SONY

CineAlta Catalog 2014

CineAlta

4K

Unlimited Creative Possibility

For almost its entire history, cinema has used film as its recording medium. But recently this has changed drastically. In 1999, Sony released the first 24p digital motion picture production system, which was an important step in the shift toward digital production. In 2006, Sony launched the world's first 4K digital cinema projection system which has increased demand for high-quality digital content retaining 4K resolution. And now, following the introduction of Sony's F65 – an epoch-making digital cinema camera, Sony is launching some outstanding new products to strengthen its 4K toolset.

We have designed CineAlta™ 4K acquisition tools as 'total imaging systems' from sensor to codec for capturing the image rendered by lens with the utmost fidelity. Various cutting-edge technologies, such as a Super 35 mm imager, wider dynamic range and color gamut, high sensitivity, and high-speed recording systems, have been used in these camera systems, so that cinematographers can freely express their creative vision.

Regardless of any changes in technology or economy, our mission remains the same: to satisfy the ever-increasing demands of creative minds. Sony is committed to further elevating image quality and improving the visual experience. With this in mind, the CineAlta logo symbolizes 'infinity', which can also be thought of as 'unlimited creative possibility' and 'endless pursuit of perfecting technology'.

VOICE

Since Sony introduced the F55 and F5, their quality has been acclaimed by users worldwide including professionals engaged in cinema, drama , documentary, and many other creative productions.

Oblivion

Only with a Light of Cigar

"In one low light scene of Oblivion, the F65 proved incredibly useful to show Tom lit up in Morgan's glasses as he lights a cigar. Some people might think it's post on that shot but that's real."

Claudio Miranda,
ASC, Cinematographer of the "Oblivion"

F55 Digital Cinema Housing by GATES

The Hunt

Simple but True

Underwater scenes tend to be busy and often difficult to interpret. The language of the 35mm frame allows us to simplify the imagery and that makes the message easier to carry in the individual clips and then on into the whole sequence. Simple but true.

Sony advertises a default 1250 ASA baseline but, admittedly shooting RAW with the R5 Raw Recorder, we found we could underexpose by three stops with no discernible noise on regrade. That is 5000 ASA! I'm not saying we rate this camera at 5000 ASA — actually we tend to try and over expose slightly in RAW for the richest colors — but having a virtually noise free option

Doug Anderson,
Cinematographer of the "The Hunt"

LE RIDE

Exceeded Expectations

Overall our feedback is extremely positive. The cameras and the overall workflow exceeded our expectations in every way. In addition to the two F55s we supplemented our footage with Sony Action Cams as well as the FS700. Being able to capture full 1080p images in slow motion has given us some breathtaking footage for our documentary.

Scott Shelley,
Cinematographer of the "LE RIDE"

Da Sweet Blood of Jesus

Accurate Color

He added, "You would think a nighttime scene, with no film lights, might be an issue, but with this camera, it wasn't a challenge," Patterson said.

"We had a video output of REC 709 on Sony BVM 25 inch monitors, and things really looked gorgeous," he said. "We were really concerned with certain colors, and to me, every color was represented very accurately. There were no issues and we were confident that everything we saw we were capturing."

Spike Lee,
Director of the "Da Sweet Blood of Jesus"

CineAlta 4K Cameras

F65 CineAlta Premium 4K Camera
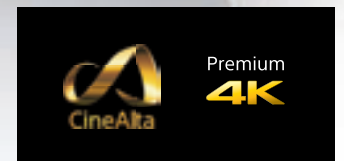
F55 CineAlta 4K Camera   **F5** CineAlta 4K Camera

Technology

Our top engineers have spent years creating breakthroughs in image sensors, image processors, and recording media, and now we introduce new CineAlta 4K cameras that deliver unprecedented image quality.

Produced by TV Globo with the F65.

Spectacular Images from HD to 8K

Super 35mm 8K/4K CMOS Sensors

Cutting-edge image sensors are at the heart of CineAlta 4K cameras. The F65 has an 8K sensor, and the F55 and F5 have different types of 4K sensor. These Super 35 mm 8K/4K CMOS sensors deliver unparalleled 8K/4K/QFHD/2K/HD resolution images with extremely fine texture and low aliasing. Even if your postproduction and deliverables are in 2K/HD, these sensors provide gorgeous, super-sampled 2K/HD images that ordinary HD cameras cannot touch.
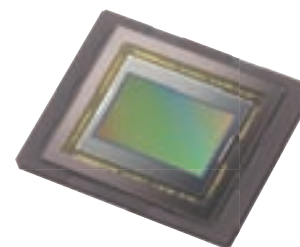
Say Goodbye to the "Jello Effect" and "Flash Banding"

Frame Image Scan

The F55 incorporates a newly developed frame image scan technology, which completely eliminates the so-called "jello effect" and "flash banding" that are typical of other CMOS sensors. With this technology, you will never again hesitate to shoot fast-moving objects or a press conference flooded with flashlights.

