Panasonic

AG-CX350

Memory Card Camera Recorder

High-End 1.0-type Handheld Camcorder
with 4K/HDR/10-bit Capabilities.
Supports IP Control, NDI | HX and RTMP Streaming.

P2HD HDR

* Future support

4K PROFESSIONAL

CX SERIES

A new CX Series camcorder offering 4K/HDR/10-bit image quality and live recording/IP connection usability to deliver next-generation creativity and connectivity

CREATIVITY × CONNECTIVITY

4K/HDR 10-BIT REC
WIDE ANGLE LENS

LIVE STREAMING
NDI|HX CONNECT

Panasonic developed the new CX Series of handheld camcorders, spearheaded by the AG-CX350, to fuse video, on-air broadcasting, and communication for the next generation. The AG-CX350 features 4K/UHD resolution, 10-bit depth, HDR-compatible image quality, and a host of recording formats for the ultimate creativity in a compact, lightweight body with low power consumption. It is also equipped with an RTMP/RTSP function for live streaming and NDI | HX-ready IP connectivity, to serve as a live camera, and clearly expands the usability of the handheld camcorder beyond conventional news gathering and recording applications to meet a wide range of professional needs.

The wide-angle, high-magnification lens and new 1.0-type sensor ensure recording of high-quality pictures in 4K/HDR.

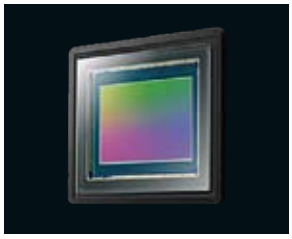
Wide-Angle 24.5mm*1 Optical 20x Zoom, Plus i.Zoom

An image shot in a room using the wide angle.

Panasonic boasts the world's largest market share in the aspherical lens segment. Its cutting-edge optical technology was maximized in the development of the integrated lens used in the AG-CX350. This lens has the industry's widest angle of 24.5mm*1 on the wide end and allows recording of wide-angle images with minimal distortion, without the use of a conversion lens. The optical 20x zoom covers up to 490mm telephoto in all modes. Furthermore, the i.Zoom enables seamless zooming of up to 32x in HD or up to 24x in UHD from the telephoto end with no degradation in resolution. The AG-CX350 also comes with digital 2x/ 5x/ 10x zoom.*2

*1: In 35mm equivalent. The AG-CX350's wide 24.5mm angle is the widest in the industry for UHD/FHD (16:9). In the segment of camcorders with integrated lens, the Panasonic AG-UX180 achieved the industry's widest angle of 24mm in UHD/24p (17:9). For UHD/FHD (16:9), 25.4mm is the widest angle in the industry. (Both as of January 2019, according to a Panasonic survey)
*2: When using the digital zoom, picture quality degrades as the magnification rate increases.

New High-Definition, High-Sensitivity 1.0-type 4K MOS Sensor



The 1.0-type MOS (approximately 15,030,000 pixels) offers an outstanding depth of field and excellent balance between image quality and sensitivity. It supports multi-formats, such as UHD (3840 x 2160), FHD, HD and SD, and provides images without cropping in all modes. This MOS sensor also boasts high sensitivity of F12 (60 Hz) /F13 (50 Hz) (in both UHD and FHD in High Sensitivity mode).

Built-in 5-Axis Hybrid Image Stabilizer

The AG-CX350 has a built-in hybrid image stabilizer that combines optical and electronic camera shake compensation functions. It corrects camera shake in five axial directions in all modes* including UHD to provide powerful camera shake compensation power in low-angle shooting, high-angle shooting and all other unstable conditions. There are three modes to choose from: NORMAL (standard), STABLE (effective for fixed-frame shooting) and PAN/TILT (effective in panning and tilting).

* Excluding Super Slow and VFR modes.

HDR-Compliant HLG (Hybrid Log-Gamma)

HDR (High Dynamic Range) Image

The AG-CX350 features HLG (Hybrid Log-Gamma)* to support HDR (High Dynamic Range). This achieves a wide dynamic range on HDR-compatible TV monitors. The gamma mode can be selected from eight modes (HD, SD, FILMLIKE 1, FILMLIKE 2, FILMLIKE 3, FILM-REC, VIDEO-REC, HLG).

* The HLG specification was developed jointly by Japanese broadcaster NHK and the BBC in the UK. It is defined in ARIB STD-B67 and ITU Rec. 2100.

