

Panasonic

AG-UX90

Memory Card Camera Recorder
(59.94 Hz Model)

*The microphone shown in the photo is an optional accessory.

**4K (UHD) / FHD Camcorder with a Wide-Angle 24.5 mm*,
15x Optical Zoom Lens and 1.0-Type MOS Sensor**



UX SERIES
FOR PROFESSIONAL 4K SHOOTING



*35 mm film camera equivalent in FHD mode. 35.4 mm in UHD mode.

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Featuring a wide-angle 24.5 mm*¹, 15x optical zoom lens and 1.0-type MOS sensor, the AG-UX90 records high-quality 4K/FHD images with excellent cost-performance.

Panasonic introduces the 4K camcorder UX series to meet professional 4K video production needs.

The AG-UX90 is the "UX standard model" for easy, high-quality 4K/FHD recording.

It is equipped with a newly designed compact lens featuring a wide 24.5mm angle*¹ and 15x optical zoom. Its Optical Image Stabilizer (O.I.S.), intelligent AF function, and Manual Three Rings are ideal for professional camera work.

The AG-UX90 is equipped with a 1.0-type high-sensitivity MOS sensor. It supports UHD 30p/24p and FHD 60p/30p/24p multi-format recording. In addition to 4K (UHD) high resolution, it provides high-quality FHD recording at 50 Mbps. Two SD memory card slots enable relay/simultaneous recording.

The AG-UX90 also has a design and operating ease that will feel familiar to professional photographers, and a variety of interfaces, including HDMI output and XLR input. Offering the same level of agility and mobility as a conventional HD handheld camcorder, the AG-UX90 provides powerful support for high-image-quality 4K/HD video production.

Newly Developed Wide-Angle 24.5 mm*¹ and 15x Optical Zoom LEICA DICOMAR Lens

- **15x Optical Zoom:** The 4-Drive Lens System achieves both high image quality/sensitivity and compactness with a wide-angle 24.5 mm*¹ and 15x optical zoom lens. This speedy zoom provides quick zooming in and out.
- **High-Resolution Intelligent Zoom:** In FHD mode, the i.Zoom function increases the zooming capability to a maximum of 25x while maintaining high resolution. The i.Zoom function seamlessly switches on when the optical zoom limit is reached.
- **Digital Zoom (x2/x5/x10):** The Digital Zoom function activates without any drop in light intensity. Combining the optical zoom and i.Zoom enables maximum zooming of 250x*².
- **LEICA DICOMAR*³ Lens:** This lens has passed the stringent quality standards of Leica Camera AG. A multi-coating process minimizes ghosts and flaring, resulting in especially clear images.

*1: 35 mm film camera equivalent in FHD mode. 35.4 mm in UHD mode.
 *2: Using 15x Optical Zoom + i.Zoom + Digital Zoom 10x in FHD mode. The higher the magnification, the greater the image quality degradation.
 *3: Leica is a registered trademark of Leica Microsystems IR GmbH. DICOMAR is a registered trademark of Leica Camera AG. LEICA DICOMAR products are manufactured using Leica-certified measuring instruments and quality assurance systems based on rigorous quality standards approved by Leica Camera AG.

LEICA
DICOMAR

1.0-Type MOS Sensor for High-Precision, UHD 30p or FHD 60p Recording*⁴

- **High-Image-Quality, High-Sensitivity, 1.0-Type 4K MOS Sensor:**

The 1.0-type MOS sensor provides an outstanding depth of field and excellent balance between image quality and sensitivity. High-resolution recording is possible in UHD (3840x2160) 30p mode.

- **High-Image-Quality FHD Recording:**

Professional, high-end image recording is possible in FHD (1920x1080) mode with a 50-Mbps bit rate.

- **UHD/FHD/SD Multiformat:** Versatile recording modes can be selected according to resolution, frame rate, bit rate, and file format. (See table below.)

