

SONY®

CAI
CINEALTA™



Digital Cinematography Camera

F23



CineAlta™ – Liberating Movie Producers

CineAlta – a name that proudly symbolizes the bond between cinematography and Digital high-definition imaging. It distinguishes a Sony family of products and systems that offer new levels of creativity in the production, postproduction, and exchange of motion pictures. It also brings together the quality and universality of 24-frame cinematography with the real-time capabilities, efficiency, and flexibility of Digital high-definition technology.

And it stimulates the convergence of Motion Picture Film and Digital high-definition production on a global basis.

CineAlta products, delivering cinema-quality pictures at selectable frame rates, are simplifying International Program Exchange by minimizing the need for standards conversion. They are also opening up entirely new possibilities for international co-production. Movie making has been liberated by the creative empowerment of the cinematographer. It is facilitated by real-time HD image evaluation on-set, instant replay of full-color high-resolution digital “takes,” real-time image optimization while shooting, a 50-minute shooting load, and most importantly, by the significant cost-benefits associated with this digital medium.

CineAlta products provide a seamless bridge between 24-frame film originals and a final 24P digital master, giving each frame of film a one-to-one correspondence with progressive HD frames. The CineAlta environment readily interfaces with the computer graphics world, liberating postproduction. And the final liberation is achieved through the direct color conversion of progressive 24P masters to film, and to a host of other international digital HDTV and SDTV distribution formats.

Sony's First Inspiring



Totally Film-style Digital Cinematography Camera

Creative Expression

The advent of Sony CineAlta™ products marked the beginning of a new era in movie-making, commercial production, and television production applications. Since their introduction, CineAlta products – symbolized by the groundbreaking HDW-F900/F900R 24P-capable HDCAM™ camcorder and the HDC-F950 full-bandwidth 4:4:4 (RGB) portable camera – have been globally accepted as a creative alternative to 24-frame film origination due to their outstanding picture quality and production flexibility.

Sony has been continuously working on enhancements to the CineAlta lineup, based on the feedback of a host of content producers, in order to offer greater level of picture quality and more versatile shooting styles. As a result of years of ongoing development, Sony now introduces the long-awaited film-style digital cinematography camera F23, which resides at the pinnacle of the CineAlta acquisition lineup.

The F23 camera combines the proven technology used in previous CineAlta acquisition models with a totally new ergonomic design to create a genuine film-style digital cinematography camera. The F23 is equipped with a newly developed 2/3-inch type CCD block, high-precision 14-bit A/D converter, and state-of-the-art DSP LSI, delivering extremely rich tonal gradation. It supports full-bandwidth RGB 4:4:4 1920 x 1080 image processing and multiple output formats including 24P, 50P, and 59.94P.

Developed specifically for cinematographers, the F23 offers a compact, rugged, and unique design that is similar to film-type cameras. The Sony SRW-1 – an RGB 4:4:4 companion

digital recorder – can dock directly to the top or the rear of the F23, eliminating the need for cumbersome cable-handling between the camera and recorder. When more mobility is required, such as for aerial and underwater shooting applications, the SRW-1 can be connected to the F23 using a Dual-Link cable connection, which keeps the F23 as small and as light as possible.

The F23 can be used with an array of film camera accessories without modification, which is extremely important for film users. The F23 uses highly rigid material for its lens mount to withstand frequent lens changes. Furthermore, the layout of the controls, the panel indicators, and the assistant panel were designed to give film camera users a familiar and intuitive user interface.

When used with the SRW-1 recorder, the F23 provides a variable frame rate recording capability, which is also commonly known as “over-cranking” and, “under-cranking,” allowing users to create unique ‘looks’ or special effects of slow and fast motion. Frame-rate settings for this function are variable from 1 frame per second (fps) to 60 fps in single frame increments. Other creative features such as an S-LOG gamma mode and a unique gamma-curve editing capability are also incorporated into the F23.

Offering exceptional quality, operability, and invaluable creative features – plus a true blend of the latest technology with worthy film tradition – the F23 will enrich the creativity and workflow of movie-making, commercial production, and high-end television production applications.



