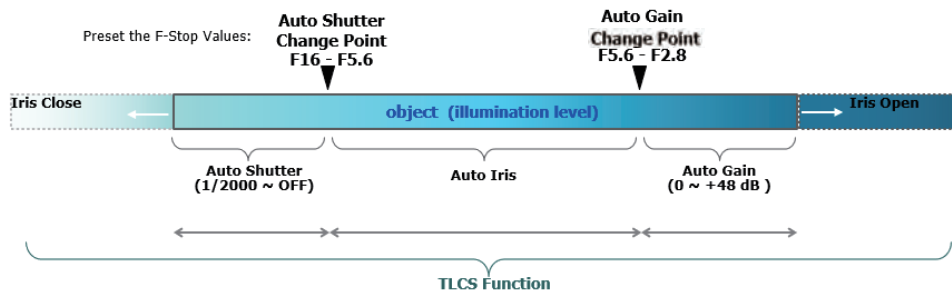

Long-Distance Transmission with Single-Mode Fiber Cable

When you connect using a single-mode fiber (SMF) cable, and provided there is a local power supply,
transmission can extend up to 10 km. In many facilities, SMF is already laid as part of the infrastructure,
allowing you to install the camera system quickly and easily.

Total Level Control System (TLCS)

The TLCS function provides automatic control of GAIN/IRIS/SHUTTER, and is a highly effective tool to cope with
changing lighting conditions for surveilance use. It helps to achieve the shooting image with required picture level.

HXC-FZ90

ARIA: Automatic Restoration of illumination attenuation

F drop and peripheral light loss are unwanted physical phenomena especially in long-distance object shooting.
With ARIA function, the impact on picture appearance is automatically compensated for by processing
inside the camera for the supported lens[1]. This means that content quality remains high, even in tough shooting conditions.

[1] Please contact to lens manufacturer

ALAC-2: Auto Lens Aberration Compensation

Auto Lens Aberration Compensation-(ALAC) can optimize lens performance to provide better picture quality by Horizontal & Vertical 2-axis compensation.
This function is based on the compensation data in the lens, therefore lens has to be corresponded.

Digital Extender

Digital extender takes advantage of the 4K image sensor for x2 magnify that delivers a Full HD image and x4 magnify with no brightness degradation
Rely on the high sensitivity needed for darker environments, without worrying about image noise.

Focus Assist Functions

The **VF Detail** function adds dedicated image-enhancing edge signals directly to the viewfinder, helping you to recognize a focusing point.
The **Focus Position Meter** and **Focus Assist Indicator** function that the swing of the indicator can be used as guide to easily determine
the focus point. Marker can be placed for quick and accurate focus position change.
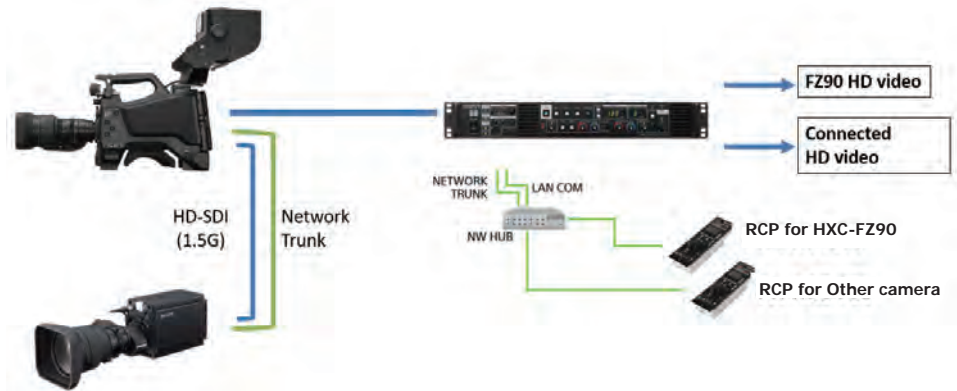

VF detail

Focus Position Meter

HXC-FZ90

NETWORK TRUNK

Ethernet communication is supported between an external camera connected to the NETWORK TRUNK
connector of the unit and an external device connected to the NETWORK TRUNK connector of the
HXCU-FZ90 Camera Control Unit.

Simple Intercom with earphone terminal

Besides the conventional XLR type intercom system,
a commercially available earphone with mic (4-pole plug type) can be utilized to input and output the intercom audio signal.