For illustrative purposes only.

Beyond the Limit of Human Vision

Wide Exposure Latitude, High Sensitivity, and Low Noise

Sony's new image sensors and the in-camera image processors of CineAlta 4K cameras give you impressive 14 stops of exposure latitude, high sensitivity, and low noise. These cameras deliver super-clear images, even if you are shooting interiors or night exteriors with only ambient lighting, and also enable graceful rendering of scene contrast even in searing sunlight.
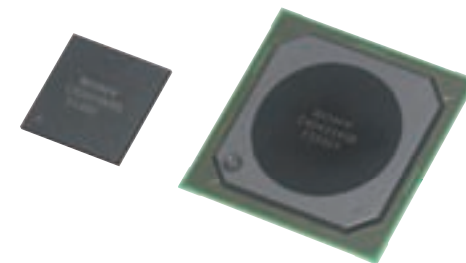
Captured by the F55

Capture a Dramatic Moment

High Frame Rate

With CineAlta 4K cameras, you can record images at variable speeds of up to 240 frames per second (fps) in 2K with the F55 and F5 (with the AXS-R5)[1] as well as 120 fps in 4K with the F65 (with the SR-R4). High-frame-rate recording allows you to create super-slow-motion effects, which can change an ordinary daily incident into a dramatic scene.

[1] Maximum 180 fps in 2K/HD without the AXS-R5.

Captured by the F65.

More Colors than Print Film

Wide Dynamic Range and Color Gamut

CineAlta 4K cameras capture an incredible dynamic range, from deep shadow to bright highlights, and the widest color gamut ever, even wider than print film, and precisely reproduce the true color of what you see. These capabilities give colorists full flexibility in color correction during postproduction.
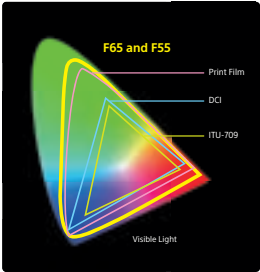
Maximum Color Management Flexibility

With the CineAlta cameras' widest mastering color gamut – known as S-Gamut and S-Gamut 3 – Sony offers maximum flexibility of color management workflow. The RAW Viewer is a free solution with color grading and transcoding capabilities that work in close cooperation with third-party color grading applications and also non-linear editing systems.

Cost-efficient Production System for HD to 4K

XAVC New Video Format

Sony has developed a new XAVC™ recording format that delivers workflow efficiency and optimized image quality. It uses the MPEG-4 AVC/H.264 compression codec, and supports HD, 2K, QFHD, and 4K resolution[1] for variable content creation from TV programs to feature films. XAVC establishes a cost-efficient ecosystem for HD high-frame-rate and 4K 60p production, and this will accelerate the expansion of the 4K content market. Additionally, XAVC is an open format, and is supported by industry-leading manufacturers.

· Support for HD, 2K, QFHD, and 4K resolution[1]
· MPEG-4 AVC/H.264 video compression
· 12 and 10-bit color sampling
· 4K video recording at 23.98p, 24p, 25p, 29.97p, 50p, and 59.94p as native format[2]
· High frame rate up to 180 fps in 2K/HD for super slow motion
· Newly developed SxS PRO+ memory card for XAVC recording with the F55 and F5

SxS PRO+ Card
SBP-128B

SxS Card Reader/Writer
SBAC-US20

XQD™ Memory Card Adapter
QDA-EX1

XQD™ Memory Card
64GB

[1] QFHD and 4K are supported only with the F55.
[2] XAVC 4K recording is not supported with the F5.

AXSM

Easier and Faster RAW Workflow

AXSM System

To retain all the 4K RAW data from F55 and F5 sensors, Sony had to develop an ultra-high-speed, high-capacity recording system that was also computer friendly and cost efficient. This was successfully achieved with the AXSM™ system.

AXSM Card

By employing Sony's unique high-speed recording technology, each AXSM card offers a 256 GB*[1]/512 GB/1 TB capacity and 2.4 Gbps (300 MB/s) sustained transfer speed to record 4K RAW data at up to 60p and 2K RAW data at up to 240 fps*[1] via an AXS-R5 RAW recorder with the F55 and F5. In addition, the generic exFAT file system makes the AXSM card more computer friendly when used with an economical card reader, the AXS-CR1. This card reader has a USB3.0 interface for high-speed file transfer to your computer without any special driver software.