Intelligent AF and Focus Assist

The AG-CX350's auto focus system is Intelligent AF, which is equipped with a micro drive focus unit to achieve high focusing speed, excellent tracking performance and superb stability. The AG-CX350 is also equipped with Expand and Peaking (simultaneous display possible), Manual Focus Assist, LCD Touch Focus (switchable to Auto Iris or brightness display) and One-Push AF Focus Assist.

Manual Three Rings

The AG-CX350 comes with Manual Three Rings for zoom, focus and iris control. They deliver quick response and provide tactile feel that satisfies professionals. The zoom lever located at the upper section of the handle has a multi-step variable zoom function, allowing smooth zooming from ultra-low speed when shooting from low angle shooting and when a tripod is used.

Manual Three Rings

Cabled/Wireless Remote Control Capability

The remote terminal (2.5-mm super mini jack) enables the control of the focus, zoom and iris using a remote controller (third-party product). It also supports wireless remote control using a tablet or smartphone (iOS, Android OS). (See page 5 for details.)

Example of third-party remote controller

Libec
ZFC-L

Manfrotto
MVR901ECLA

VariZoom
VZ-STEALTH

Supports multi-codec recording of high-quality 10-bit images without cropping in all modes.

New HEVC Codec for High-Image-Quality 10-bit UHD/60p Recording at Low Bit Rate

The AG-CX350 is capable of recording in various formats at different compression rates (see the table below). It can record UHD/60p videos in high-image-quality 10-bit on an SD memory card. It also features a new, high-efficiency HEVC codec (LongGOP, 10-bit, 4:2:0, MOV) . When a PC with 7th Generation Intel Core i7 processor is used, the hardware acceleration enables native decoding and playback. Free software, such as VLC Media Player or QuickTime Player, provides smooth playback on a notebook PC or MacBook with Intel Core i7 processor.*

* Playback may lack smoothness depending on the PC environment, such as storage and memory devices.

10-bit Variable Frame Rate (VFR) without Cropping

In UHD, variable frame rate (VFR) recording at 1 fps to 60 fps is possible. In FHD, super-slow can be realized at a maximum of 120 fps. Both provide high-quality 10-bit, full-frame pictures with no image area cropping even at high frame rates.

Simulated image

MOV/AVCHD/P2 MXF* File Formats Supported

The AG-CX350 records MOV files that are highly compatible and easy to use. This file format is the same as that used on Panasonic's compact cinema camera, the AU-EVA1, and supports file names with up to 20 characters, allowing recorded video clips to be easily managed. The AG-CX350 also supports conventional AVCHD recording, including the AVCHD 8 Mb/s mode, used widely as the format in college and professional football coaching analysis. And it will support the MXF P2 file format for broadcasting in the future,* enabling AVC-Intra or AVC-LongG recording.

* Future support by a firmware version upgrade for recording onto microP2 cards.

Freeze Frame (Still Image Capture)

When playing back video clips on the AG-CX350, any desired frame can be captured as a still image (JPEG) and recorded onto an SD memory card. Video playback, frame advance (+/-), and still-image captures can all be done intuitively by touch panel operation.

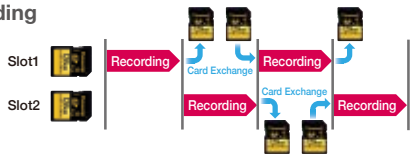
Double Memory Card Slots Improve Recording Reliability

Two SD memory card slots capable of using SDXC/SDHC/microP2 cards*1 enable unlimited*2 relay recording by simply changing SD memory cards. Recording reliability is further improved with simultaneous recording and background recording. And the AG-CX350 is equipped with Pre Rec, Interval Rec and Time Stamp recording functions.

*1 For memory card usage conditions, see the "Recording Media" chart on the rear page.
*2 If the Relay recording time reaches 10 hours, shooting will temporarily stop, and then automatically restart a few seconds later. If it is recorded in MOV format, the file will be split every 3 hours and recorded.

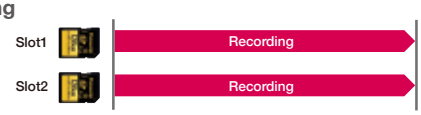
Unlimited* Relay Recording

Automatically records continuously from Slot 1 to Slot 2. By changing a full card with a new card, images can be recorded continuously for many hours.



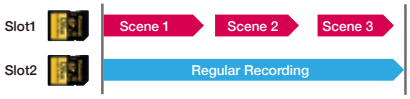
Simultaneous Recording

Identical data is recorded onto cards in both slots in this dual recording mode.



Background Recording

Records ordinary Rec Start/Stop-controlled data in Slot 1, and records all data, even when Slot 1 is stopped, in Slot 2.