Technology – Delivering Ultimate Quality and



Full-bandwidth RGB 4:4:4 HD Digital Image Capturing

The F23 provides a full-bandwidth 4:4:4 digital high-definition (HD) R, G, and B output that delivers top-quality picture and color performance. Connecting with its companion SRW-1 HDCAM-SR™ portable recorder, the F23 creates a stunning-quality portable HD image-recording system. This capability yields significant results, especially in chroma-keying and color-correction processes where highly exacting special-effects sequences and elaborate finishes are required in demanding movie-making, commercial, and television production applications. The F23 also supports high-quality 4:2:2 Y/Cb/Cr image capturing.

Variable Frame Rate Image Capturing

Variable frame rate image capturing, commonly known as over-cranking and under-cranking in film cameras, is one of the common techniques used in cinematic, commercial, and other high-quality productions. The F23 realizes this long-coveted functionality in conjunction with the SRW-1's "SR Motion" feature.* The F23 provides a stunning feature called "Select FPS" function to record variable frame rate images from 1 fps to 60 fps in 4:2:2 mode and from 1 fps to 30 fps in 4:4:4 mode. Frame settings from 1 fps to 60 fps in 4:4:4 mode are also available,** which can create high-quality images with striking details. These variable-speed images can be played back by the SRW-1 recorder immediately after shooting, without external processing.

* An SRW-1 recorder with an optional HKSR-102 Picture Cache Board installed is required, and has to be docked directly to the F23.

** 1 fps to 60 fps image capturing in 4:4:4 mode will be supported in winter 2007. This additionally requires an optional HKSR-103 RGB 60P Processor Board.

State-of-the-art CCD Technology

The F23 is equipped with three newly developed 2/3-inch type progressive CCDs, each with an effective pixel count of 1920 x 1080 (H x V), delivering a full HD resolution image. This progressive scan CCD technology, together with the high-precision 14-bit A/D converter, provides an enhanced dynamic range and a remarkable signal-to-noise ratio, resulting in extremely rich tonal gradation that is 50% larger than conventional HD cameras. This CCD also provides a high sensitivity of F10 (at 23.98P mode). Furthermore, a newly developed prism system allows the camera to capture images with a wide color space that is equivalent to color gamut for film.



14-bit A/D Converter and Advanced DSP LSI

By incorporating the advanced CCD technology and high-density 14-bit A/D converter, the exposure latitude of the F23 is significantly extended, allowing users to shoot challenging high-contrast scenes. This not only gives greater freedom in highlight control, but also in depth-of-field control – both of which are important factors for creative shooting. A new powerful and high-speed DSP enables highly sophisticated image controls to expand the use of in-camera effects, such as multi-matrix, adaptive detail, and skin-tone detail corrections.

Multi-format Image Capturing

The F23 offers a broad choice of capturing modes, using 1920 (H) x 1080 (V) active pixels as specified by the industry-standard ITU Common Image Format (CIF), ranging from 59.94i/50i interlace to 59.94P/50P progressive mode. This multi-format image-capturing capability allows the F23 camera to be used for multiple purposes in HD content-creation applications, including cinematic, commercial, and television productions. The following range of frame rates can be output:

-Progressive mode: 1080/23.98P, 24P, 25P, 29.97P, 50P, 59.94P

-Interlace mode: 1080/50i, 59.94i

Flexibility – Enhanced Film-style Operation

New Ergonomics



Flexible Design

The design of the F23 is based on years of thorough discussion with experts in cinematography. The camera employs a totally new ergonomic design – compact, lightweight, and cable-free – for a high level of mobility.

The camera body is compact and lightweight, weighing just 5 kg (11 lb) without a viewfinder, and the shape is similar to that of a film camera. The SRW-1 recorder can dock directly to the top or rear of the F23, in a similar way to how magazines would be attached to a film camera, allowing for cable-free operation. When a smaller configuration is required, such as for aerial and underwater shooting, the F23 camera and SRW-1 recorder with SRPC-1 Video Processor can be tethered via a Dual-Link HD-SDI cable. What's more, the camera handle is flat on top, allowing for the stable attachment to a Steadicam® for low-mode operation.

Rugged and Reliable

The F23 integrates an extremely durable B4 lens mount to withstand frequent lens changes. Utilizing a rigid material with temperature-stabilized characteristics enables stable support of heavy lenses, and dramatically reduces any galling of the lens mount or drift of back focus.



