

LUMIX GH5 4K MIRRORLESS CAMERA, WITH LEICA DG VARIO-ELMARIT 12-60mm F2.8-4.0 LENS, 20.3 MEGAPIXELS, 5-AXIS DUAL IMAGE STABILIZATION 2.0, 3 INCH TOUCH LCD - DC-GH5LK DC-GH5LK

- **TYPE**

- Type Digital Single Lens Mirrorless camera
 - Recording media SD Memory Card, SDHC Memory Card, SDXC Memory Card (Compatible with UHS-I UHS-II UHS Speed Class 3 standard SDHC / SDXC Memory Cards)
 - Image sensor size 17.3 x 13.0 mm (in 4:3 aspect ratio)
 - Lens mount Micro Four Thirds mount
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- **IMAGE SENSOR**

- Type Live MOS Sensor
 - Total pixels 21.77 Megapixels
 - Camera effective pixels 20.33 Megapixels
 - Color filter Primary color filter
 - Dust reduction system Supersonic wave filter
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- **RECORDING SYSTEM**

- System frequency 59.94Hz, 50.00Hz, 24.00Hz
- Aspect ratio 4:3, 3:2, 16:9, 1:1
- Image quality RAW, RAW+Fine, RAW+Standard, Fine, Standard
- Color Space sRGB, AdobeRGB
- Continuous recordable time (Motion picture) AVCHD [FHD/60p]: Approx. 150 min (rear monitor), 150 min (LVF) with H-ES12060, Approx. 160 min (rear monitor), 150 min (LVF) with H-HSA12035 / H-FS12060
- Continuous recordable time (Motion picture) AVCHD [FHD/60i]: Approx. 150 min (rear monitor), 150 min (LVF) with H-ES12060, Approx. 160 min (rear monitor), 160 min (LVF) with H-HSA12035 / H-FS12060
- Continuous recordable time (Motion picture) MP4 [4K/60p]: Approx. 100 min (rear monitor), 100 min (LVF) with H-ES12060 / H-HSA12035 / H-FS12060
- Continuous recordable time (Motion picture) MP4 [4K/30p]: Approx. 110 min (rear monitor), 110 min (LVF) with H-ES12060 / H-HSA12035 / H-FS12060
- Actual recordable time (Motion picture) AVCHD [FHD/60p]: Approx. 75 min (rear monitor), 75 min (LVF) with H-ES12060, Approx. 80 min (rear monitor), 75 min (LVF) with H-HSA12035 / H-FS12060
- Actual recordable time (Motion picture) AVCHD [FHD/60i]: Approx. 75 min (rear monitor), 75 min (LVF) with H-ES12060, Approx. 80 min (rear monitor), 80 min (LVF) with H-HSA12035 / H-FS12060
- Actual recordable time (Motion picture) MP4 [4K/60p]: Approx. 50 min (rear monitor), 50 min (LVF) with H-ES12060 / H-HSA12035 / H-FS12060
- Actual recordable time (Motion picture) MP4 [4K/30p]: Approx. 55 min (rear monitor), 55 min (LVF) with H-ES12060 / H-HSA12035 / H-FS12060
- *Recording file format*
- Still image JPEG (DCF, Exif 2.31), RAW
- 6K PHOTO*1 / 4K PHOTO 6K PHOTO: MP4 (H.265/HEVC, Audio format: AAC (2ch))