Pure Progressive 60.00Hz out for OTT

The HXC-FZ90 has been expanded in format with Pure Progressive format, on top of HD PsF. This suits use in e-sports and OTT, where the market is expected to grow further in the future, on top of the broadcasting station business.

Variety of Picture Adjustment Functions

Skin-tone detail

This function allows adjustment (emphasis or suppression) of the detail level for a specific hue or chroma area in the image, such as human skin tones. Three channels of skin tone gate can be set. With this you are able to create the appropriate natural skin tone in a wide range, depending on shooting object conditions.

Natural Skin-tone Detail OFF   Natural Skin-tone Detail ON

Adaptive-matrix function

This enables ideal color conversion for shooting even under excessively strong ambient lighting conditions such as live shooting under bright monochromatic blue light. These conditions would typically cause a conventional matrix function to exceed the colour conversion range.

AUTO KNEE function

Against a very bright background with the iris opening adjusted for the subject, objects in the background will be lost in the glare. The AUTO KNEE function suppresses areas of high brightness automatically to reproduce the background more clearly.

Connecting to HXCU-FZ90

Enhanced HXCU-FZ90 Camera Control Unit
- Expandable operability and connectivity

Sony's HXCU-FZ90 is camera control units (CCUs) that perform signal processing, provide an interface to external equipment, and supply power to the camera.
Even without RCP, Operate basic setting of the camera from the front panel of CCU with IRIS and PAINT control with ease.
Model variations are available with different types of connectors to the camera system: a Neutrik connector for a hybrid fiber cable or single mode fiber (SMF) cable, and a LEMO connector.
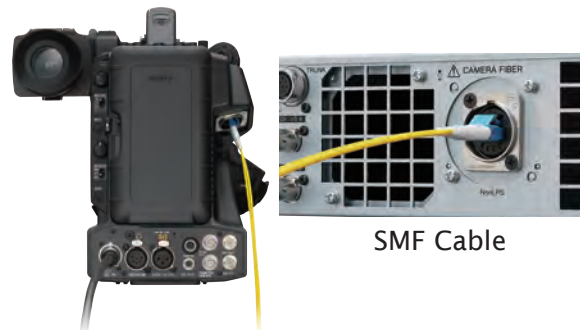

Basic paint functions are on front panel of CCU

HXCU–FZ90N Rear (Neutrik)

HXCU–FZ90L Rear (LEMO)

Neutrik Cable

SMF Cable

LEMO Cable

Connecting to HXCU-FZ90

Long-Distance Cable Extension

There are different types of extension cable connection. For fiber cable connection, you can use single-mode fiber or hybrid fiber. These cables can be combined with the HXCE-FZ90 Power Supply Extension Unit.