Compatible with Film Camera Accessories

The F23 is designed to be compatible with a variety of film camera accessories, giving users a broad array of choices. These include bridge plates, matte boxes, follow focus units, lens focus/zoom/iris servo control units, and more. These film camera accessories can be attached to the F23 without any modifications, so users who principally work with film can fully utilize their assets. In addition, a range of special digital cinematography zoom and prime lenses with 2/3-inch type B4 mountings are available from major manufacturers. These lenses are calibrated in T-stops rather than F-stops, and have cinematic-style focus rings and gear teeth for follow focus kits.



Intuitive Controls

The F23 has been designed with special care to provide intuitive operation for both film and TV production users. It offers two operation modes – “Cine Mode,” which is dedicated for movie-making applications where image tone is normally adjusted in post-production process, and “Custom Mode,” which is suitable for users who want to fine-tune camera parameters to produce their desired look while shooting. The “Cine Mode” offers stringently selected menus that are designed to be familiar to film users, allowing them to intuitively control camera settings as they would when operating a film camera. In contrast, “Custom Mode” allows access to full camera setup functions. In addition, buttons and indicators are designed to give film users a familiar and intuitive user interface.



Supplied Assistant Panel

In addition to the user-friendly control panel on the camera body, the F23 comes equipped with an “Assistant Panel” remote controller. This is equipped with the identical buttons and indicator layout to the on-camera control panel, and provides intuitive remote control of basic camera and VTR operations, such as changing frame rates, shutter angle, and gain, etc. This easy-to-use panel greatly increases operational convenience in the field.

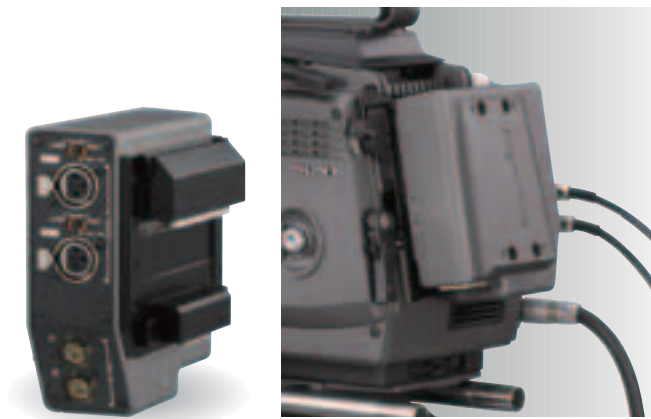


Operational Versatility

Supplied Interface Box

For flexible connection to a range of peripherals, the F23 is supplied with an interface box. This provides two HD-SDI outputs, which can be used either for Dual-Link connection with the SRW-1 recorder or a single HD-SDI connection. It also comes equipped with two-channel analog audio inputs. This interface box can also be used for battery operation, allowing the Sony BP-GL95 to be attached to the F23.*

*To use the battery, the optional BKP-L551 is required between the camera and battery.



Built-in Down-conversion Output

The F23 provides an analog composite down-conversion output. With this capability, HD-originated content can be monitored using an existing SD monitor.



12 V and 24 V DC Accessory Power Outputs

The F23 can supply power to any compatible accessories attached to it, such as a lens focus/zoom/iris servo control unit, through its DC 12 V and DC 24 V* connectors. This convenient feature eliminates the need for external power supply equipment for these accessories, and contributes to maintaining high mobility even when the camera is configured with many accessories.

*To supply power to an accessory that operates with DC 24 V, a dual-voltage battery, which can supply both DC 12 V and 24V simultaneously, is required.



Twin Viewfinder Operation

Two viewfinders can be attached to the F23 for simultaneous monitoring. This is convenient particularly when a number of people want to view the same picture at the same time. The combination of the newly developed HDVF-C35W 3.5-inch* type HD LCD color viewfinder and a HDVF-C950W 9-inch* type LCD color viewfinder is particularly recommended.