- 6K PHOTO*1 / 4K PHOTO 4K PHOTO: MP4 (H.264/MPEG-4 AVC, Audio format: AAC (2ch))
- Motion picture MOV: H.264/MPEG-4 AVC (Audio format: LPCM (2ch 48kHz/16-bit, 48kHz/24-bit*, 96kHz/24-bit*)) *When attaching DMW-XLR1 (sold separately).
- Motion picture MP4: H.264/MPEG-4 AVC, H.265/HEVC*7 (Audio format: LPCM (2ch 48kHz/16-bit), AAC (2ch))
- Motion picture AVCHD Progressive, AVCHD (Audio format: Dolby Audio 2ch)
- *File size(Pixels) -Still Image*
- 4:3 5184x3888(L) / 3712x2784(M) / 2624x1968(S) / 4992x3744(6K PHOTO) / 3328x2496(4K PHOTO)
- 3:2 5184x3456(L) / 3712x2480(M) / 2624x1752(S) / 5184x3456(6K PHOTO) / 3504x2336(4K PHOTO)
- 16:9 5184x2920(L) / 3840x2160(M) / 1920x1080(S) / 3840x2160(4K PHOTO)
- 1:1 3888x3888(L) / 2784x2784(M) / 1968x1968(S) / 2880x2880(4K PHOTO)
- *File size (Pixels) -Motion picture*
- MOV*2/*4-59.94Hz <[C4K] 4096x2160> 23.98p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM, High-Res Audio)*7
- MOV*2/*4-59.94Hz <[C4K] 4096x2160> 23.98p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM, High-Res Audio) 100Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res Audio)
- MOV*2/*4-59.94Hz <[4K] 3840x2160> 59.94p, 150Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res Audio)
- MOV*2/*4-59.94Hz <[4K] 3840x2160> 29.97p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM, High-Res Audio)
- MOV*2/*4-59.94Hz <[4K] 3840x2160> 29.97p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM, High-Res Audio) 100Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res Audio)
- MOV*2/*4-59.94Hz <[4K] 3840x2160> 23.98p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM, High-Res Audio)
- MOV*2/*4-59.94Hz <[4K] 3840x2160> 23.98p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM, High-Res Audio) 100Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res Audio)
- MOV*2/*4-59.94Hz <[Full HD] 1920x1080> 59.94p, 200Mbps (4:2:2 10-bit ALL-Intra) (LPCM, High-Res Audio)*7
- MOV*2/*4-59.94Hz <[Full HD] 1920x1080> 59.94p, 100Mbps (4:2:2 10-bit LongGOP) (LPCM, High-Res Audio)*6
- MOV*2/*4-59.94Hz <[Full HD] 1920x1080> 59.94p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res Audio)
- MOV*2/*4-59.94Hz <[Full HD] 1920x1080> 29.97p, 200Mbps (4:2:2 10-bit ALL-Intra) (LPCM, High-Res Audio)*7
- MOV*2/*4-59.94Hz <[Full HD] 1920x1080> 29.97p, 100Mbps (4:2:2 10-bit LongGOP) (LPCM, High-Res Audio)*6
- MOV*2/*4-59.94Hz <[Full HD] 1920x1080> 29.97p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res Audio)
- MOV*2/*4-59.94Hz <[Full HD] 1920x1080> 23.98p, 200Mbps (4:2:2 10-bit ALL-Intra) (LPCM, High-Res Audio)*7
- MOV*2/*4-59.94Hz <[Full HD] 1920x1080> 23.98p, 100Mbps (4:2:2 10-bit LongGOP) (LPCM, High-Res Audio)*6
- MOV*2/*4-59.94Hz <[Full HD] 1920x1080> 23.98p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res Audio)
- MOV*2/*4-50.00Hz <[4K] 3840x2160> 50.00p, 150Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res Audio)
- MOV*2/*4-50.00Hz <[4K] 3840x2160> 25.00p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM, High-Res Audio)
- MOV*2/*4-50.00Hz <[4K] 3840x2160> 25.00p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM, High-Res Audio) 100Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res Audio)