HXC-FZ90

CCN hybrid type optical cable
Max.300m

HXCU-FZ90

HXC-FZ90

Single mode fiber cable   **Max.10km**

HXCU-FZ90

AC-DN10A
Local Power

HXCE-FZ90

HXC-FZ90

Max.300m   **Max.10km**

HXCU-FZ90

SMF to/from CCFN
（LC - OpticalCON DUO）

HXCE-FZ90: Power Supply Extension Unit

The HXCE-FZ90 is very useful for building a flexible system. You can combine Sony's CCFN hybrid cable and single mode fiber cable in order to maintain cable wiring durability over a long distance.
The HXCE-FZ90 has the same power supply capability as the HXCU-FZ90, and can pass all signals through either a single-mode optical fiber cable or a hybrid fiber cable.
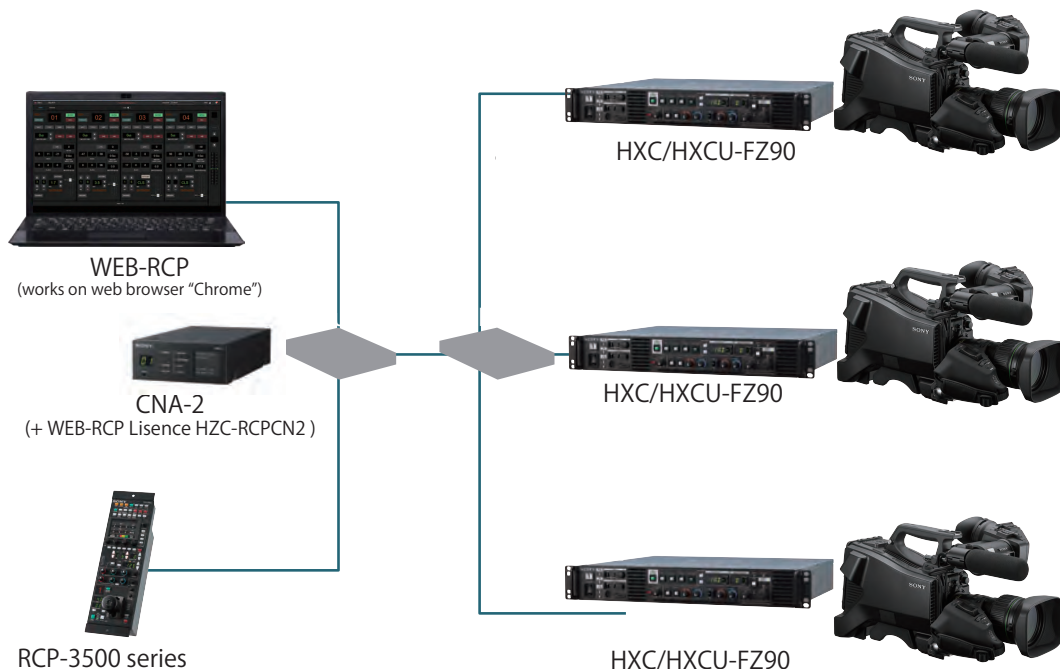
HXCE-FZ90 Front   HXCE-FZ90 Rear

Remote Control

WEB-RCP Operation

WEB-RCP is a software-based camera remote control, as an application of CNA-2.
It can operate up to twelve camera system units simultaneously via a LAN connection.
In combination with the RCP-3500 Series Remote Control Unit, the WEB-RCP can control each camera system individually.

Variety of Remote Control

A variety of remote control units are available including the RCP-3500 Series, RCP-3100, RCP-1000 Series and RM-B170 as well as the WEB-RCP Remote Control Software.

RCP-3500 Series   RCP-3100   RCP-1000 Series   RM-B170   WEB-RCP

WEB-RCP
(works on web browser "Chrome")

CNA-2
(+ WEB-RCP Lisence HZC-RCPCN2)