Recording Format

Recording Format		Pixels	Color Sampling	Bit Depth	Bit Rate	File Format	System Frequency	VFR*	Audio
UHD	HEVC LongGOP 200M	3840 x 2160	4:2:0	10 bit	200 Mbps VBR	MOV (HEVC)	59.94p, 50p	1 to 60 fps [50 fps] (Max. 200 Mbps)	24 bit LPCM
	HEVC LongGOP 150M	3840 x 2160	4:2:0	10 bit	150 Mbps VBR	MOV (HEVC)	29.97p, 25p, 23.98p		
	422ALL-I 400M	3840 x 2160	4:2:2	10 bit	400 Mbps VBR	MOV (AVC)	29.97p, 25p, 23.98p	1 to 30 fps [25 fps]	
	422LongGOP 150M	3840 x 2160	4:2:2	10 bit	150 Mbps VBR	MOV (AVC)	29.97p, 25p, 23.98p	1 to 30 fps [25 fps]	
	420LongGOP 150M	3840 x 2160	4:2:0	8 bit	150 Mbps VBR	MOV (AVC)	59.94p, 50p	1 to 60 fps [50 fps] (Max. 150 Mbps)	
	420LongGOP 100M	3840 x 2160	4:2:0	8 bit	100 Mbps VBR	MOV (AVC)	29.97p, 25p, 23.98p		
FHD	422ALL-I 200M	1920 x 1080	4:2:2	10 bit	200 Mbps VBR	MOV (AVC)	59.94p, 50p	1 to 60 fps [50 fps] Super Slow: 120 fps [100 fps] (Max. 400 Mbps)	
	422ALL-I 100M	1920 x 1080	4:2:2	10 bit	100 Mbps VBR	MOV (AVC)	29.97p, 25p, 23.98p, 59.94i, 50i		
	422LongGOP 100M	1920 x 1080	4:2:2	10 bit	100 Mbps VBR	MOV (AVC)	59.94p, 50p	1 to 60 fps [50 fps] Super Slow: 120 fps [100 fps] (Max. 200 Mbps)	
	422LongGOP 50M	1920 x 1080	4:2:2	10 bit	50 Mbps VBR	MOV (AVC)	29.97p, 25p, 23.98p, 59.94i, 50i		
	PS	1920 x 1080	4:2:0	8 bit	25 Mbps VBR	AVCHD	59.94p, 50p	—	Dolby Audio
	PH	1920 x 1080	4:2:0	8 bit	21 Mbps VBR	AVCHD	23.98p, 59.94i, 50i	—	
	HA	1920 x 1080	4:2:0	8 bit	17 Mbps VBR	AVCHD	59.94i, 50i	—	
HD	PM	1280 x 720	4:2:0	8 bit	8 Mbps VBR	AVCHD	59.94p, 50p	—	
SD	SA	720 x 480 (59.94i) 720 x 576 (50i)	4:2:0	8 bit	9 Mbps VBR	AVCHD	59.94i, 50i	—	

* VFR is supported only in Progressive mode. Square brackets [ ] indicate a system frequency of 50.00 Hz.

RTMP/RTSP-Compatible HD Streaming

HD streaming is possible while images are being acquired. Both RTSP and RTMP streaming methods are compatible. And Facebook, YouTube, and other streaming services are supported. The AG-CX350 can be used for live coverage of concerts and sports events as well as for live streaming of breaking news.

YouTube
LIVE

* P2 Network Setting Software is required for the use of the RTMP function. See the section, “Connectivity-verified live video services,” for the live video streaming services that have been confirmed to be compatible.

Easy IP Connection: Preinstalled NDI | HX*

The AG-CX350 is the industry’s first camcorder to support NDI | HX.* Equipped with NDI | HX mode, it allows video transmission and camera control via IP connection, without using an external converter. When connected to a system configured with the AV-HLC100 Live Production Center and HN/UN series PTZ integrated cameras, the AG-CX350 realizes end-to-end live video production of live events as well as web distribution.

NDI® | HX

• NDI: Network Device Interface, a technology of NewTek, Inc.
* Industry’s first camcorder to support NDI | HX. As of January 2019 (according to a Panasonic survey). To use this function, an activation keycode from NewTek is required. Keycodes can be purchased from the following website: http://new.tk/ndi_panasonic

Wireless Control from a Tablet or Smartphone

The AG-CX350 can be controlled remotely and wirelessly using a tablet/smartphone app*1 (downloadable for free from the App Store or Google Play). In addition to zoom, i.Zoom and focus lens control, the app enables remote control of various other functions, including camera setting, picture quality adjustment, REC start/stop and menu setting. What’s more, the app can be used to select the camera to control from up to eight cameras.*2

* Pictures simulated.