*Viewable area measured diagonally



Memory Stick Storage of Camera Setup Parameters

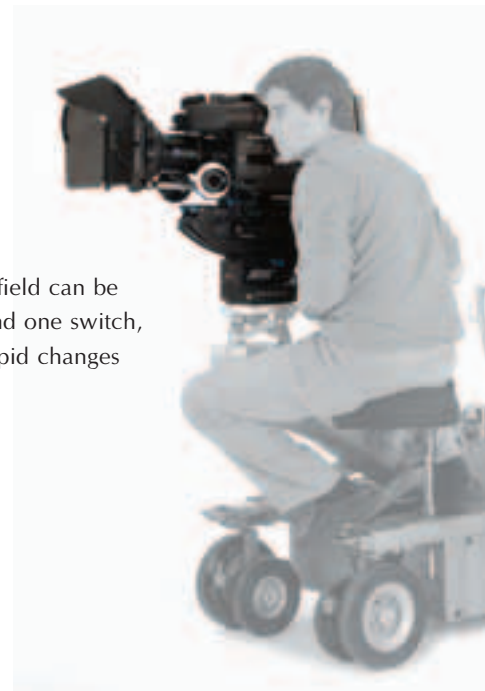
The F23 is capable of saving and recalling setup parameters such as scene files, reference files, and lens files via Memory Stick PRO™ media.* This allows users to effectively manage camera parameters for individual scenes, plus the specific camera-setup preferences of individual operators, such as viewfinder indicator settings.

* Although operational check of this product has been performed with up to 2GB "Memory Stick PRO" media, please note that operation is not guaranteed for every type of "Memory Stick™" media.



Assignable Switches

Functions frequently used in the field can be assigned to three push buttons and one switch, allowing the operator to make rapid changes when working in the field.



In-camera Creativity

Versatile Gamma Settings

In addition to artistic and skillful lighting techniques, the use of in-camera gamma settings plays an important role in handling contrast range and producing a specific 'look' for an image. The F23 offers the following enhanced gamma control options to expand such capabilities:

S-LOG Gamma

The F23 is equipped with an innovative "S-LOG" gamma that can make full use of the wide dynamic range of the CCD. The characteristics of the "S-LOG" gamma are similar to that of a film negative, which allows users to flexibly adjust images as they wish in the post-production process. When the S-LOG mode is selected, the full latitude (dynamic range) captured by the CCDs is efficiently converted to the gamma data using Sony's unique algorithm, and can be transferred as a 10-bit HD-SDI signal. This unique gamma-handling technique allows all the image information – even in extreme highlight areas, for example – to be maintained so that tone can be faithfully reproduced.

HyperGamma

HyperGamma is another powerful gamma feature, which is inherited from the HDW-F900R CineAlta camcorder. The F23 provides four types HyperGamma curves: HyperGamma 1, 2, 3, and 4. Operators can select the best-suited preset gamma curve depending on the scene being shot and their desired 'look' for the image. HyperGamma 1 and 3 enhance natural tonal reproduction in low-key areas, while HyperGamma 2 and 4 are suitable for scenes with wide dynamic ranges. All HyperGamma are quickly accessible via the set-up menu.

Customizable Gamma Curve by CVPFileEditor Software

The F23 allows cinematographers to customize gamma curves depending on their creative needs using the CVPFileEditor™ gamma creation software. This software runs on a Microsoft® Windows® PC, and enables the gamma curve to be visually edited via an easy-to-use GUI, simply by plotting the x and y values of each point of the curve. Once the gamma curve has been created, it can be easily loaded into the F23 using a Memory Stick media.





Multi-matrix Control

The multi-matrix function of the F23 allows color adjustments to be applied over a color range specified by the operator. The color spectrum is divided into 16 areas of adjustment (approximately 20 degrees), where the hue and/or saturation of each area can be flexibly modified. This unique function presents interesting ‘in-camera’ effects – similar to the secondary color correction normally reserved for post-production special-effects work – and is performed at the full bit depth.



Multi Matrix OFF



Multi Matrix ON

Simulated image

Knee Saturation Correction

Shooting very bright portions of an object (such as key light conditions from a person’s forehead) can reduce color saturation and change the hue in highlight areas. The F23 adopts a knee saturation function, in which this “washed-out” effect on saturation and hue change is reduced to a minimum, and offers far more natural color reproduction in highlight areas.



Knee Saturation OFF



Knee Saturation ON

Simulated image

Low Key Saturation Correction

With traditional video cameras, low light areas can be subject to a reduction in saturation. This can result in the colors in those areas appearing “washed-out”. The low key saturation function on the F23 eliminates this problem by optimizing the amplification of color saturation at low light levels by boosting it to an optimized level, thus providing more natural color reproduction.