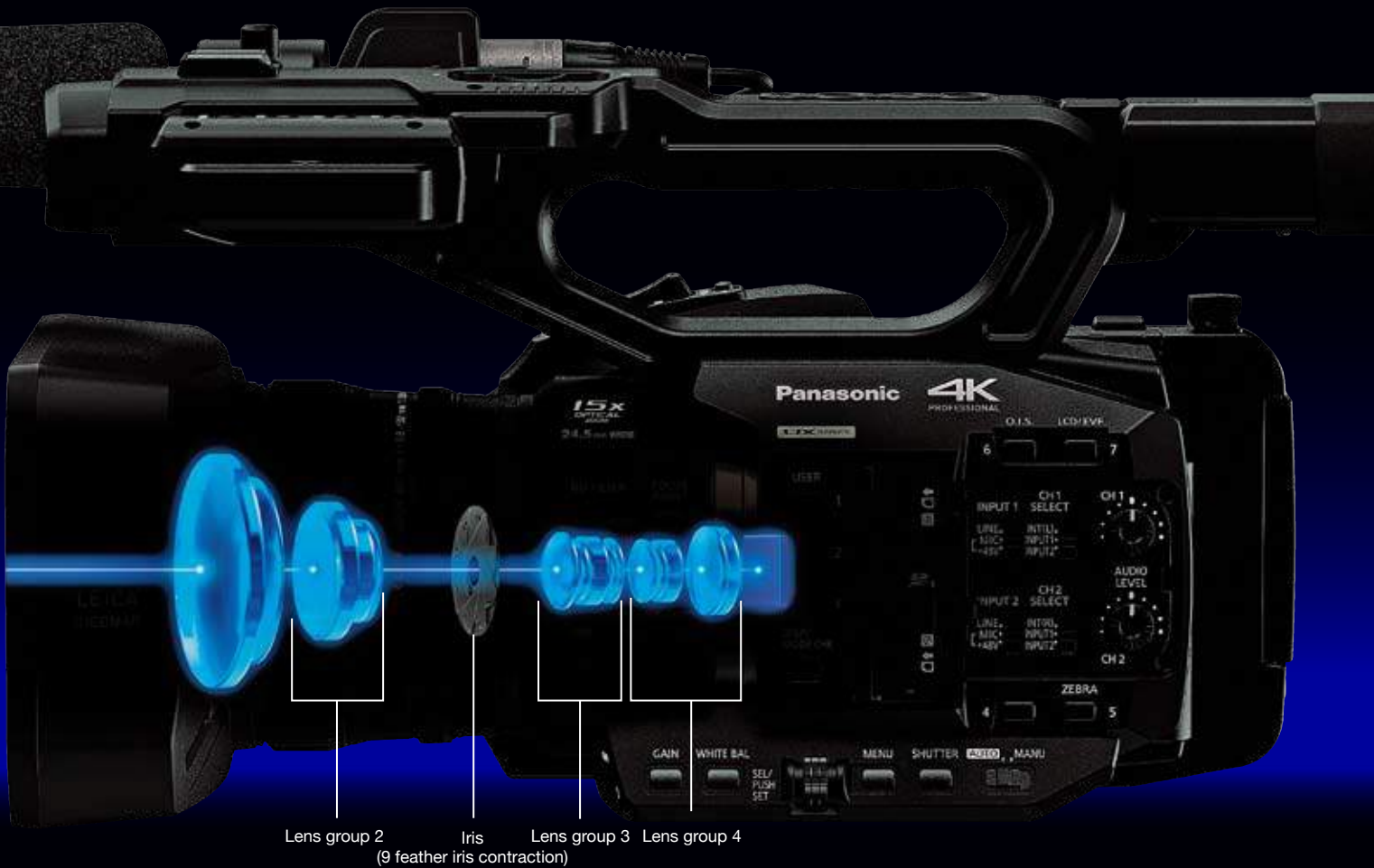
* With regard to 24p, 30p and 60p in the above text, images are actually recorded at 23.98p, 29.97p and 59.94p, respectively.



An image shot on a bus using the wide angle.