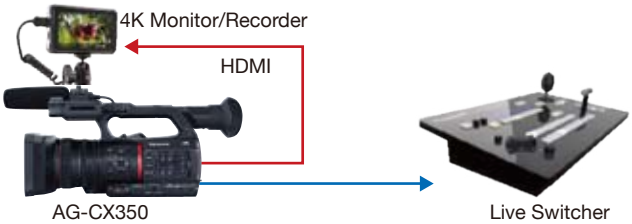
*1: iPad: iOS 9 or later are supported. Android devices: Android 5.0 or later are supported. Wireless module (sold separately; AJ-WM50 or recommended third-party Wi-Fi dongle) is required.

•2: The app does not support simultaneous/synchronous control of multiple cameras. Camera switching takes several seconds.

Panasonic CX ROP
Download on the App Store

Parallel Output of SDI and HDMI

SDI and HDMI can be output in parallel. Output of UHD video via HDMI and output of HD video in high-image-quality 10-bit, 4:2:2 via SDI enable a variety of uses. In HLG shooting, either HDR or SDR can be selected for each of the SDI, HDMI and LCD video outputs.



TC Synchro Multi-Camera Recording Supported

The TC IN/OUT terminal (BNC) allows synchronization of the time code in multi-camera shooting. The camera number (A to Z) can be added* to the name of the recording folder to facilitate editing.

* Only when the MOV codec is used for recording. Setting must be made in each camera.

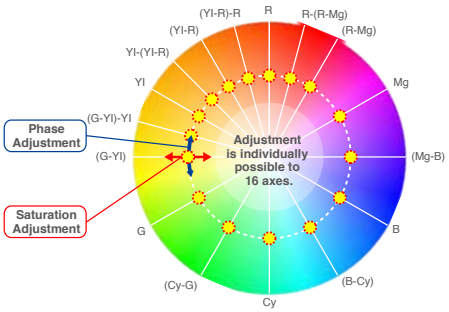
Simultaneous Display on High-Brightness, High-Definition LCD and High-Resolution OLED EVF

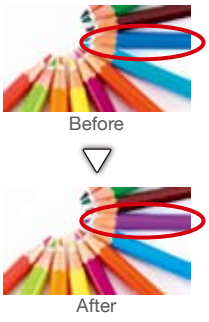
* Pictures simulated.

The AG-CX350 features a new 3.2-type high-definition LCD monitor (approximately 1,620,000 dots). This LCD monitor uses the RGBW (red, green, blue, white) pixel structure to provide high visibility even in bright sunlight. The 3:2 aspect ratio enables the display of timecode and camera status without superimposing on the image. The touch panel function allows convenient touch focus and menu setting. The viewfinder is a high-resolution color OLED (approximately 2,360,000 dots, with an image display area of approximately 1,770,000 dots) that offers superb color reproduction. Since the AG-CX350 newly supports simultaneous LCD and EVF outputs, the LCD monitor can display the captured image at all times even when you look away from the EVF.

Broadcast-Grade Picture Quality Adjustment Functions

• **16-Axis Independent Color Correction:** Provides an independent effect to each of the 16 phases of video images. It enables color matching of multiple cameras under the same lighting conditions as well as creative image rendering.
• **Master Detail:** Adjusts the overall degree of contour enhancement.
• **Skin Detail:** Makes skin colors appear soft and beautiful.
• **Scene Files:** Six preset files are provided. You can change any of the settings as desired.
• **Other Picture Settings:** Matrix tables, V detail, detail coring, chroma level, chroma phase, color temperature, master pedestal and knee.





24-bit PCM Supporting High-Resolution Audio

The use of the built-in stereo microphone or XLR input (switchable 48-V phantom power supply/MIC/LINE) allows 2-channel audio recording. In MOV mode, 24-bit linear PCM recording delivers higher sound quality. Future firmware update will enable 4-channel recording.*1 Other audio features include manual volumes, OSD level meter, 1 kHz test tone output*2 and headphone output (3.5 mm-diameter stereo mini jack).