RAW Recorder
AXS-R5

AXSM Card Reader
AXS-CR1

AXSM Card
AXS-512S24

AXSM Card
AXS-A1TS24

AXSM Card
AXS-A512S24

AXSM Card Adapter

*[1] Due for release in September 2014.

F65

The F65 is the ultimate CineAlta camera, optimized for cinema production.

F65 CineAlta Premium 4K Camera

Featuring an 8K CMOS sensor, premium image quality, and 4K 120p recording

· Super 35 mm 8K CMOS sensor (20 M pixels)

· Mechanical rotary shutter and ND filters

· Wide color gamut and true-color reproduction

· 14 stops of exposure latitude

· On-board recording on SRMemory™ card via an SR-R4 recorder*[1]

· High-frame-rate recording up to 120 fps in F65RAW-HFR

· Advanced de-mosaic in 6K and 8K by RAW Viewer

F65 Upgrade Kit (CBK-65EL)

· DVF-EL100 OLED digital viewfinder support

· Two independent SDI outputs
 (SDI1: LUT, ACES, etc., SDI2: Magnify, Clip level indicator, etc.)

· 48p production support

F65 + R4

8K sensor		
Rotary Shutter	**RAW**	**1 ~ 120 fps**
Wide Color Gamut	HD　　**MPEG4 SStP**	**1 ~ 60 fps**

CBK-65EL: Digital viewfinder interface

*[1] F65RAW (F65RAW-SQ, F65RAW-Lite, and F65RAW-HFR) and MPEG4 SStP are supported.

F55/F5

The F55 and F5 look very similar — both have the same compact body to accept the same accessories — but they vary in features. The F55 is designed for HD to 4K production, while the F5 is optimized for 2K/HD production.

F55 CineAlta 4K Camera

Featuring a 4K CMOS sensor, true-color reproduction, and frame image scan for HD to 4K production

· Super 35 mm 4K CMOS imager (8.9 M effective pixels)

· Frame image scan to eliminate distortion

· Wide color gamut and true-color reproduction

· 14 stops of exposure latitude

· High sensitivity (ISO 1250) and low noise

· In-camera recording on SxS card*[1]

· On-board RAW recording on AXSM card via the AXS-R5

· High-frame-rate recording

· Simultaneous recording

· Interval recording

· Cache recording

· Super 16 mm center scan mode

· Compact and modular design

· PL mount with supplied lens mount adapter

· Support for B4 lens with FZ-B4 lens mount adapter

4K sensor

Frame Image Scan

Wide Color Gamut

F55

4K QFHD	**XAVC**	1 ~ 60 fps
2K	**XAVC**	1 ~ 180 fps
HD	**XAVC**	1 ~ 180 fps
	MPEG4 SStP	~ 30p
	MPEG2	~ 30p/60i (1080) 50p/59p (720)

R5

4K	**RAW**	1 ~ 60 fps
2K	**RAW**	1 ~ 240 fps

*[1] XAVC 4K/QFHD and MPEG4 SStP HD are supported only with SxS PRO+.

F5 CineAlta 4K Camera

Featuring a 4K CMOS sensor, superior super-sampled 2K/HD images, and 4K RAW recording option

· Super 35 mm 4K CMOS imager (8.9 M effective pixels)

· Rich color reproduction

· 14 stops of exposure latitude

· High sensitivity (ISO 2000) and low noise

· In-camera recording on SxS card[*1]

· On-board RAW recording on AXSM card via the AXS-R5

· High-frame-rate recording

· Simultaneous recording

· Interval recording

· Cache recording

· Super 16 mm center scan mode

· Compact and modular design

· PL mount with supplied lens mount adapter

· Support for B4 lens with FZ-B4 lens mount adapter

F5

R5

4K sensor		

F5

2K	**XAVC**	1 ~ 180 fps

HD	**XAVC**	1 ~ 180 fps
	MPEG4 SStP	~ 30p
	MPEG2	~ 30p/60i (1080) 50p/59p (720)

R5

4K	**RAW**	1 ~ 60 fps
2K	**RAW**	1 ~ 240 fps

[*1] MPEG4 SStP HD is supported only with SxS PRO+.