RCP-3500 series

HXC/HXCU-FZ90
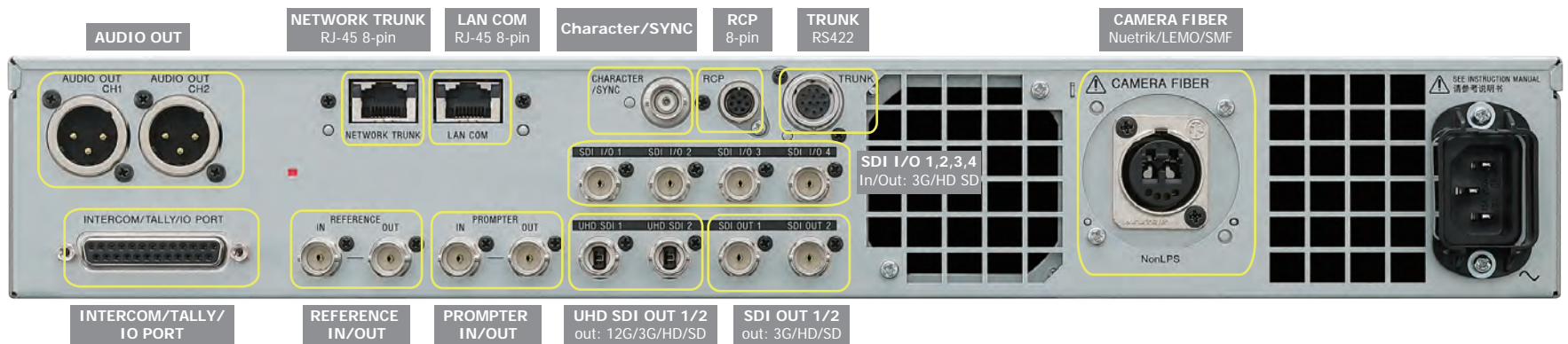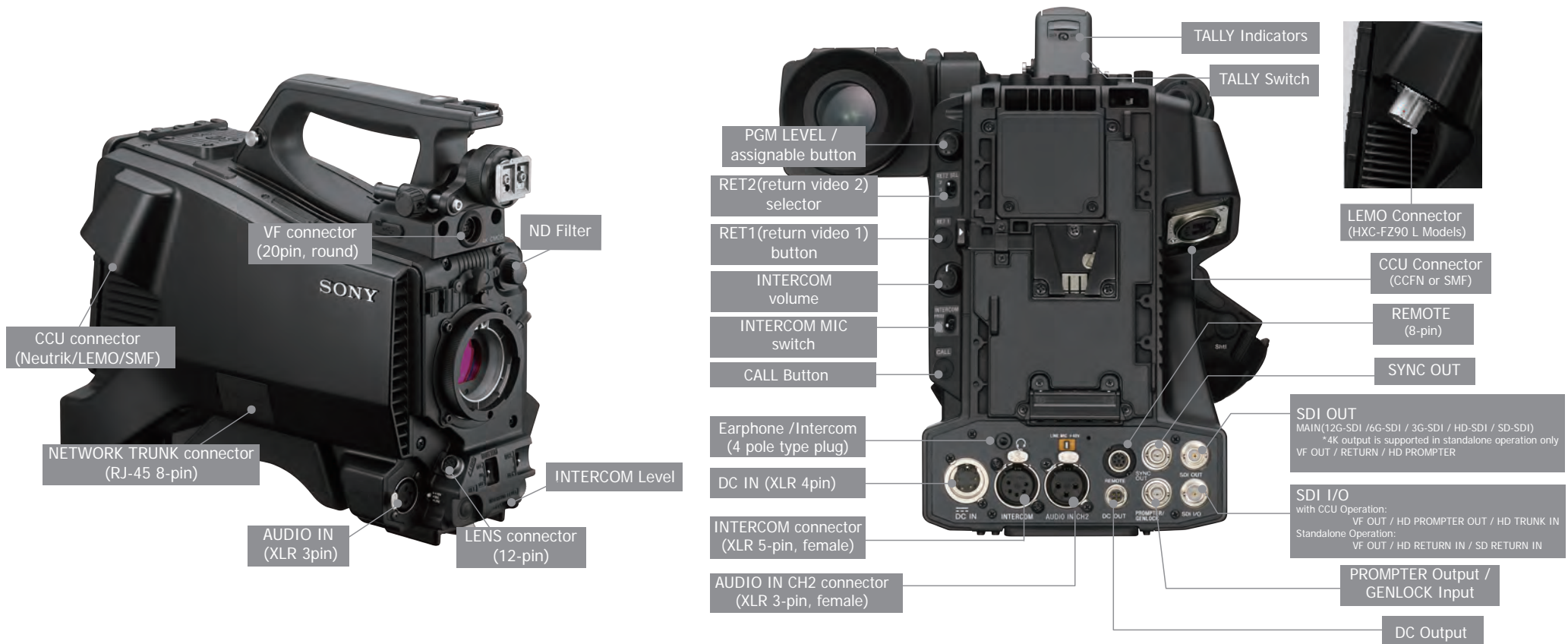
HXC/HXCU-FZ90

HXC/HXCU-FZ90

Multi-Camera System (MCS)

Using Sony's MSU-3500 or MSU-3000 master setup unit, HXC-FZ90 and other camera system units can be controlled via a LAN cable.
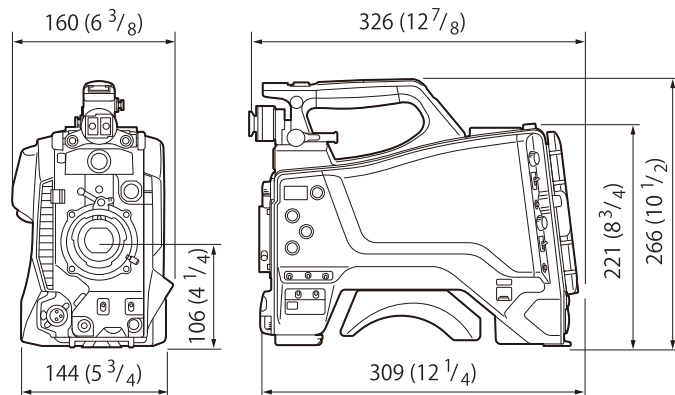

MSU-3500   MSU-3000

HXC-FZ90 / HXCU-FZ90 Interfaces

VF connector (20pin, round)

ND Filter

CCU connector (Neutrik/LEMO/SMF)

NETWORK TRUNK connector (RJ-45 8-pin)

AUDIO IN (XLR 3pin)

LENS connector (12-pin)