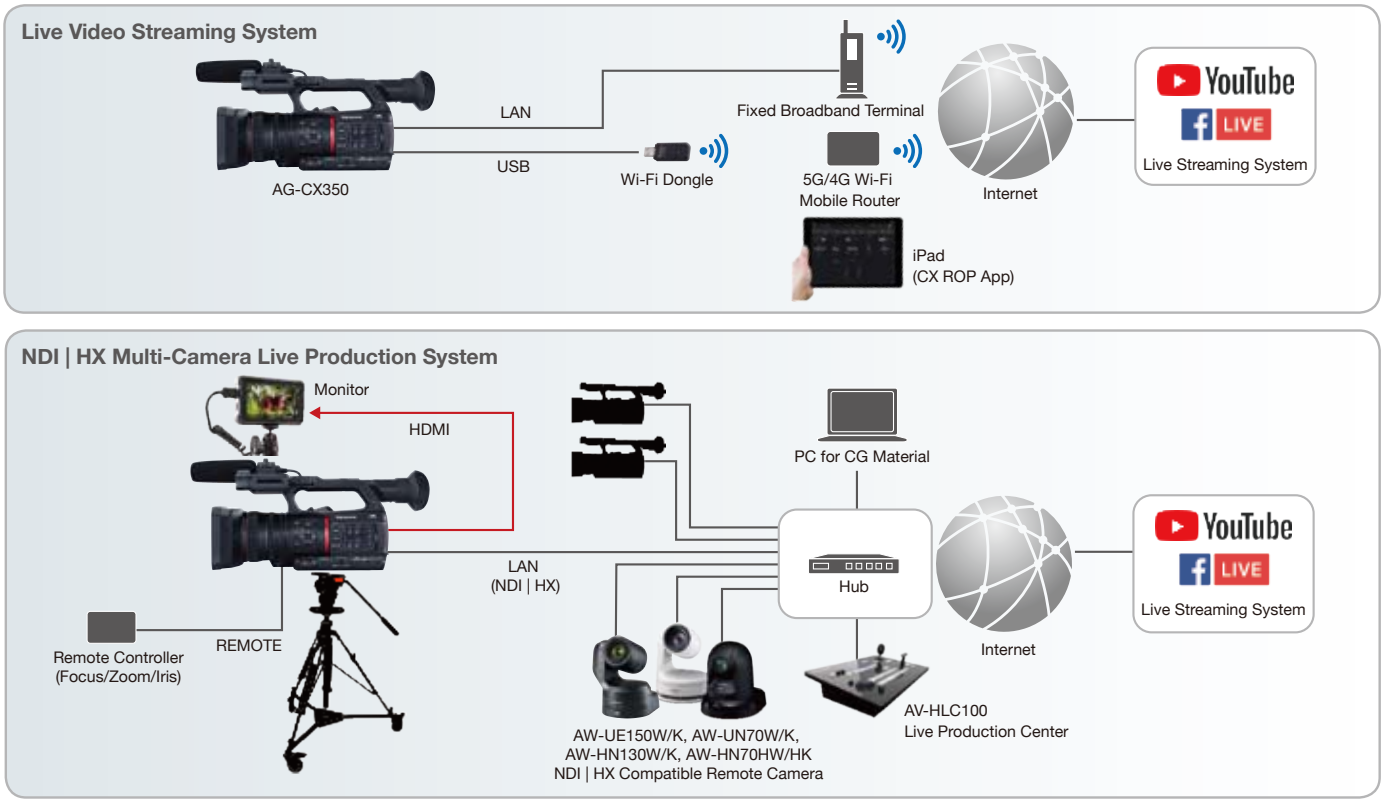
*1: When MOV is selected as the main recording format, the AG-CX350 enables 4-channel recording using the built-in microphone (2 channels) and XLR (2 channels). In AVCHD mode, only 2-channel recording is possible.
*2: This output is produced when the color bar is displayed. When the 50 Hz system frequency is selected, the output is 997 Hz.

Low Power Consuming, Large-Capacity Battery, Quick Charge

The AG-CX350 boasts low power consumption of 11.5 W (in factory setting, with no devices connected to the terminals), which is the industry’s lowest in the UHD/HD 10-bit recording camcorder segment. The maximum power consumption is only 17 W (HEVC recording, LCD turned ON, devices connected to the terminals).*1 With the supplied battery pack (5900 mAh), the AG-CX350 operates continuously for about 3 hours and 20 minutes. This large-capacity battery pack supports quick charges.*2 For product details, see page 6.

*1: As of January 2019. According to a Panasonic survey.
*2 Quick charge is possible only when the AG-BRD50 battery charger is used.