Low-key Saturation OFF



Low-key Saturation ON

Triple Skin Tone Detail Control

The F23 comes equipped with a triple skin tone detail control function, which allows for independent detail control over three specified colors. This enhances the capability of skin tone detail correction – enabling one color selection to be used for reducing the detail level of skin color, and two other selections to be used for either increasing or decreasing the detail level of two other objects. This can be a powerful imaging tool not available in film shooting.



Skin Tone Detail OFF



Skin Tone Detail ON

A Wide Variety of System Components

MSU-900/950 Master Setup Unit

The MSU-900/950 Master Setup Unit is a central control panel used for the adjustment of camera parameters in a multi-camera system. Equipped with a 6.5-inch* type LCD display, the MSU-900/950 allows clear viewing of adjustment parameters during operation. A built-in Ethernet interface (10BASE-T/100BASE-TX) enables the MSU-900/950 to be connected to the F23 camera either directly or via a network hub. Equipped with a Memory Stick media slot, setup parameters can be stored and transferred between cameras using Memory Stick media.

*Viewable area measured diagonally



MSU-900



MSU-950

RM-B750 Remote Control Unit

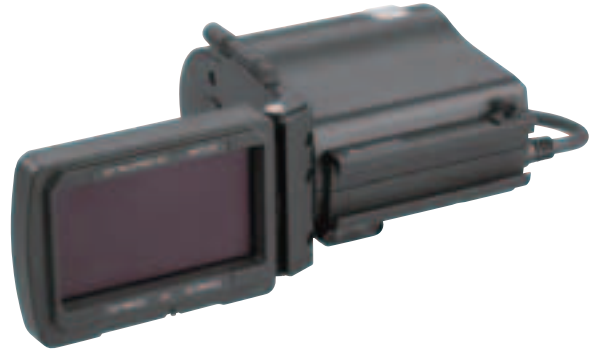
The RM-B750 Remote Control Unit establishes a highly mobile and fully controllable camera system in the field by integrating control capabilities equivalent to those of the MSU-900/950 Master Setup Unit. The combination of an LCD touch-panel screen and direct push buttons enables users to adjust and control camera parameters. When necessary, basic tape transport of the connected SRW-1 can be controlled from the RM-B750. For further operational convenience, the RM-B750 has a Memory Stick media card slot that enables various setup parameters to be stored and transferred between cameras.



HDVF-C35W LCD Color Viewfinder

The HDVF-C35W, 3.5-inch* type HD LCD color viewfinder provides an optimum level of visual information via a full-color TFT-LCD device. Employing a unique detachable eye-piece construction, camera operators can clearly view images from various positions and angles. In addition, this LCD display offers a wide viewing angle, offering operational convenience when a number of people want to view the same picture at the same time. What's more, by incorporating an aspherical lens in its eye-piece, aberration at each corner of the viewfinder is reduced for easy focusing.

*Viewable area measured diagonally



Optional Accessories



HDVF-20A
2.0-inch* CRT B/W Viewfinder



HDVF-C35W
3.5-inch* LCD Color Viewfinder



HDVF-C950W
9.0-inch* LCD Color Viewfinder



RM-B750
Remote Control Unit



RM-B150
Remote Control Unit



MSU-900
Master Setup Unit



MSU-950
Master Setup Unit



MSX-256S/512S/1GS/2GS
Memory Stick PRO Media



AC-DN2B**
AC Adaptor



AC-DN10**
AC Adaptor



BKP-L551**
Battery Adaptor



BP-GL95**
Lithium-ion Rechargeable Battery



BC-L500
Battery Charger



BC-L70
Battery Charger



BC-M150
Battery Charger

*Viewable area measured diagonally

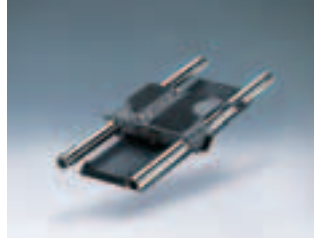
**These cannot be used in the direct docking configuration of the F23 and SRW-1.