INTERCOM Level

TALLY Indicators

TALLY Switch

PGM LEVEL / assignable button

RET2(return video 2) selector

RET1(return video 1) button

INTERCOM volume

INTERCOM MIC switch

CALL Button

LEMO Connector (HXC-FZ90 L Models)

CCU Connector (CCFN or SMF)

REMOTE (8-pin)

SYNC OUT

SDI OUT
MAIN(12G-SDI / 6G-SDI / 3G-SDI / HD-SDI / SD-SDI)
    *4K output is supported in standalone operation only
VF OUT / RETURN / HD PROMPTER

Earphone /Intercom (4 pole type plug)

DC IN (XLR 4pin)

INTERCOM connector (XLR 5-pin, female)

AUDIO IN CH2 connector (XLR 3-pin, female)

SDI I/O
with CCU Operation:
    VF OUT / HD PROMPTER OUT / HD TRUNK IN
Standalone Operation:
    VF OUT / HD RETURN IN / SD RETURN IN

PROMPTER Output / GENLOCK Input

DC Output

AUDIO OUT

NETWORK TRUNK RJ-45 8-pin

LAN COM RJ-45 8-pin

Character/SYNC

RCP 8-pin

TRUNK RS422

CAMERA FIBER Nuetrik/LEMO/SMF

SDI I/O 1,2,3,4
In/Out: 3G/HD SD

INTERCOM/TALLY/ IO PORT

REFERENCE IN/OUT

PROMPTER IN/OUT

UHD SDI OUT 1/2
out: 12G/3G/HD/SD

SDI OUT 1/2
out: 3G/HD/SD

Specifications

HXC-FZ90HN/HXC-FZ90HL, HXC-FZ90SN/HXC-FZ90SL

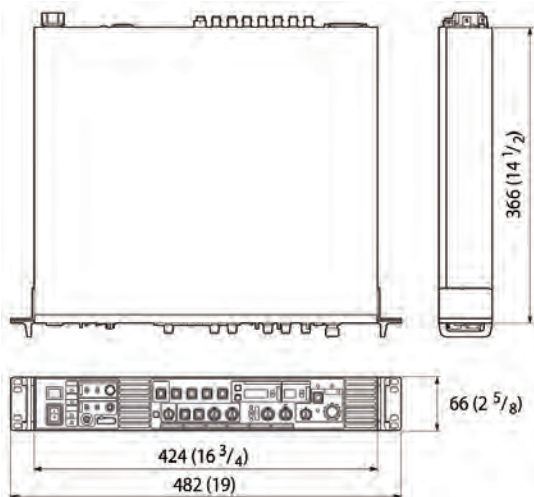| Category	Item	Specification
General	Power Consumption	Approx.56W (Camera body only)
	Operating Temperature	-10°C to +45°C / 14°F to +113°F
	Storage Temperature	-20°C to +60°C / -4°F to +140°F
	Dimensions (W x H x D) *1	(Body) 160 x 266 x 326 mm / (Body) 6 3/8 x 10 1/2 x 12 53/64 inches
	Mass	(Body) Approx. 3.8 kg / (Body) Approx. 8 lb 6 oz
Camera Section	Pickup Device	2/3-inch type 4K CMOS
	Effective Picture Elements	3840 x 2160 (H x V)
	Signal Format	4K 2160 : 59.94p, 50p, 60p, 30p, 29.97p, 25p, 24p, 23.98p HD 1080: 59.94p, 59.94i, 50p, 50i, 60p, 29.97PsF, 25PsF, 24PsF, 23.98PsF, HD 720 : 59.94p, 50p 59.94i, 50i
	Lens Mount	B4 Mount Lens
	Built-in Filters	CC: Electrical ND: 1; CLEAR, 2; 1/4ND, 3; 1/16ND, 4; 1/64ND
	Sensitivity	F10 (59.94 Hz), F11 (50 Hz)
	Signal-to-noise Ratio	-62dB