Recording Format Supported by AG-UX90

| | Image Size | Frame Rate | Bit Rate | Compressed Mode | Sound | File Format | |
|------------------|-------------------|----------------------|----------|-----------------|-------------|-------------|-------|
| UHD | 3840×2160 | 29.97p/23.98p | 100Mbps | LongGOP | LPCM | MOV or MP4 | |
| HIGH BITRATE FHD | 1920×1080 | 59.94p | 50Mbps | LongGOP | LPCM | MOV or MP4 | |
| | | 29.97p/23.98p/59.94i | | | | | |
| AVCHD | 1920×1080 | 59.94p | 25Mbps | LongGOP | Dolby Audio | AVCHD | |
| | | 59.94i/23.98p | 21Mbps | | | | |
| | | 59.94i | 17Mbps | | | | |
| | | 1440×1080 | 59.94i | | | | 5Mbps |
| | | 1280×720 | 59.94p | | | | 8Mbps |
| 720×480 | 59.94i (16:9/4:3) | 9Mbps | | | | | |



Advanced Optical Image Stabilizer and High-Speed, High-Precision Intelligent AF

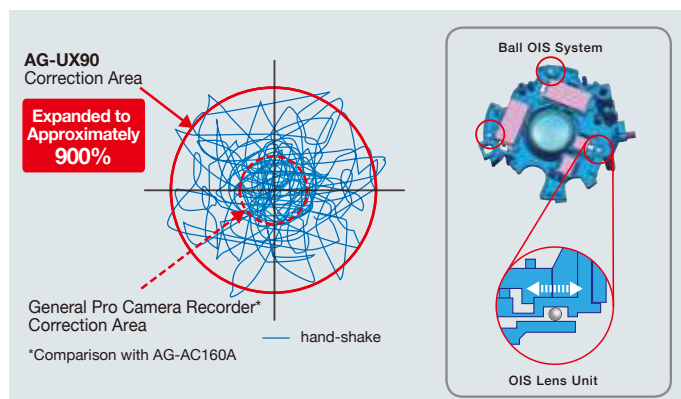
- **Advanced Optical Image Stabilizer [UHD/FHD]:** The correction area of the Optical Image Stabilizer (O.I.S.) has been expanded to approximately 900% over the conventional area (as compared to the Panasonic AG-AC160A). This provides powerful correction even in unstable shooting situations, such as low-angle or high-angle shots.
- **5-Axis Hybrid Image Stabilizer [FHD]:** In HD shooting modes, by using hand-shake correction that combines the effects of both optical and electronic image stabilization, hand-shake in various directions, including the rotary direction, is detected and corrected.
- **Intelligent Auto Focus:** The Microdrive Focus Unit achieves superior auto focusing with higher-speed tracking and stability even in 4K images. The highest class*5 of focusing speed, tracking ability, and stability are attained in 4K video cameras.
- **Custom AF Function:** Auto focus operation can be customised by adjusting the AF Speed, AF Sensitivity and AF Area Width. This function enables the AF to operate exactly as intended by the user in accordance with the subject type or application.

*5: As a camcorder with integrated lens having a 1.0-type sensor. (As of June 2017, according to Panasonic survey.)

Versatile Manual Functions – Manual Three Rings + Focus Assist

- **Manual Three Rings:** The AG-UX90 features manual three rings for Zoom, Focus and Iris control. These manual controls ensures professional operation.
- **Focus Assist (Expand and Peaking):** Expand (enlargement)*6 or Peaking (coloured emphasis of focus point) is displayed to assist the user's manual focusing operation.
- **One-Push AF:** This function temporarily activates Auto Focus when shooting in Manual Focus mode, using a "PUSH AUTO" button.
- **Area Function:** Auto Focus is easily possible with just a touch on the LCD panel. You can also change this to Auto Iris and Brightness Display.

*6: The part to be expanded is designated by touching the screen.



By moving the Micro Drive Focus Unit minutely and quickly, highly precise AF performance is also achieved when shooting in 4K or shooting with a shallow depth of field.