Optional Accessories From Other Manufacturers

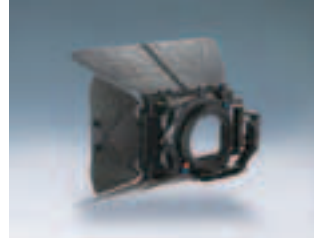
ARRI



BP-5
Bridge Plate



BP-8
Bridge Plate



MB-20
Matte Box



CLM-1
Lens Servo Unit



CLM-2
Lens Servo Unit



UMC-3
Wireless Lens Control System



FF5-HD
Follow Focus Unit

Carl Zeiss



DigiPrime Lenses



DigiZoom Lenses



Sharpmax

Fujinon



HD CINE SUPER ZOOM/Prime Lenses



HD CINE COMPACT C Lens
HAc13x4.5



HD CINE COMPACT C Lens
HAc15x7.3



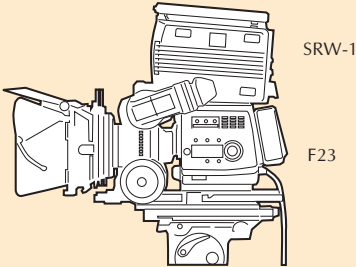
HD CINE COMPACT C Lens
HAc18x7.6

For details, please contact each manufacturer

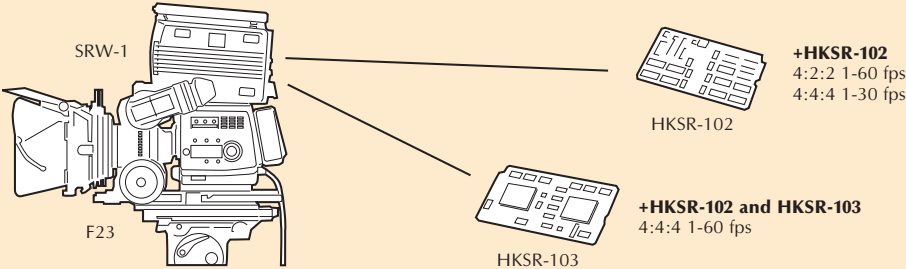
System Configuration

F23 + SRW-1 Direct Docking

RGB 4:4:4 Recording

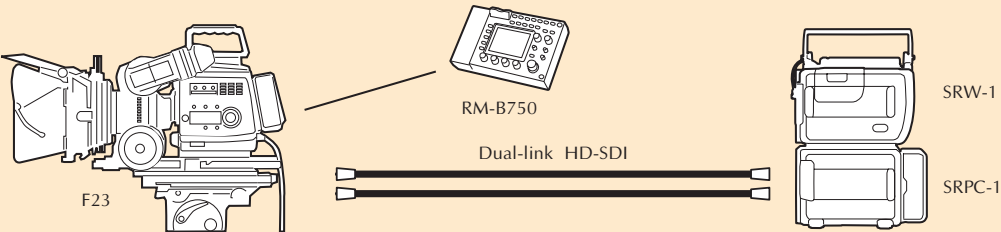


Select FPS Recording



F23 + SRW-1/SRPC-1 Separate System

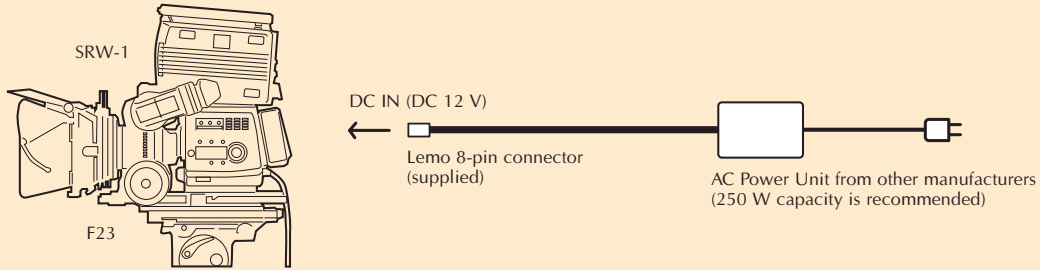
RGB 4:4:4 Recording (HD-SDI Dual-Link Connection)