HDMI OUT (F55: up to 4K 60p)

Digital Viewfinder Interface

Timecode IN/OUT (switchable)

4 × SDI OUT (configurable)
· 4 × 3G-SDI for 4K 60p line out (F55 only)
· 2 × HD-SDI for line out and
  2 × HD-SDI for monitor out

HD Sync/HD-Y (switchable)

× 2 XLR 3-pin Audio Input Connector (detachable)
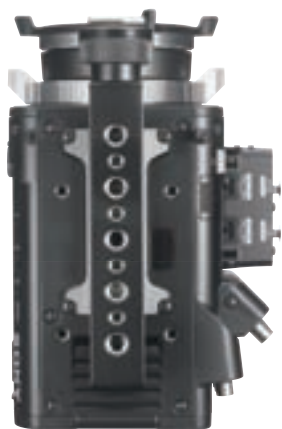
Top

Bottom

Well-designed Connector Layout

The F55 and F5 offer powerful connections, including real-time 4K output to a compatible monitor via four 3G-SDI outputs (F55 only). They also offer HDMI, a detachable XLR audio input connector, timecode, genlock, DC connection, and more, enabling you to build the best configuration for your shooting situation.
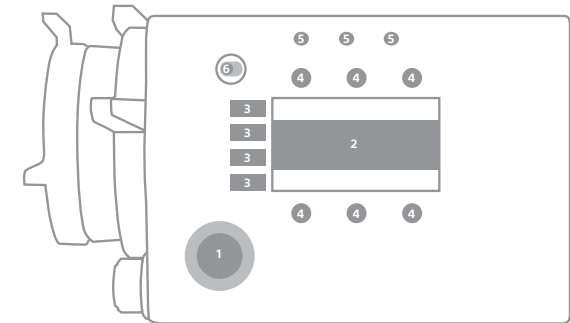
1. Easy-to-navigate MENU dial

2. Current status display

3. 4 x category menus (Camera, File, Audio/TC, View)

4. 6 x direct access buttons for frequently used setup items

5. 4 x assignable buttons (with one on the other side)

6. Lock key for preventing operational errors

Intuitive User Interface

The F55 and F5 provide a rich range of controls via a nicely intuitive interface for quick, easy setup and adjustment. They have a color 3.5-inch LCD panel and direct, one-touch access buttons to six key parameters, including frame rate, shutter speed, exposure index, and monitor LUT.   Additionally, assignable buttons allow you to keep your favorite adjustments always at your fingertips.

Accessories

Sony introduces newly developed accessories along with the F55 and F5, including viewfinders, a RAW recorder, 4K monitor, and more, providing a wide range of options to satisfy individual needs.

PL Mount Prime Lens

A new 6 x PL mount prime lens set has been developed for the F55 and F5. The set includes focal lengths of 20, 25, 35, 50, 85, and 135 mm. Each is certified for 4K capture, while minimizing geometric distortion, vignetting, and breathing. For easy lens changes, all lenses have a consistent design such as an aperture of T2. A 9-blade iris delivers beautiful bokehs and focus rings rotate 240°. In addition, by removing the supplied PL mount adapter, a native FZ mount allows the F55 and F5 cameras to accept FZ mount lenses directly, and SLR and DSLR lenses via third-party adapters, all without optical degradation. In short, this gives you great flexibility in lens choice.

SCL-Z18X140
Power Zoom Lens (x14)

SCL-P11X15
Wide Zoom Lens (11 mm)

PL Mount Adapter

LA-FZB1
B4-FZ Lens Mount Adapter

SCL-PK6
Six Lens Pack

TRIMASTER

4K

BKM-XP1

PVM-X300 TRIMASTER 4K Monitor

The PVM-X300 is a 30-inch*¹ 4096 x 2160 resolution monitor for powerful support of 4K monitoring in the field. It incorporates Sony's exclusive TRIMASTER™ technology architecture, achieving excellent color and picture quality reproduction.

· 30-inch*¹, 4096 x 2160
· True 4K RGB 10-bit LCD, IPS wide viewing angle, ITU-R BT.709 color space
· Wide variety of 4K interface: 3G SDI (x 4), HDMI (x 4)
· 4K SxS player for XAVC 4K/HD (option)*²
· HDMI x 1 cable connection with the F55 (up to 4K 60p)
· Selectable control system
 (control panel, optional BKM-16R Control Unit*², PC*²)
· Zoom*², Camera Focus, Stereo Audio Output
· Marker Display*², Auto White Adjustment*²

*¹ 767.1 mm viewing area, measured diagonally.
*² Due to be supported by monitor firmware version 1.1 and later.