- MOV*2/*4-50.00Hz <[Full HD] 1920x1080> 50.00p, 200Mbps (4:2:2 10-bit ALL-Intra) (LPCM, High-Res Audio) *7
- MOV*2/*4-50.00Hz <[Full HD] 1920x1080> 50.00p, 100Mbps (4:2:2 10-bit LongGOP) (LPCM, High-Res Audio) *6
- MOV*2/*4-50.00Hz <[Full HD] 1920x1080> 50.00p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res A
- MOV*2/*4-50.00Hz <[Full HD] 1920x1080> 25.00p, 200Mbps (4:2:2 10-bit ALL-Intra) (LPCM, High-Res Audio) *7
- MOV*2/*4-50.00Hz <[Full HD] 1920x1080> 25.00p, 100Mbps (4:2:2 10-bit LongGOP) (LPCM, High-Res Audio) *6
- MOV*2/*4-50.00Hz <[Full HD] 1920x1080> 25.00p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res A
- MOV*2/*4-24.00Hz <[C4K] 4096x2160> 24.00p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM, High-Res Au *7
- MOV*2/*4-24.00Hz <[C4K] 4096x2160> 24.00p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM, High-Res Au 100Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res Audio)
- MOV*2/*4-24.00Hz <[4K] 3840x2160> 24.00p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM, High-Res Audi
- MOV*2/*4-24.00Hz <[4K] 3840x2160> 24.00p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM, High-Res Audi 100Mbps (4:2:0 8-bit LongGOP) LPCM, High-Res Audio)
- MOV*2/*4-24.00Hz <[Full HD] 1920x1080> 24.00p, 200Mbps (4:2:2 10-bit ALL-Intra) (LPCM, High-Res Audio) *7
- MOV*2/*4-24.00Hz <[Full HD] 1920x1080> 24.00p, 100Mbps (4:2:2 10-bit LongGOP) (LPCM, High-Res Audio) *6
- MOV*2/*4-24.00Hz <[Full HD] 1920x1080> 24.00p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res A
- MP4*2-59.94Hz <[C4K] 4096x2160> 23.98p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM) *7
- MP4*2-59.94Hz <[C4K] 4096x2160> 23.98p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM) / 100Mbps (4:2:0 LongGOP) (LPCM)
- MP4*2-59.94Hz <[4K] 3840x2160> 59.94p, 150Mbps (4:2:0 8-bit LongGOP) (LPCM)
- MP4*2-59.94Hz <[4K] 3840x2160> 29.97p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM) *7
- MP4*2-59.94Hz <[4K] 3840x2160> 29.97p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM) / 100Mbps (4:2:0 8 LongGOP) (LPCM) / 100Mbps (4:2:0 8-bit LongGOP) (AAC)
- MP4*2-59.94Hz <[4K] 3840x2160> 23.98p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM) *7
- MP4*2-59.94Hz <[4K] 3840x2160> 23.98p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM) / 100Mbps (4:2:0 8 LongGOP) (LPCM) / 100Mbps (4:2:0 8-bit LongGOP) (AAC)
- MP4*2-59.94Hz <[4K] 3840x2160> 29.97p, 72Mbps (4:2:0 10-bit LongGOP) (AAC) (HEVC, HLG recordi
- MP4*2-59.94Hz <[4K] 3840x2160> 23.98p, 72Mbps (4:2:0 10-bit LongGOP) (AAC) (HEVC, HLG recordi
- MP4*2-59.94Hz <[Full HD] 1920x1080> 59.94p, 200Mbps (4:2:2 10-bit ALL-Intra) (LPCM) *7
- MP4*2-59.94Hz <[Full HD] 1920x1080> 59.94p, 100Mbps (4:2:2 10-bit LongGOP) (LPCM) *6
- MP4*2-59.94Hz <[Full HD] 1920x1080> 59.94p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM)
- MP4*2-59.94Hz <[Full HD] 1920x1080> 29.97p, 200Mbps (4:2:2 10-bit ALL-Intra) (LPCM) *7
- MP4*2-59.94Hz <[Full HD] 1920x1080> 29.97p, 100Mbps (4:2:2 10-bit LongGOP) (LPCM) *6
- MP4*2-59.94Hz <[Full HD] 1920x1080> 29.97p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM)
- MP4*2-59.94Hz <[Full HD] 1920x1080> 23.98p, 200Mbps (4:2:2 10-bit ALL-Intra) (LPCM) *7