Power Supply Configuration

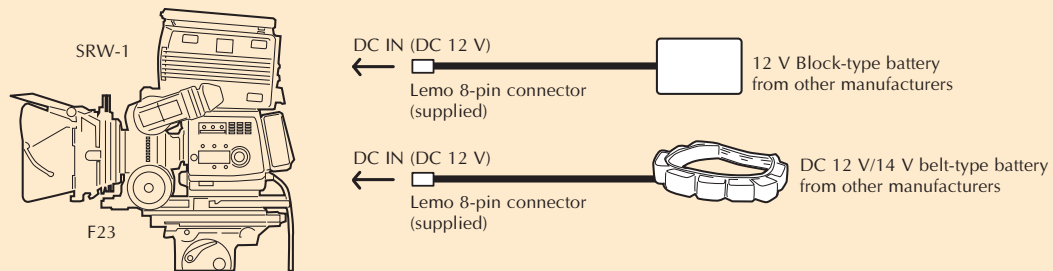
F23 + SRW-1 Direct Docking

AC Operation



Sony AC-DN2B/DN10 AC Adaptor cannot be used in this configuration.

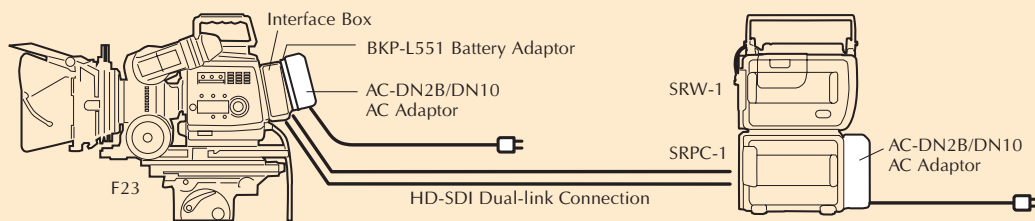
DC Operation



Sony BP-GL95 battery cannot be used in this configuration.

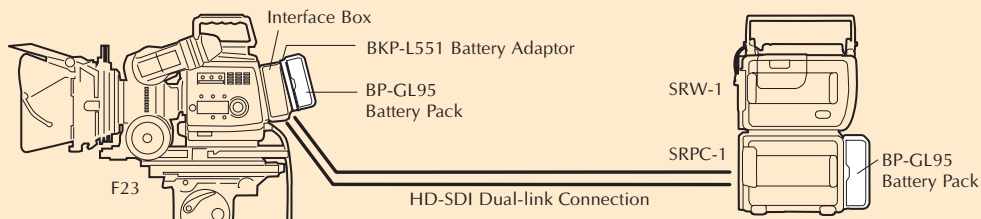
F23 + SRW-1/SRPC-1 Separate System

AC Operation (HD-SDI Dual-Link Connection)



AC-DN2B/DN10 are separately required for the F23 and the SRPC-1/SRW-1

DC Operation (HD-SDI Dual-Link Connection)