4K SxS Player BKM-XP1 (Option)*

The PVM-X300 can incorporate an optional 4K player, the BKM-XP1, which is capable of easy playback of 4K content. The newly developed SxS PRO+ high-speed memory media, which supports XAVC 4K and XAVC HD high-frame-rate recording, can be inserted into the player providing quick viewing of 4K camera images and 4K programs from nonlinear editing systems. This sets you free from preparing expensive, fragile HDD external players or struggling with complicated wired connections.

PMW-F55

Nonlinear Editing System**

XAVC 4K/HD

Thumbnail Clip Operation**
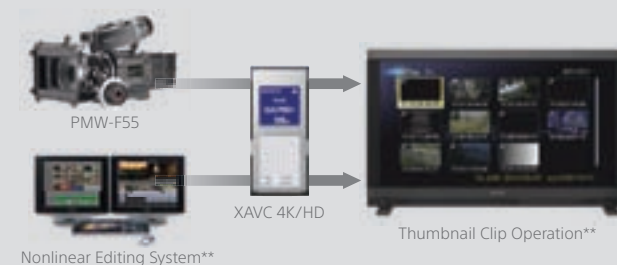
For illustrative purposes only.

* Due to be supported by monitor firmware version 1.1 and later.
** Due to be supported by future upgrade.

NEX-FS700R
Full-HD Super Slow Motion
NXCAM Camcorder

The NEX-FS700R is a handheld camcorder with an interchangeable lens system, capable of capturing super-slow-motion images in Full HD at 240 fps. This camcorder features an Super 35mm CMOS sensor boasting high-speed readout and outstanding sensitivity.

4K RAW recording is available with an optional interface unit and recorder (the HXR-IFR5/AXS-R5). In addition to 4K recording, continuous shooting with 2K resolution at 240 fps is possible with no time limit.

HXR-IFR / Interface unit

AXS-R5 / RAW recorder

BP-FL75 / Baterry

Total Camera System Solution

With a compact, modular design camera body, the F55 and F5 offer a total camera system solution — including newly developed viewfinders, a RAW recorder, and 4K monitor — for 4K and future content creation. You'll find these cameras are easy to configure according to your target projects.

1. 3.5-inch QHD LCD viewfinder
2. 0.7-inch 720 HD OLED viewfinder
3. 7-inch Full HD LCD viewfinder
4. PL/T2 lens set
5. RAW recorder
6. New Lithium-ion battery
7. Shoulder adapter
8. SxS PRO+ card
9. AXSM card
10. SxS card reader/writer
11. AXSM card reader
12. 30-inch 4K LCD monitor

System Configuration

The F55 and F5 are remarkably small, light, and modular, enabling you to build the right configuration for each job or each shot. These cameras accept Sony's newly designed accessories and industry-standard accessories, offering flexible system configuration to fit into any shooting style, from simple documentary shooting, flying on a jib, and Steadicam operation, to fully rigged for formal cinematography.

30" 4K Monitor
PVM-X300

0.7" 720 HD OLED VF
DVF-EL100
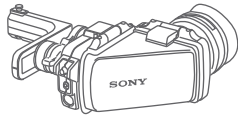
3.5" QHD LCD VF
DVF-L350
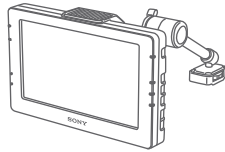
7" FHD LCD VF
DVF-L700
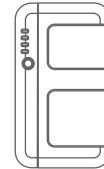
Battery
BP-FL75
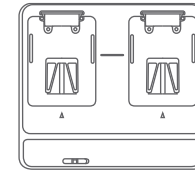
Battery Charger
BC-L90

SxS Card
SBP-128B/64B
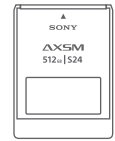
AXSM Card
AXS-512S24
AXS-A512S24/A1TS24
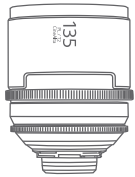
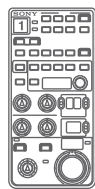PL Mount Prime Lens Set
SCL-PK6/F or /M
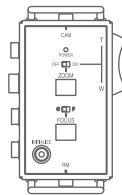SCL-PK3/F or /M

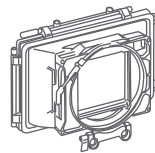SxS Reader/Writer
SBAC-US20
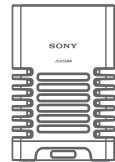
AXSM Card Reader
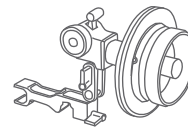AXS-CR1
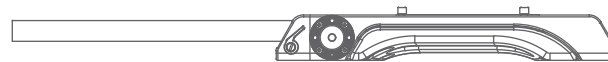
Shoulder Adapter
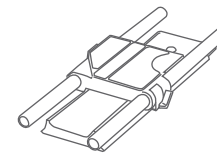VCT-FSA5