- MP4*2-59.94Hz <[Full HD] 1920x1080> 23.98p, 100Mbps (4:2:2 10-bit LongGOP) (LPCM) *6
- MP4*2-59.94Hz <[Full HD] 1920x1080> 23.98p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM)
- MP4*2-59.94Hz <[Full HD] 1920x1080> 59.94p, 28Mbps (4:2:0 8-bit LongGOP) (AAC)
- MP4*2-59.94Hz <[Full HD] 1920x1080> 29.97p, 20Mbps (4:2:0 8-bit LongGOP) (AAC)
- MP4*2-59.94Hz <[Full HD] 1920x1080> 23.98p, 24Mbps (4:2:0 8-bit LongGOP) (AAC)
- MP4*2-50.00Hz <[4K] 3840x2160>50.00p, 150Mbps (4:2:0 8-bit LongGOP) (LPCM)
- MP4*2-50.00Hz <[4K] 3840x2160>25.00p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM) *7
- MP4*2-50.00Hz <[4K] 3840x2160>25.00p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM) / 100Mbps (4:2:0 8-LongGOP) (LPCM) / 100Mbps (4:2:0 8-bit LongGOP) (AAC)
- MP4*2-50.00Hz <[4K] 3840x2160>25.00p, 72Mbps (4:2:0 10-bit LongGOP) (AAC) (HEVC, HLG recording)
- MP4*2-50.00Hz <[Full HD] 1920x1080>50.00p, 200Mbps (4:2:2 10-bit ALL-Intra) (LPCM) *7
- MP4*2-50.00Hz <[Full HD] 1920x1080>50.00p, 100Mbps (4:2:2 10-bit LongGOP) (LPCM) *6
- MP4*2-50.00Hz <[Full HD] 1920x1080>50.00p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM)
- MP4*2-50.00Hz <[Full HD] 1920x1080>25.00p, 200Mbps (4:2:2 10-bit ALL-Intra) (LPCM) *7
- MP4*2-50.00Hz <[Full HD] 1920x1080>25.00p, 100Mbps (4:2:2 10-bit LongGOP) (LPCM) *6
- MP4*2-50.00Hz <[Full HD] 1920x1080>25.00p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM)
- MP4*2-50.00Hz <[Full HD] 1920x1080>50.00p, 28Mbps (4:2:0 8-bit LongGOP) (AAC)
- MP4*2-50.00Hz <[Full HD] 1920x1080>25.00p, 20Mbps (4:2:0 8-bit LongGOP) (AAC)
- MP4*2-24.00Hz <[C4K] 4096x2160> 24.00p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM) *7
- MP4*2-24.00Hz <[C4K] 4096x2160> 24.00p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM) / 100Mbps (4:2:0 8-LongGOP) (LPCM)
- MP4*2-24.00Hz <[4K] 3840x2160> 24.00p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM) *7
- MP4*2-24.00Hz <[4K] 3840x2160> 24.00p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM) / 100Mbps (4:2:0 8-LongGOP) (LPCM)
- MP4*2-24.00Hz <[Full HD] 1920x1080> 24.00p, 200Mbps (4:2:2 10-bit ALL-Intra) (LPCM) *7
- MP4*2-24.00Hz <[Full HD] 1920x1080> 24.00p, 100Mbps (4:2:2 10-bit LongGOP) (LPCM) *6
- MP4*2-24.00Hz <[Full HD] 1920x1080> 24.00p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM)
- MP4*2-24.00Hz <[Full HD] 1920x1080> 24.00p, 24Mbps (4:2:0 8-bit LongGOP) (AAC)
- AVCHD Progressive*2/ AVCHD*2-59.94Hz <[Full HD] 1920x1080> 59.94p, 28Mbps (LongGOP) (Dolby)
- AVCHD Progressive*2/ AVCHD*2-59.94Hz <[Full HD] 1920x1080> 59.94i, 24Mbps (LongGOP) (Dolby) (Sensor output is 29.97fps)
- AVCHD Progressive*2/ AVCHD*2-59.94Hz <[Full HD] 1920x1080> 59.94i, 17Mbps (LongGOP) (Dolby) (Sensor output is 59.94fps)
- AVCHD Progressive*2/ AVCHD*2-59.94Hz <[Full HD] 1920x1080> 23.98p, 24Mbps (LongGOP) (Dolby)
- AVCHD Progressive*2/ AVCHD*2-50.00Hz <[Full HD] 1920x1080> 50.00p, 28Mbps (LongGOP) (Dolby)
- AVCHD Progressive*2/ AVCHD*2-50.00Hz <[Full HD] 1920x1080> 50.00i, 24Mbps (LongGOP) (Dolby) (Sensor output is 25.00fps)