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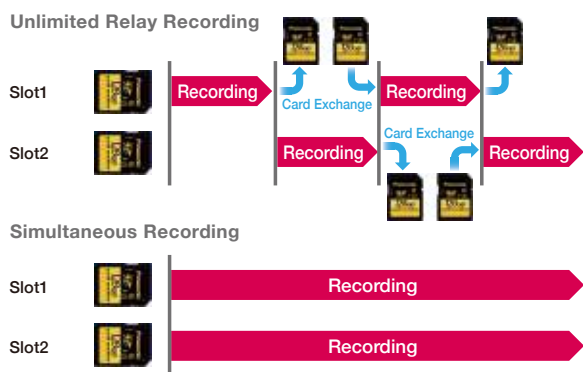


FHD VFR (Variable Frame Rate) Recording, Double SD Memory Card Slots

- **FHD VFR Recording:** VFR recording can be set in 10 steps*1 from 2 to 60 fps.
- **Unlimited Relay Recording:** By using double SD memory card slots, automatically records continuously from Slot 1 to Slot 2. By changing the SD card, images can be recorded continuously for many hours*2.
- **Simultaneous Recording:** By using double SD memory card slots, identical data is recorded onto cards in both slots in this dual recording mode.
- **Pre Rec:** This function constantly caches approximately 4 seconds of video and audio data in MOV/MP4 format, or approximately 3 seconds in AVCHD format, prior to Rec Start, so the data can be recovered in case there is a delay in pressing Rec Start.
- **Interval Rec:** Records intermittently based on a set interval time of 1 sec, 10 sec, 30 sec, 1 minute or 2 minutes.
- **Freeze Frame:** Images can be recorded as still images together with audio. This function is convenient when moving the camera to a different location or when shooting a different scene.
- **Time Stamp:** The date and time can be stamped onto recorded images.

*1: When 1080/23.98p recording mode is selected.

*2: Recording can continue across multiple SD cards. However, each time the file reaches 96 GB, it will be split into two files, but the recording continues. If the Relay recording time reaches 10 hours, shooting will temporarily stop, and then automatically restart a few seconds later.



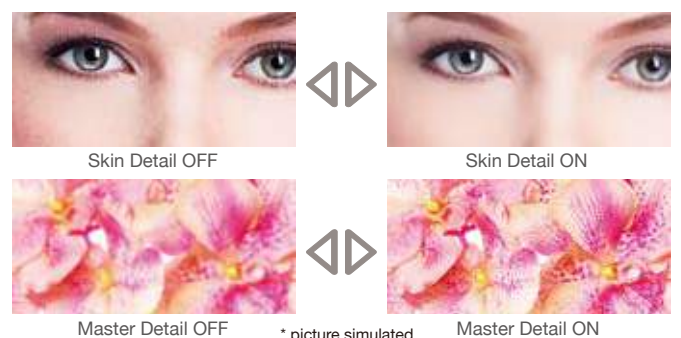
Camera Image Adjustment Functions, Including Details and Gamma Modes

- **Skin Detail:** Makes skin colours appear soft and beautiful. Especially effective when recording the person up close.
- **Master Detail:** Adjusts the overall degree of contour enhancement.
- **8-Mode Gamma:** The AG-UX90 is equipped with eight selectable gamma modes, including two Cine-Like Gammas, drawing on technologies developed for the VariCam.

- HD NORM: Suitable for standard HD recording.
- SD NORM: Increased gain in darker areas more than HD (High Definition).
- FILMLIKE 1: Reproduces more gradation in highlight areas than when shooting in HD.
- FILMLIKE 2: Reproduces more gradation in highlight areas than when shooting in FILMLIKE 1.
- FILMLIKE 3: Reproduces more gradation in highlight areas than when shooting in FILMLIKE 2.
- CINE-LIKE D: The Cine-Like mode shifted to prioritize dynamic range.
- CINE-LIKE V: The Cine-Like mode shifted to prioritize contrast.
- STILL-LIKE: Setting to match images captured with still cameras.

- **Scene Files:** Six files preset with picture quality settings are provided as Scene Files (Standard, Shooting under fluorescent lights, Spark, Still like, CINE-LIKE contrast, and CINE-LIKE dynamic range). You can change any of the settings as desired and store one set as a Custom File in the AG-UX90, and up to eight sets on an SD memory card.

- **Other Professional Picture Quality Settings:** Selectable matrix tables including CINE-LIKE mode, V detail, detail coring, chroma level, chroma phase, colour temperature, master pedestal and knee point.