Remote Control Unit
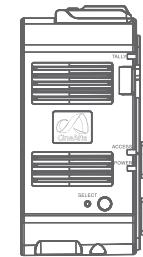RM-B170

Demand Converter Box
CBK-DCB01

Matte Box

Follow Focus

Bridge Plate

RAW Recorder
AXS-R5

System & Workflow

To allow you enormous flexibility in production, the F55 and F5 provide a wide variety of recording systems, workflows, and system configurations.

Recording System

When it comes to production, one recording format emphatically does not fit all. That is why the F55 and F5 give you not one but various useful recording formats with several types of recording media.

Recording Formats

RAW

This ultimate 16-bit linear RAW format preserves all the information captured in 4K/2K with 16 times more tonal values than 12-bit RAW. It is supported by an F65RAW workflow.

XAVC

The next-generation of H.264/AVC intra-frame coding, this format establishes a cost-efficient ecosystem for HD high-frame-rate and 4K 60p production. It supports HD to 4K with superb efficiency and beautiful 10-bit pictures.

MPEG4 SStP

This standard format for high-end production, postproduction, and program exchange is also known as SR codec. It is a visually loss-less codec with superior picture quality, and is supported by a robust SR workflow.
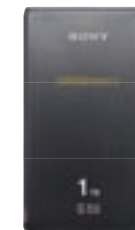
MPEG2

This is the standard format for HD TV production. The 50 Mbps 4:2:2 codec is robust with superb pictures and compact files. The workflow is well established with widespread third-party support.

Recording Media

SRMemory

Ultra-high-speed and high-capacity media for SRMASTER™ products

AXSM

Ultra-high-speed, high-capacity, and cost-efficient media for AXSM system products

SxS

High-speed, high-capacity, compact and compatible media

F55/F5 Recording Format

Format	Resolution	Color Sampling Bit-depth	Frame Rate	S&Q	Recording Media
F55RAW F5RAW (via R5)	4K 4096 × 2160	16-bit Linear	23.98/24/25/29.97/ 50/59.94p	1 to 60 fps (F55/F5 + R5)	AXSM
	2K 2048 × 1080	16-bit Linear	23.98/24/25/29.97/ 50/59.94p	1 to 240 fps (F55/F5 + R5)	
XAVC	4K (F55 only) 4096 × 2160	422 10-bit	23.98/24/25/29.97/ 50/59.94p	1 to 60 fps	SxS PRO+
	QFHD (F55 only) 3840 × 2160	422 10-bit	23.98/25/29.97/ 50/59.94p	1 to 60 fps	
	2K 2048 × 1080	422 10-bit	23.98/24/25/29.97/ 50/59.94p	1 to 180 fps (F55/F5)	SxS PRO+ SxS PRO
	HD 1920 × 1080	422 10-bit	23.98/25/29.97/ 50/59.94p	1 to 180 fps (F55/F5)	
MPEG4 SStP*	HD 1920 × 1080	422 10-bit 444 10-bit	23.98/24/25/29.97p	N/A	SxS PRO+
MPEG2	HD 1920 × 1080	422 8-bit	23.98/25/29.97p 50/59.94i	N/A	SxS PRO+ SxS PRO SxS-1
	HD 1280 × 720	422 8-bit	50/59.94p	N/A	

F65 + R4 Recording Format

Format	Resolution	Color Sampling Bit-depth	Frame Rate	Select FPS	Recording Media
F65RAW	4K 4096 × 2160 or higher	16-bit Linear	23.98/24/25/29.97/ 50/59.94p	1 to 60 fps (F65RAW-SQ/Lite) 1 to 120 fps (F65RAW-HFR)	SRMemory
MPEG4 SStP	HD 1920 × 1080	444 12-bit 444 10-bit 422 10-bit	23.98/24/25/29.97PsF 50/59.94p (422 10-bit only)	1 to 60 fps	SRMemory

Workflow

To give you maximum flexibility in postproduction, we offer several 4K workflows including 16-bit linear ACES *¹ workflows.   Meanwhile, working cameras still require practical HD workflows with cost-efficient, compatible tools. We support both.

*¹ ACES: Academy Color Encoding Specification.