- AVCHD Progressive*2/ AVCHD*2-50.00Hz <[Full HD] 1920x1080> 50.00i, 17Mbps (LongGOP) (Dolby)
(Sensor output is 50.00fps)
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- **WIRELESS**

- WiFi IEEE 802.11a/b/g/n/ac * 5GHz Wi-Fi is not available in some countries.
 - WiFi 1-11, 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 144, 149, 153, 161, 165 ch
 - Bluetooth Bluetooth® v4.2 (Bluetooth Low Energy (BLE))
 - QR Code Connection Yes
 - Password-less connection Yes (ON / OFF selectable)
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- **VIEWFINDER**

- Type OLED Live View Finder (3,680k dots)
 - Field of view Approx. 100%
 - Magnification Approx. 1.52x / 0.76x (35mm camera equivalent) with 50 mm lens at infinity; -1.0 m-1
 - Eye point Approx. 21 mm from eyepiece lens
 - Diopter adjustment -4.0 - +3.0 (dpt)
 - Eye sensor Yes
 - Eye sensor adjustment High / Low
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- **FOCUS**

- Type Contrast AF system
 - DFD technology Yes
 - Post Focus Yes
 - Focus Stacking Yes
 - Focus mode AFS (Single) / AFF (Flexible) / AFC (Continuous) / MF
 - AF mode Face/Eye Detection / Tracking / 225-Area / Custom Multi / 1-Area / Pinpoint
 - AF mode (Full area touch is available) (Scalable AF frame size (by front/rear dial) and flexible AF position (Joystick))
 - AF detective range EV -4 - 18 (ISO100 equivalent)
 - AF assist lamp Yes
 - AF lock Yes (AF/AE LOCK button)
 - AF custom setting AF Sensitivity, AF Area Switching Sensitivity, Moving Object Prediction
 - Others One Shot AF, Shutter AF, Half Press Release, Quick AF, Continuous AF (during motion picture recording), Eye Sensor AF, AF+MF, MF Assist, Touch MF Assist, Focus Peaking, Touch AF/AE Function, Touch Pad AF, Touch Shutter
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- **EXPOSURE CONTROL**

- Light metering system 1,728-zone multi-pattern sensing system
- Light metering mode Multiple / Center Weighted / Spot
- Metering range EV0-18 (F2.0 lens, ISO100 equivalent)
- Exposure mode Program AE, Aperture Priority AE, Shutter Priority AE, Manual

- ISO sensitivity (Standard Output Sensitivity) Still image: Auto / Intelligent ISO / 100 (Extended) / 200 / 400 / 800 / 1600 / 3200 / 6400 / 12800 / 25600 (Changeable to 1/3 EV step)
- ISO sensitivity (Standard Output Sensitivity) Creative Video Mode: Auto / 100 (Extended) / 200 / 400 / 800 / 1600 / 3200 / 6400 / 12800 (Changeable to 1/3 EV step)
- Exposure compensation 1/3 EV step ± 5 EV (± 3 EV for motion picture)
- AE lock Yes (AF/AE LOCK button)