	Horizontal Resolution	2,000 TV lines
	Gain	−6, −3, 0, 3, 6, 9, 12
	Shutter Speed	1/100, 1/150, 1/200, 1/250, 1/500, 1/1000, 1/2000
	Shutter Speed (Slow Shutter (SLS))	support
Input/Output	Audio Input (CH1)	XLR type: 3-pin, female (x1)
	Audio Input (CH2)	XLR type: 3-pin, female (x1) MIC IN: -60dBu (Up to -20dBu can be set by using menu or HXCU-FZ90), balanced LINE IN: 0dBu, balanced
	Prompter/Genlock	BNC (x1); 1Vp-p, 75Ω
	SDI Input/Output	BNC (x1)
	SDI Output	BNC (x1)
	CCU	HXC-FZ90HN: Optical Fiber (x1), CCFN Cable or Single Mode Fiber Cable (LC type) HXC-FZ90HL: Optical Fiber (x1), Lemo Cable
	Distance of Power Supply	300m with optical fiber composite cable
	Distance of Fiber Cable	300m (optical fiber composite cable)、10km (Single mode Fiber with HXCE)
	Intercom	XLR type: 5-pin, female (x1)
	Earphone Output	4pole stereo mini jack (x1)
	Lens	12-pin (x1)
	Viewfinder	20-pin (1), for HDVF only
	Remote	8-pin (x1)
	TRUNK Input/Output	TRUNK LINE Remote 8pin : RS-422A
	EXT Input/Output	DC-OUT 2pin
	USB	USB 2.0 (x1)
	DC Input	XLR-type 4-pin (x1), DC 10.5 V to 17 V
	DC Output	4-pin (x1), DC 10.5 V to 17 V
Lens (Spackage)	Lens Mount	2/3-inch type Sony Bayonet
	Focal Length	8.2mm (11/32 inches) to 164mm (6 1/2 inches)
	Zoom	Servo/Manual selectable
	Zoom Ratio	20 x
	Maximum Relative Aperture	01:01.9
	Iris	Auto/Manual selectable F1.9 to F16 and C (Close)
	Focus	Full manual focus 900 mm to ∞ (MACRO OFF) 10 mm to ∞ (MACRO ON, Wide)
	Filter Thread	M82 mm, pitch 0.75 mm
	Macro	On/Off switchable
Supplied Accessories	Supplied Accessories	7 inch Large Viewfinder (1) Viewfinder Operation Guide (1) Viewfinder Operation Manual (CD-ROM 1), GB, CS 2/3-inch type HD Portable Lens (1) V-shoe (1) Viewfinder Hood (1) Viewfinder Cable 20pin (1) Tally Number Plate (0~9)
		Camera Operation Guide (1) Operating Instructions (CD-ROM 1) JP, GB, FR, DE, IT, ES, CS Lens Mount Cap (1) Flange back adjustment chart (1) Cable clamp belt (1) Warranty booklet (1)