		Media	**Reader**	**Viewer**
4K Workflow	**F65 RAW** — F65 + SR-R4	SRMemory	SRPC-5, SR-PC4, SR-D1	RAW VIEWER
	F55/F5 RAW — F55/F5 + AXS-R5	AXSM	AXS-CR1	
	FS700 — FS700 + HXR-IFR5 + AXS-R5	AXSM	AXS-CR1	
	XAVC 4K — F55	SxS SxS PRO+	AXS-CR1	CONTENT BROWSER
HD Workflow	**XAVC** HD — F55/F5	SxS	SBAC-US20	CONTENT BROWSER
	SR File — F65 + SR-R4	SRMemory	SBSC-US20	SR Viewer
	SR File — F55/F5	SxS SxS PRO+	SRPC-5,SR-PC4,SR-D1	
	MPEG2 — F55/F5	SxS	SBAC-US20	CONTENT BROWSER

Dailies	Edit	Grade

Dailies

Assimilate™

Blackmagic Design

Codex

Color Front

FilmLight™

MTI Film

YoYotta

Edit

Adobe®
AVID®
Autodesk™
Rhode & Schwarz DVS

Adobe®
AVID®
Autodesk™
Grass Valley
Final Cut Pro
Rhode & Schwarz DVS
VEGAS PRO

Adobe®	Rhode & Schwarz DVS
AVID®	VEGAS PRO
Final Cut Pro	

Adobe®	Grass Valley
AVID®	Rhode & Schwarz DVS
Autodesk™	VEGAS PRO
Final Cut Pro	

Grade

Assimilate™

Autodesk™

Blackmagic Design

Film Light™

Quantel™

Rhode & Schwarz DVS

Assimilate™

Blackmagic Design

Film Light™

Quantel™

Rhode & Schwarz DVS

Appendix

Specifications

	F65RS	PMW-F55	PMW-F5
General			
Power Requirements	DC 10.5 V to 17 V	DC 12 V (11 V to 17 V)	DC 12 V (11 V to 17 V)
Power Consumption	Approx. 65 W (mechanical rotary shutter operating) (without lens, viewfinder, at 23.98PsF mode)	Approx. 25 W (while recording XAVC 4K 60p, EVF Off, LCD monitor Off, 4K SDI On)	Approx .24 W (while recording XAVC HD 60p, EVF Off, LCD monitor Off, HD-SDI On)
Operating Temperature	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)
Storage Temperature	-20°C to +60°C (-4°F to +140°F)	-20°C to +60°C (-4°F to +140°F)	-20°C to +60°C (-4°F to +140°F)
Mass	5.0 kg (11 lb) (6.5 kg (14 lb 5 oz) with accessories)	2.2 kg (4 lb 14 oz) (without lens, handle, audio box and accessories)	2.2 kg (4 lb 14 oz) (without lens, handle, audio box and accessories)
Dimensions (W x H x D)	227 x 203 x 255 mm (9 x 8 x 10 1/8 inches) (without protrusions)	130 x 125 x 191 mm (5 1/8 x 5 x 7 5/8 inches) (without protrusions)	130 x 125 x 191 mm (5 1/8 x 5 x 7 5/8 inches) (without protrusions)
Camera Section			
Imaging Device (Type)	Super 35mm equivalent Single-chip CMOS	Super 35mm equivalent Single-chip CMOS	Super 35mm equivalent Single-chip CMOS
Imaging Device (Pixel Count)	20 M (total), 19 M (effective)	11.6 M (total), 8.9 M (effective)	11.6 M (total), 8.9 M (effective)
Aspect Ratio	17:9	17:9	17:9
Built-in Filters	Clear, ND0.9 (1/8ND), ND1.2 (1/16ND), ND1.5 (1/32ND), ND1.8 (1/64ND)	Clear, 0.9 (1/8ND), 1.8 (1/64ND)	Clear, 0.9 (1/8ND), 1.8 (1/64ND)
Sensitivity (2000 lx, 89.9% reflectance)		Video Gamma: T12@24p (3200K light source)	Video Gamma: T14 @24p (3200K light source)
ISO Sensitivity	ISO800	S-Log2 Gamma: ISO 1250 (D55 light source)	S-Log2 Gamma: ISO 2000 (D55 light source)
Lens Mount	PL mount	PL mount (with supplied lens mount adapter) FZ mount (without supplied lens mount adapter)	PL mount (with supplied lens mount adapter) FZ mount (without supplied lens mount adapter)
Latitude	14-stop	14-stop	14-stop
Shutter Speed (23.98PsF)	1/24s to 1/6,000s	1/24s to 1/6,000s	1/24s to 1/6,000s