Workflow



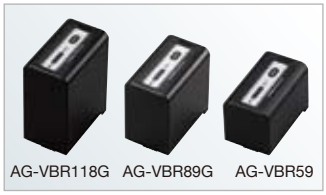
Options

As of January, 2019

Available Battery Pack

Battery	Voltage/Capacity	Charge Time	Continuous Shooting Time
AG-VBR59 (bundle)	7.28 V 5900 mAh 43 Wh	Approx. 3 hours 20 min.	Approx. 3 hours 20 min.
AG-VBR89G	7.28 V 8850 mAh 65 Wh	Approx. 4 hours	Approx. 5 hours
AG-VBR118G	7.28 V 11800 mAh 86 Wh	Approx. 4 hours 40 min.	Approx. 6 hours 40 min.
VW-VBD58	7.2 V 5800 mAh 42 Wh	Approx. 5 hours 20 min.	Approx. 3 hours 10 min.

*When using bundled battery charger.



AG-VBR118G (11,800 mAh)
AG-VBR89G (8,850 mAh)
AG-VBR59 (5,900 mAh)
Battery Pack

AG-BRD50
Battery Charger

VW-VBD58 (5,800 mAh)
Battery Pack

AG-B23
Battery Charger

AG-MC200G
XLR Microphone

AJ-WM50
Wireless Module

*Not available in some areas

BT-4LH310
787.4 mm (31 inches) 4K LCD Monitor

AJ-P2M064BG
Memory Card
"microP2 card B series"

SD/SDHC/SDXC Memory Card *

* UHS Speed Class 3 (U3) SD memory card is necessary for video recording of 100 Mbps or more. UHS Speed Class 3 (U3) SDXC memory card of 64 GB or more is necessary for video recording of UHD2160/59.94p/50.00p 150 Mbps.

Specifications

As of January, 2019

General

Power:	DC 7.28 V (when the battery is used) DC 12 V (when the AC adaptor is used)
Power Consumption:	17 W (when the LCD monitor is used) 11.5 W (1080i / 422ALL-I 100M recording, when the LCD monitor is used, no external device connection)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (no condensation)
Weight:	Body: approx. 1.9 kg (4.19 lb) (body only, excluding lens hood, battery, and accessories) Shooting: approx. 2.3 kg (5.07 lb) (including lens hood, battery, and microphone holder)
Dimensions:	180 mm (W) x 173 mm (H) x 311 mm (D) (7-1/8 inches x 6-13/16 inches x 12-1/4 inches) (excluding protrusion and eye cup)

Camera Unit

Pickup Device:	1.0-type (effective size) MOS solid state image sensor
Effective Pixels:	15,030,000 pixel
Lens:	Optical image stabilizer lens, optical 20x motorized zoom F value: F2.8 to F4.5 Focal length: f=8.8 mm to 176 mm 35 mm equivalent: 24.5 mm to 490 mm Filter Diameter: 67 mm ND Filter: Clear, 1/4, 1/16, 1/64 IR Filter: Incorporates the ON/OFF control function Shortest Shooting Distance (M.O.D.): Approx. 10 cm (W), 1.0 m (T) from the front lens
Gain Setting:	L/M/H selector switch –3 dB to 18 dB (Adjustable in 1 dB steps) 24dB, 30 dB, 36 dB switched (when assigning [S. GAIN] to the USER button)
Color Temperature Setting:	ATW, ATW LOCK, A ch, B ch, preset 3200 K/preset 5600 K/VAR (2000 K to 15000 K)
Shutter Speed:	When [SYSTEM MODE] = 59.94 Hz • 59.94i/59.94p mode: 1/60 sec. (shutter off), 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec., 1/4000 sec., 1/8000 sec., 1/10000 sec. • 29.97p mode: 1/30 sec., 1/50 sec. (shutter off), 1/60 sec., 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec., 1/4000 sec., 1/8000 sec., 1/10000 sec. • 23.98p mode: 1/24 sec., 1/48 sec., 1/50 sec. (shutter off), 1/60 sec., 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec., 1/4000 sec., 1/8000 sec., 1/10000 sec. When [SYSTEM MODE] = 50.00 Hz • 50i/50p mode: 1/50 sec. (shutter off), 1/60 sec., 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec., 1/4000 sec., 1/8000 sec., 1/10000 sec. • 25p mode: 1/25 sec., 1/50 sec. (shutter off), 1/60 sec., 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec., 1/4000 sec., 1/8000 sec., 1/10000 sec.
Shutter Speed: (Slow Shutter)	When [SYSTEM MODE] = 59.94 Hz • 59.94i/59.94p mode: 1/1 sec., 1/2 sec., 1/4 sec., 1/6 sec., 1/15 sec., 1/30 sec. • 29.97p mode: 1/1 sec., 1/2 sec., 1/4 sec., 1/6 sec., 1/15 sec. • 23.98p mode: 1/1 sec., 1/2 sec., 1/4 sec., 1/6 sec., 1/12 sec. When [SYSTEM MODE] = 50.00 Hz • 50i/50p mode: 1/1 sec., 1/2 sec., 1/4 sec., 1/6 sec., 1/12 sec., 1/25 sec. • 25p mode: 1/1 sec., 1/2 sec., 1/4 sec., 1/6 sec., 1/12 sec.
Shutter Speed: (Synchro Scan)	When [SYSTEM MODE] = 59.94 Hz • 59.94i/59.94p mode: 1/60.0 sec. to 1/7200 sec. • 29.97p mode: 1/30.0 sec. to 1/7200 sec. • 23.98p mode: 1/24.0 sec. to 1/7200 sec. When [SYSTEM MODE] = 50.00 Hz • 50i/50p mode: 1/50.0 sec. to 1/7200 sec. • 25p mode: 1/25.0 sec. to 1/7200 sec.
Shutter Open Angle:	3.0 deg to 180.0 deg to 360.0 deg (in 0.5 deg steps)
VFR Recording Frame Rate:	When [SYSTEM MODE] = 59.94 Hz 1, 2, 4, 6, 9, 12, 15, 18, 20, 21, 22, 24, 25, 26, 27, 28, 30, 32, 34, 36, 40, 44, 48, 54, 60 (fps) When [SYSTEM MODE] = 50.00 Hz 1, 2, 4, 6, 9, 12, 15, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 30, 32, 34, 37, 42, 45, 48, 50 (fps)
Super Slow Recording:	When [SYSTEM MODE] = 59.94 Hz 1920 x 1080 (FHD): shooting frame rate 120 fps When [SYSTEM MODE] = 50.00 Hz 1920 x 1080 (FHD): shooting frame rate 100 fps
Sensitivity:	When [HIGH SENS.] mode F12 (2000 lx, 3200 K, 89.9 % reflect, 2160/59.94p, 1080/59.94i) F13 (2000 lx, 3200 K, 89.9 % reflect, 2160/50p, 1080/50i)
Horizontal Resolution:	2000 TV or higher (UHD: center) 1000 TV or higher (FHD: center)
i.Zoom:	×32 (FHD), ×24 (UHD)
Digital Zoom:	×2/×5/×10
Lens Hood:	Hood with lens cover