Functions and Designs to Support Professional Camera Work

- **User Buttons:** Any of the 40 functions can be allocated to the User Buttons. There are a total of 13 User Buttons: Nine on the AG-UX90 body, and four on the LCD Touch Panel.
- **Touch-panel LCD and EVF:** The 3.5-type monitor LCD built into the handle section can be pulled out and turned 270 degrees in the vertical direction for use in high-angle, low-angle or selfie shots. The touch panel function can be used for menu setting and area functions. The 0.24-type LCD colour viewfinder is also equipped.
- **ND Filters:** OFF, 1/4, 1/16, 1/64 ND filters built-in.
- **Gain Selector:** Select from -3 dB to 30 dB gain for 3-position (L/M/H) allocation.
- **AWB Selector:** Two-value (A/B) memory and presets (3200/5600/VAR) can be selected. ATW (auto-tracking white balance) function is also equipped.
- **ZEBRA/Marker (Y Level):** Two zebra patterns are integrated, from 50% to 105% in 5% steps. When switched to Marker, the brightness level in the centre of the screen is displayed in percentage.
- **Level Gauge:** Horizontal or vertical tilting of the camcorder can be checked.
- A Safety Zone Marker and Centre Marker can be displayed.

Professional Interfaces for Smooth System Operation

- **HDMI:** Digital outputs up to UHD 30p and FHD 60p. **HDMI**
- **VIDEO/AUDIO OUT:** Outputs analogue signals for video and audio monitoring.
- **XLR AUDIO IN:** Equipped with two channels of XLR audio input (with switchable 48 V phantom power supply, MIC and LINE), manual audio volume and OSD level meter.
- **Professional Audio Recording:** **DOLBY AUDIO™**
The AG-UX90 records two high-quality audio channels using either the 16-bit linear PCM system (MOV/MP4) or Dolby Audio system (AVCHD). Other professional features include a 1-kHz test tone output*3 and headphone output (3.5 mm-diameter stereo mini-jack).
- **iPad Remote Control:** The AG ROP app for iPad*4 is available free of charge from the Apple App Store. It enables wireless remote control of the AG-UX90 with installation of a wireless module (optional AJ-WM50 or AJ-WM30). This enables a variety of control operations, including Zoom, Iris, REC Start/Stop, and picture quality settings.
- **Large-Capacity Battery Options:** The AG-VBR59/VBR89G/VBR118G new battery packs offer large capacity and quick charge*5.

*3: This output is produced when the colour bar is displayed.

*4: iOS 7.1, iOS 8.1, and iOS 9 are supported.

• App Store is a service mark of Apple Inc. Apple, the Apple logo, and iPad are trademarks of Apple Inc., registered in the U.S. and other countries.

*5: Quick charge is possible only when the AG-BRD50 battery charger is used.