Shutter Angle	4.2° to 360° (electrical shutter), 11.2° to 180° (mechanical rotary shutter)	4.2°to 360°(electrical shutter)	4.2°to 360°(electrical shutter)
Slow Shutter (SLS)		2, 3, 4, 5, 6, 7, 8-frame accumulation	2, 3, 4, 5, 6, 7, 8-frame accumulation
White Balance	3200K, 4300K, 5500K	Preset (3200K, 4300K, 5500K), Memory	Preset (3200K, 4300K, 5500K), Memory
Gain	-6, -3, 0, 3, 6, 9, 12 dB	-3, 0, 3, 6, 9, 12, 18 dB, AGC	-3, 0, 3, 6, 9, 12, 18 dB, AGC
Gamma Curve	HG7, HG8, S-Log2 Gamma, User	Standard (x6), HG1, HG2, HG3, HG4, HG7, HG8, S-Log2 Gamma	Standard (x6), HG1, HG2, HG3, HG4, HG7, HG8, S-Log2 Gamma
Input/Output			
Audio Input	CH-1/CH-2: XLR-type 3-pin (female) (x2), Line/Mic/Mic +48V switchable with SR-R4	CH-1/CH-2: XLR-type 3-pin (female) (x2), Line/Mic/Mic +48V (AES/EBU) switchable	CH-1/CH-2: XLR-type 3-pin (female) (x2), Line/Mic/Mic +48V (AES/EBU) switchable
TEST Output	BNC (x1), 75 Ω, HD-Y, 1.0 Vp-p	BNC (x1), HD-Y or HD Sync (tri-level) V1.0	BNC (x1), HD-Y or HD Sync (tri-level) V1.0
DC Input	Lemo 8-pin (male) (x1), DC 10.5 V to 17 V, DC 20 V to 30 V	XLR-type 4-pin (male) (x1), 11 V to 17 V DC	XLR-type 4-pin (male) (x1), 11 V to 17 V DC
DC Output	DC 12 V: 11-pin (x1), max. 4 A, DC 24 V: 3-pin (x1), max. 4 A	4-pin (x2), 11 V to 17 V DC (max. 1.8 A) with battery adapter	4-pin (x2), 11 V to 17 V DC (max. 1.8 A) with battery adapter
Viewfinder	20-pin (x1), Digital viewfinder interface (x1)*	Digital viewfinder interface (x1)	Digital viewfinder interface (x1)
Lens	12-pin (x1)		
SDI Output	BNC (x2), HD-SDI (4:2:2)	BNC (x4), HD mode: SDI 1/2 Line Output, SDI 3/4 Monitor Output, 4K mode: SDI 1/2/3/4 Line Output, Display On/Off switchable	BNC (x4), SDI 1/2 Line Output, SDI 3/4 Monitor Output
Timecode Input/Output	TC IN (x1), TC OUT (x1) with SR-R4	TC IN/OUT (x1) switchable	TC IN/OUT (x1) switchable
Genlock Input	BNC (x1), 75 Ω, HD 3-level sync, 0.6 Vp-p	BNC (x1)	BNC (x1)
Remote	8-pin (x1)	8-pin (x1)	8-pin (x1)
HDMI Output		A Type (x1)	A Type (x1)
External Input/Output	Lemo 5-pin (female) (x1)		
Ethernet	RJ-45 type (x1), 10BASE-T/100BASE-TX		
USB	Type A, USB2.0 Hi-Speed (x1)	USB device, Mini-B (x1), USB host, type-A (x1)	USB device, Mini-B (x1), USB host, type-A (x1)
Headphone Output	Stereo mini jack (x1)	Stereo mini jack (x1)	Stereo mini jack (x1)
Speaker Output		Monaural	Monaural
Supplied Accessories	Belt bracket (1), Cable clamp belt (1), 19mm dia carbon rod (1), +B3 x 5 screws (4), Center handle (1), Viewfinder mounting plate (1), Riser plate (1), Power cable connector (LEMO 8-pin) (1), Operation Manual (CD-ROM) (1), Operation Guide (1)	Lens mount adapter (1), Battery adapter (1), Audio input connector (1), Screws for the audio input connector (4), Tape measure hook (1), USB wireless LAN module IFU-WLM3 (1), Before Using this Unit (1), Operating Instructions (CD-ROM) (1)	Lens mount adapter (1), Battery adapter (1), Audio input connector (1), Screws for the audio input connector (4), Tape measure hook (1), USB wireless LAN module IFU-WLM3 (1), Before Using this Unit (1), Operating Instructions (CD-ROM) (1)

* To be supported by CBK-65EL.

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