Memory Card Recorder

Recording Media:	SDHC memory card (4 GB to 32 GB), SDXC memory card (32 GB to 128 GB) UHS-I/UHS-II UHS Speed Class3 supported, Video Speed Class V90 supported microP2 card (A series, B series) Please see back cover for the “Available Memory Card” table.
Recording Slot:	microP2/SDXC UHS-II card slot x 2
Recording Pixels:	3840 × 2160 (UHD), 1920 × 1080 (FHD), 1280 × 720 (HD), 720 × 480(SD), 720 × 576 (SD)
System Frequency:	59.94 Hz/50.00 Hz
Recording File Format:	MOV (AVC), MOV (HEVC), AVCHD
Recording Format:	Please see page 4 for the “Recording Format” table.
Recording Time:	Please see back cover for the “Recording Time” table.
2 Slot Functions:	Relay Rec, Simultaneous Rec, Background Rec
Special Recording Functions:	Pre Rec, Interval Rec, Time Stamp

Digital Video

Quantization:	MOV: 4:2:2 10 bit/4:2:0 8 bit/4:2:0 10 bit (HEVC) AVCHD: 4:2:0 8 bit
Video Compression Format:	H.264/MPEG-4 AVC High Profile H.265/MPEG-H HEVC Main10 Profile

Digital Audio

Recording Audio Signal:	MOV: 48 kHz/24 bit, 2 ch, Linear PCM AVCHD: 48 kHz/16 bit, 2 ch, Dolby Audio™
Headroom:	12 dB/18 dB/20 dB switchable (menu)

Live Streaming

Video Compression Format:	H.264/MPEG-4 AVC Main Profile, High Profile
Audio Compression Format:	AAC-LC
Network Protocol:	RTSP/RTP/RTMP

Video Output

SDI OUT:	BNC x 1, SDI REC REMOTE supported HD: 0.8 V [p-p], 75 Ω SD: 0.8 V [p-p], 75 Ω, Output format (4:2:2 10 bit): • 1920 × 1080: 59.94p, 50p, 59.94i, 50i, 29.97Psf, 25Psf, 23.98PsF • 1280 × 720: 59.94p, 50p • 720 × 480: 59.94i • 720 × 576: 50i
HDMI OUT :	HDMI x 1, Type A, HDMI REC REMOTE supported, VIERA Link not supported Output format (4:2:2 10 bit): • 3840 × 2160: 59.94p, 50p, 29.97p, 25p, 23.98p • 1920 × 1080: 59.94p, 50p, 59.94i, 50i, 29.97p, 25p, 23.98p • 1280 × 720: 59.94p, 50p • 720 × 480: 59.94p • 720 × 576: 50p
VIDEO OUT:	3.5 mm diameter mini jack, composite 1.0 V [p-p], 75 Ω