HXCU-FZ90N/HXCU-FZ90L

Category	Item	Specification
General	Power Requirements	AC 100 V to 240 V, 50/60 Hz
	Operating Temperature	5°C to +40°C / 41°F to +104°F
	Storage Temperature	-20°C to +60°C / -4°F to +140°F
	Dimensions (W x H x D) *1 (W: without Rack Mounting Bracket)	482 (424) x 66 x 366 mm / 19 (16 3/4) x 2 5/8 x 14 1/2 inches
	Mass	Approx. 5.9 kg / Approx. 13 lb
	Signal Format	4K 2160 : 59.94p, 50p (2SI, SQD, Level-A/B) HD 1080: 59.94p, 59.94i, 50p, 50i, 29.97PsF, 25PsF, 23.98PsF, HD 720 : 59.94p, 50p SD 480 : 59.94i, 576: 50i
Input/Output	Camera	HXCU-FZ90N: Optical Fiber (x1), CCFN Cable or Single Mode Fiber Cable (LC type) HXCU-FZ90L:Optical Fiber (x1), Lemo Cable
	Distance of Power Supply	300m
	Distance of Fiber Cable by Local Power Supply	10km (max.) by Single Mode Fiber Cable (LC type) (with HXC-FZ90)
	Intercom (on the front panel)	EARPHONE : 4-pole mini jack
	Intercom/Tally/Program	D-sub 25-pin, female (x1) • INTERCOM (PROD, ENG), 4Wire/RTS: 0 dBu, Clear-Com: -14dBu • PGM • TALLY (R, G) • PREVIEW OUT
	Remote	8-pin (x1)
	Trunk	12-pin(x1)
	LAN COM	RJ-45 8-pin
	NETWORK TRUNK	RJ-45 8-pin
	Reference	BNC (x2), In: HD: SMPTE 274M, Tri-Level Sync, 0.6 Vp-p, 75 Ω SD: Black Burst (NTSC: 0.286 Vp-p, 75 Ω / PAL: 0.3 Vp-p, 75 Ω)
	Prompter	BNC (x2), In: VBS, 1.0 Vp-p, 75 Ω, 1 system, Out: Loop-Through
	SDI I/O 1 ~ 4	3G/HD/SD SDI I/O BNC (x4) 3G SDI : SMPTE ST424/425 Level-A/B、0.8 Vp-p、75Ω、2.970 Gbps/2.967 Gbps HD SDI : SMPTE ST292、0.8 Vp-p、75Ω、1.485 Gbps/1.4835 Gbps SD SDI : SMPTE ST259、0.8 Vp-p、75Ω、270 Mbps 3G SDI/HD SDI/SD SDI
Input	AC In	(x1), AC 100 V to 240 V
Output	SDI Out 1,2	3G/HD/SD SDI OUTPUT BNC (x4) 3G SDI : SMPTE ST424/425 Level-A/B、0.8 Vp-p、75Ω、2.970 Gbps/2.967 Gbps HD SDI : SMPTE ST292、0.8 Vp-p、75Ω、1.485 Gbps/1.4835 Gbps SD SDI : SMPTE ST259、0.8 Vp-p、75Ω、270 Mbps 3G SDI/HD SDI/SD SDI
	UHD Out 1,2	12G/6G/3G/HD SDI OUTPUT BNC (x2) 12G SDI : SMPTE ST2082、0.8 Vp-p、75Ω、11.88 Gbps/11.868 Gbps 6G SDI : SMPTE ST2081、0.8 Vp-p、75Ω、5.940 Gbps/5.934 Gbps 3G SDI : SMPTE ST424/425 Level-A/B、0.8 Vp-p、75Ω、2.970 Gbps/2.967 Gbps HD SDI : SMPTE ST292、0.8 Vp-p、75Ω、1.485 Gbps/1.4835 Gbps
	Character / Sync	BNC (x1), Character, 1 Vp-p、75Ω HD SYNC : Tri-level sync、0.6 Vp-p、75Ω SD SYNC : NTSC : 0.286 Vp-p、75Ω PAL : 0.3 Vp-p、75Ω
	Audio Out CH-1, CH-2	XLR 3-pin, male (x2), 0/−20 dBu/+4dBu
Supplied Accessories	Supplied Accessories	Tally Number Plate 1 Set (0~9) Operating Instructions Camera Operation Manual CD-ROM (1), JP, GB, FR, DE, IT, ES, CS Operation Guide (1) Warranty booklet (1)

Dimensions

HXC-FZ90 Camera

160 (6 $^3/_8$)   326 (12 $^7/_8$)

221 (8 $^3/_4$)
266 (10 $^1/_2$)

106 (4 $^1/_4$)

144 (5 $^3/_4$)   309 (12 $^1/_4$)

HXCU-FZ90 CCU

366 (14 $^1/_2$)

66 (2 $^5/_8$)

424 (16 $^3/_4$)
482 (19)

Optional Accessories

RCP-3500
Remote Control Panel

RCP-3501
Remote Control Panel

RCP-3100
Remote Control Panel

RM-B170
Remote Control Unit

MSU-3500
Master Setup Unit

MSU-3000
Master Setup Unit

HDVF-L10
LCD Color Viewfinder

HDVF-EL30
OLED 0.7-inch Color Full HD viewfinder with 3.5 inch sub-LCD

HDVF-EL20
OLED 0.7-inch Color HD viewfinder

HDVF-EL75
7.4-inch OLED Color Viewfinder

HDVF-EL760
7.4-inch OLED Color Viewfinder

HDVF-EL740
7.4-inch OLED Color Viewfinder

CAC-12
Mic Holder

ECM-678/674/673
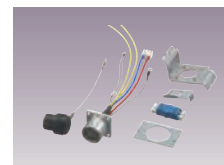Shotgun Electret Condenser Microphone
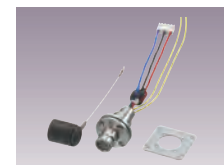
AC-DN10A
AC Adaptor

CCFN-25/50/100/ 150/200/250
Hybrid-type Optical Fiber Cable

CCFN-JC1
Neutrik Cable Coupler

HKC-LC01
LEMO 3K.93C Connector for HXC-FZ90

HKC-LC02
LEMO 3K.93C. Connector for HXCU-FZ90/HXCE-FZ90

J-712-156-0A
Camera Test Charts