Zebra



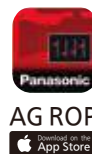
Marker



Safety Zone Marker

Center Marker

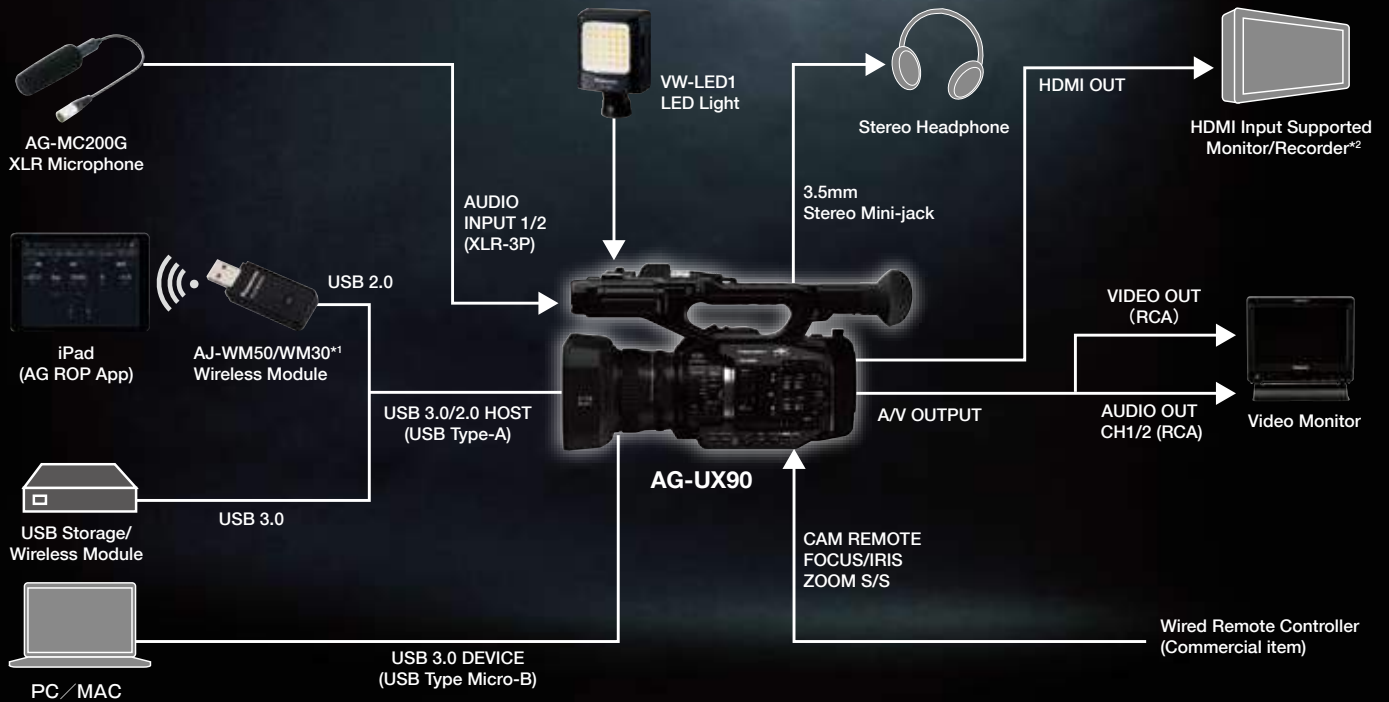
Spirit Level



AG ROP
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*1: Not available in some areas.

*2: Operation check models: ATOMOS SHOGUN.

Options

As of June, 2017



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



VW-LED1
LED Video Light



AJ-WM50/WM30
Wireless Module
*Not available in some areas



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



FZ-Y1CG
20-type 4K Business Rugged
Toughpad



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 M.

UX PREMIUM MODEL



AG-UX180

4K 60p/50p*1 Camcorder featuring the Industry's Widest Angle 24mm*2, 20x Optical Zoom and 1.0-type MOS Sensor

*1: Actual recording is UHD (3840 x 2160) 59.94p/50p.

*2: Equivalent to 35mm under 4K 24p (aspect ratio of 17:9) Wide angle 24mm is the widest in the industry for a camcorder with integrated lens. (As of June 2017, according to Panasonic survey.)

Specifications

As of June, 2017

General

| | |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power: | DC 7.28 V (when the battery is used) DC 12 V (when the AC adaptor is used) |
| Power Consumption: | 12.2 W (when the LCD monitor is used) |
| 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 eye cup) |
| Dimensions: | 169 mm (W) x 195 mm (H) x 340 mm (D) (6-21/32 inches x 7-11/16 inches x 13-3/8 inches) (excluding protrusion and eye cup) 169 mm (W) x 195 mm (H) x 382 mm (D) (6-21/32 inches x 7-11/16 inches x 15-1/32 inches) (including eye cup, excluding protrusion) |