Audio Input/Output

Built-in Microphone:	Stereo microphone
Input 1/2:	XLR (3-pin) x 2 (INPUT1, INPUT2) Input high impedance, LINE/MIC/MIC+48V (switchable SW) MIC: –40 dBu/–50 dBu/–60 dBu (switchable menu) LINE: +4 dBu/0 dBu (switchable menu)
SDI OUT:	Linear PCM 2 ch
HDMI OUT:	Linear PCM 2 ch
Headphone:	3.5 mm diameter stereo mini jack x 1
AV OUT:	3.5 mm diameter stereo mini jack x 1, Output level: 600 Ω, 316 mV
Speaker:	20 mm diameter, round x 1

Other Input/Output

TC IN/OUT:	BNC x 1, Used as the input and output terminals (switchable menu) Input: 1.0 V to 4.0 V [p-p] 10 KΩ Output: 2.0 V ± 0.5 V [p-p] low impedance
REMOTE:	2.5 mm diameter super mini jack
LAN:	RJ-45: 1000BASE-T/100BASE-TX/10BASE-T
USB 2.0 HOST:	Type-A, 4-pin (5 V, 0.5 A) for Wireless Module (option)
USB 3.0 DEVICE:	USB 3.1 GEN1 Type-C, USB Mass storage function No USB bus power function
DC IN 12V:	DC 12 V EIAJ Type 4

Monitor/Viewfinder

LCD Monitor:	3.5 type TFTLCD color monitor (3:2), approx. 1,620,000 dots, Touch panel video display (16: 9) area: Approx. 1,370,000 dots
Viewfinder:	0.39 type OLED (organic EL display), approx. 2,360,000 dots, video display (16: 9) area: approx. 1,770,000 dots

Included Accessories

Battery (AG-VBR59), Battery charger (AG-BRD50), AC adaptor, AC cable, Microphone holder kit, Shoulder strap, Eye cup, Lens hood*, Grip belt* and Operating instructions
(Items marked by an asterisk (*) come already attached to the camera)

Available Memory Card

Format	Memory Card Type		Bit Rate/ Recording Function	Speed Class
MOV	SDXC/ microP2 card B series		400 Mbps	Video Speed Class V60 or faster
			FHD ALL-I VFR mode	
		microP2 card A series (64 GB)	200 Mbps	Video Speed Class V30 UHS Speed Class 3 or faster
			150 Mbps	
			100 Mbps	
			FHD LongG VFR mode	
			50 Mbps	Video Speed Class V10 UHS Speed Class 1 Speed Class 10 or faster
AVCHD	SDHC/SDXC/microP2 card		All	Speed Class 4 or faster

Recording Time

Recording Format			64 GB	128 GB
MOV (AVC, HEVC)	UHD	400 Mbps	Approx. 20 min.	Approx. 40 min.
		200 Mbps	Approx. 40 min.	Approx. 1 hour 20 min.
		150 Mbps	Approx. 55 min.	Approx. 1 hour 50 min.
		100 Mbps	Approx. 1 hour 20 min.	Approx. 2 hours 40 min.
	FHD	100 Mbps	Approx. 1 hour 20 min.	Approx. 2 hours 40 min.
		50 Mbps	Approx. 2 hours 40 min.	Approx. 5 hours 20 min.
AVCHD	PS	25 Mbps	Approx. 5 hours 20 min.	Approx.11 hours
	PH	21 Mbps	Approx. 6 hours	Approx. 12 hours 30 min.
	HA	17 Mbps	Approx. 8 hours 30 min.	Approx. 17 hours
	PM	8 Mbps	Approx. 17 hours 10 min.	Approx. 35 hours
	SA	9 Mbps	Approx. 16 hours 30 min.	Approx. 34 hours

Rear Terminal

*Specifications are subject to change without notice.

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ISO 14001 JACO EC98J2010 UKAS MANAGEMENT SYSTEMS 051

Factories of AVC Networks Company have received ISO14001:2004-the Environmental Management System certification. (Except for 3rd party's peripherals.)

For more information, please visit Panasonic web site
https://pro-av.panasonic.net/en/qr/

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SP-CX350PE1

5K201901ZP-1 Printed in Japan