Batteries are separately required for the F23 and the SRPC-1/SRW-1

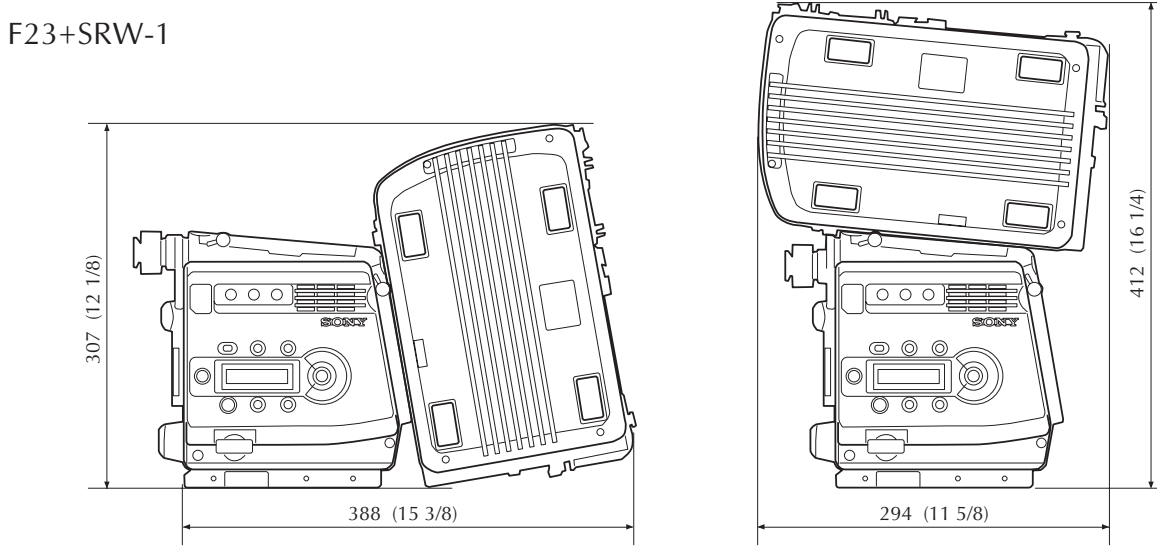
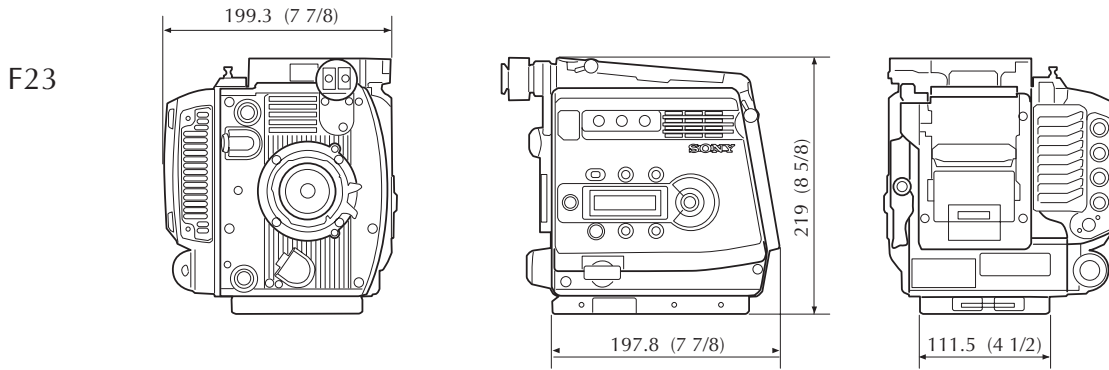
Specifications

F23 Specifications

General	
Mass	Approx. 5.0 kg (11 lb)
Power requirement	DC 10.5 V to 17 V
Power consumption	56 W (without lens, viewfinder, at 23.98PsF mode)
Operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Storage temperature	-20 °C to +60 °C (-4 °F to +104 °F)
Camera section	
Pickup device	3-chip 2/3-inch type Progressive CCD
Aspect ratio	16:9
Effective picture elements (H x V)	1920 x 1080
Optical system	F1.4 prism system
Built-in filters	A: 3200K, B: 4300K, C: 5600K, D: 6300K, E: ND0.3 (1/2ND) 1: Clear, 2: ND0.6 (1/4ND), 3: ND1.2 (1/16ND), 4: ND1.8 (1/64ND), 5: CAP
Lens mount	Sony bayonet mount (B4)
Sensitivity (at 2000 lx, 89.9% reflective)	T10 (at 23.98PsF)
Registration	Within 0.02% (all zones, without lens)
Distortion	Below measureable level (without lens)
Setup card	Memory Stick PRO
Horizontal resolution	1000 TV lines
Signal inputs/outputs	
Genlock video input	BNC type x1, 1.0 Vp-p, 75 Ω
Audio CH1/CH2 input (with supplied interface box)	XLR-3-31 type (Female), line/mic/mic +48 V selectable
Test output	BNC type x1, VBS/HD Y
Dual-Link HD-SDI output (with supplied interface box)	BNC type x2
Monitor output	BNC type x2, HD-SDI (4:2:2)
DC input	Lemo 8-pin (Male) x1, DC 10.5 V to 17 V, DC 20 V to 30 V
DC input (with supplied interface box)	XLR-4-pin type (Male) x1
DC output	DC 12 V: 11-pin x1, max. 4 A DC 24 V: 3-pin x1, max. 5.5 A
Lens	12-pin x1
Remote	8-pin x1
Viewfinder	20-pin x2
External input/output	Lemo 5-pin (Female) x1
Network	RJ-45 type x1, 10BASE-T/100BASE-TX
Supplied accessories	
	Interface box x1, Assistant panel x1, Cable for assistant panel x1, Assistant panel hangar x1, +B4x8 screw x4, Center handle x1, LEMO 8-pin connector x1, Operation manual x1



Dimensions



Unit: mm (inches)

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