Camera Unit

| | |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pickup Device: | 1.0-type MOS solid state image sensor |
| Effective Pixels: | 17.78 megapixel: FHD 59.94p/29.97p/23.98p 8.59 megapixel: UHD 29.97p/23.98p |
| Lens: | Optical image stabilizer lens, optical 15x motorized zoom F2.8 to F4.5 (f=8.8 mm to 132 mm) 35 mm equivalent: f=24.5 mm to 367.5 mm: FHD 59.94p/29.97p/23.98p f=35.4 mm to 531.0 mm: UHD 29.97p/23.98p Filter Diameter: 67 mm ND Filter: 4 Positions (OFF, 1/4, 1/16, 1/64) Shortest Shooting Distance (M.O.D.): Approx. 1.0 m from the front lens |
| Gain Setting: | L/M/H selector switch Standard mode: 0 dB to 30 dB (Adjustable in 1 dB steps) (Automatic setting can be assigned to L/M/H) Extended ON: -3 dB to 30 dB (Adjustable in 1 dB steps) (Automatic setting can be assigned to L/M/H) 33 dB and 36 dB switched (when assigning [S.GAIN] to the USER button) |
| Color Temperature Setting: | ATW, ATW LOCK, Ach, Bch, preset 3200 K/preset 5600 K/VAR (2000 K to 15000 K) |
| Shutter Speed: | 60i/60p mode: 1/60 sec., 1/100 sec., 1/120 sec., 1/180 sec., 1/250 sec., 1/350 sec., 1/500 sec., 1/750 sec., 1/1000 sec., 1/1500 sec., 1/2000 sec., 1/3000 sec., 1/4000 sec., 1/8000 sec. 30p mode: 1/30 sec., 1/50 sec., 1/60 sec., 1/100 sec., 1/120 sec., 1/180 sec., 1/250 sec., 1/350 sec., 1/500 sec., 1/750 sec., 1/1000 sec., 1/1500 sec., 1/2000 sec., 1/3000 sec., 1/4000 sec., 1/8000 sec. 24p mode: 1/24 sec., 1/48 sec., 1/50 sec., 1/60 sec., 1/100 sec., 1/120 sec., 1/180 sec., 1/250 sec., 1/350 sec., 1/500 sec., 1/750 sec., 1/1000 sec., 1/1500 sec., 1/2000 sec., 1/3000 sec., 1/4000 sec., 1/8000 sec. |
| Shutter Speed: (Slow Shutter) | 60i/60p mode: 1/2 sec., 1/4 sec., 1/8 sec., 1/15 sec., 1/30 sec. 30p mode: 1/2 sec., 1/4 sec., 1/8 sec., 1/15 sec. 24p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec. |
| VFR Recording Frame Rate: | 30p mode: 2, 15, 26, 28, 30, 32, 34, 45, 60 (fps) 24p mode: 2, 12, 20, 22, 24, 26, 28, 36, 48, 60 (fps) |
| Minimum Subject Illumination: | 1.3 lx (F2.8, Super Gain 36dB, Manual slow shutter 1/30s) |
| Digital Zoom: | 2x/5x/10x, i.Zoom: max. 25x (optical zoom + digital zoom) |
| Lens Hood: | Hood with lens cover |
| Memory Card Recorder | |
| Recording Media: ^{*1} | SDHC memory card (4 GB to 32 GB), SDXC memory card (48 GB to 128 GB) UHS-I supported |

| | |
|-------------------------------|------------------------------------------------------------------------------------------------------------------|
| Recording Slot: | Slot x 2 |
| System Format: | 59.94 Hz |
| Recording Format: | MOV, MP4, AVCHD |
| Recording Mode: | Please see page 1 for the Recording Format table. |
| Recording Time: | Please see below for the Recording Time table. |
| 2 Slot Functions: | Relay, Simultaneous |
| Still Picture Recording Mode: | JPEG (DCF/Exif2.2) |
| Still Picture Recording: | Motion Picture Playback: 8.3 M: 3840 x 2160 (16:9), 2.1 M: 1920 x 1080 (16:9), 0.9 M: 1280 x 720 (16:9) |

Digital Video

| | |
|-----------------------------------|-----------------------------------------------|
| Video Signal for External Output: | 8 bit 4:2:2 |
| Recording Video Signal: | 8 bit 4:2:0 |
| Video Compression Format: | MPEG-4 AVC/H.264 High Profile (MOV/MP4/AVCHD) |

Digital Audio

| | |
|----------------------|-------------------------------------|
| Sampling Frequency: | 48 kHz/16 bit 2 ch |
| Audio Signal Format: | LPCM (MOV/MP4), Dolby Audio (AVCHD) |
| Headroom: | 12 dB |

Video Input/Output

| | |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| VIDEO OUT: | VIDEO OUT connector x 1 |
| HDMI: | Type A connector x 1, VIERA Link not supported Output format: 2160/29.97p/23.98p, 1080/59.94p/29.97p/23.98p/59.94i, 720/59.94p, 480/59.94p |

Audio Input

| | |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Built-in Microphone: | Stereo microphone |
| XLR Input: | XLR (3-pin) x 2 (INPUT1, INPUT2) high impedance, LINE/MIC/MIC+48V (switchable SW) LINE: +4 dBu/0 dBu (switchable menu) MIC: -40 dBu/-50 dBu/-60 dBu (switchable menu) |

Audio Output

| | |
|------------|--------------------------------------|
| HDMI: | 2 ch (LPCM) |
| AUDIO OUT: | AUDIO OUT x 2 |
| Headphone: | 3.5 mm diameter stereo mini jack x 1 |
| Speaker: | 20 mm diameter, round x 1 |

Other Input/Output

| | |
|-----------------|---------------------------------------------------------------------------------------------------------|
| Camera Remote: | 2.5 mm diameter super mini jack x1 (ZOOM, S/S) 3.5 mm diameter mini jack x1 (FOCUS, IRIS) |
| USB 3.0 HOST: | Standard-A connector, 9-pin, external media device connection ^{*2} , bus power supported |
| USB 3.0 DEVICE: | Micro-B connector, 10-pin, Mass storage function (read only) |
| DC IN 12V: | DC 12 V (11.4 V to 12.6 V) EIAJ Type4 |

Monitor/Viewfinder

| | |
|--------------|--------------------------------------------------|
| LCD Monitor: | 3.5-type LCD monitor, Approx. 1,150,000 dots |
| Viewfinder: | 0.24-type EVF, Approx. 1,560,000 dots equivalent |

Included Accessories

Battery (AG-VBR59), Battery charger (AG-BRD50), AC adaptor, Microphone holder, Screw for microphone holder (12 mm), AC cable x 2, Eye cup, Lens hood, INPUT terminal cap, Operating instructions

^{*1}: An SD memory card with a capacity of UHS Speed Class 3 (U3) is required to shoot videos with a bit rate of 100 Mbps or higher.

^{*2}: External media devices with a capacity of below 32 GB or a capacity above 2 TB cannot be used.

Recording Time

| Recording Format | | 4 GB | 8 GB | 16 GB | 32 GB | 64 GB | 128 GB |
|------------------|--------------|------------------------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------------|
| MOV/MP4 | UHD 100 Mbps | — | — | Approx. 20 min. | Approx. 40 min. | Approx. 1 hour 20 min. | Approx. 2 hours 40 min. |
| | FHD 50 Mbps | Approx. 10 min. | Approx. 20 min. | Approx. 40 min. | Approx. 1 hour 20 min. | Approx. 2 hours 40 min. | Approx. 5 hours 20 min. |
| AVCHD | PS 25 Mbps | Approx. 19 min. | Approx. 40 min. | Approx. 1 hour 20 min. | Approx. 2 hours 40 min. | Approx. 5 hours 20 min. | Approx. 11 hours |
| | PH 21 Mbps | Approx. 21 min. | Approx. 45 min. | Approx. 1 hour 30 min. | Approx. 3 hours | Approx. 6 hours | Approx. 12 hours 30 min. |
| | HA 17 Mbps | Approx. 30 min. | Approx. 1 hour | Approx. 2 hours | Approx. 4 hours 10 min. | Approx. 8 hours 30 min. | Approx. 17 hours |
| | HE 5 Mbps | Approx. 1 hour 30 min. | Approx. 3 hours 20 min. | Approx. 6 hours 40 min. | Approx. 13 hours 40 min. | Approx. 27 hours 30 min. | Approx. 56 hours |
| | PM 8 Mbps | Approx. 1 hour | Approx. 2 hours | Approx. 4 hours 15 min. | Approx. 8 hours 30 min. | Approx. 17 hours 10 min. | Approx. 35 hours |
| | SA 9 Mbps | Approx. 1 hour | Approx. 2 hours | Approx. 4 hours | Approx. 8 hours | Approx. 16 hours 30 min. | Approx. 34 hours |

Please refer to the latest Non-linear Compatibility Information, Download and Service Information, etc. at the following Panasonic website:



<http://pro-av.panasonic.net/>

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