• WHITE BALANCE

- White balance AWB / AWBc / Daylight / Cloudy / Shade / incandescent / Flash / White Set 1, 2, 3, 4 / Color temperature setting 1, 2, 3, 4
- White balance adjustment Blue/Amber bias, Magenta/Green bias
- Color temperature setting 2500-10000K in 100K

• SHUTTER

- Type Focal-plane shutter
- Shutter speed Still image: Bulb (Max. 30 minutes), 1/8,000 - 60
- Shutter speed Electronic first curtain shutter: Bulb (Max. 30 minutes), 1/2,000 - 60
- Shutter speed Electronic shutter: 1/16,000 - 1
- Shutter speed Motion picture: 59.94Hz: 1/16,000 - 1/30, 50.00Hz: 1/16,000 - 1/25, 23.98Hz: 1/16,000 - 1/24 (When using Synchro Scan)
- Shutter life Approx. 200,000 images
- Self timer 10sec, 3 images / 2sec / 10sec
- Remote control Remote control with Bulb function by DMW-RSL1 (sold separately)

• BRACKET

- AE bracket 3, 5, 7 images in 1/3, 2/3 or 1 EV step, max. ± 3 EV, single/burst
- Aperture Bracket 3, 5 or all positions in 1 EV step
- Focus Bracket 1 to 999 images, focus steps can be set in 5 levels
- White balance bracket 3 exposures in blue/amber axis or in magenta/green axis, color temperature setting

• BURST SHOOTING

- Burst speed [Mechanical shutter] AFS/MF: H: 12 frames/sec, M: 7 frames/sec (with Live View), L: 2 frames/sec (with Live View)
- Burst speed [Mechanical shutter] AFF/AFC: H: 9 frames/sec, M: 7 frames/sec (with Live View), L: 2 frames/sec (with Live View)
- Burst speed [Electronic shutter] AFS/MF: H: 12 frames/sec, M: 7 frames/sec (with Live View), L: 2 frames/sec (with Live View)
- Burst speed [Electronic shutter] AFF/AFC: H: 9 frames/sec, M: 7 frames/sec (with Live View), L: 2 frames/sec (with Live View)
- Number of recordable images More than approx. 60 images (when there are RAW files with the particular speed)
- Number of recordable images More than approx. 600 images (when there are no RAW files)
- Number of recordable images (depending on memory card size, battery power, picture size, and compression)

• 6K PHOTO*1 / 4K PHOTO

- Burst speed [6K PHOTO] 30 frames/sec
- Burst speed [4K PHOTO] 60 frames/sec, 30 frames/sec
- Exif information Yes (Each JPEG image cropped out of the 6K/4K burst file complies with EXIF.)
- Marking function Yes (in 6K/4K Burst (S/S) mode)
- Loop rec function Yes (in 6K*7/4K Burst (S/S) mode)

• FLASH

- Flash type TTL External Flash (sold separately)
- Flash Mode Auto*, Auto/Red-eye Reduction*, Forced On, Forced On/Red-eye Reduction, Slow Sync., Slow Sync./Red-eye Reduction, Forced Off * For iA, iA+ only.
- Synchronization speed Less than 1/250 second
- Flash output adjustment 1/3EV step ±3EV
- Flash synchronization 1st. Curtain Sync, 2nd Curtain Sync.
- Synchronization for flash dimming and exposure compensation Yes
- Wireless control Yes (When using DMW-FL200L / FL360L / FL580L (sold separately)), Wireless Channel 1ch/2ch/3ch/4ch
- Flash sync socket Yes

• REAR MONITOR

- Type TFT LCD monitor with static touch control
- Monitor size Free-angle 3.2-inch (8.0cm) / 3:2 aspect / Wide viewing angle
- Pixels Approx. 1,620k dots
- Field of view Approx. 100%
- Monitor adjustment Brightness, Contrast, Saturation, Red-Green, Blue-Yellow

• LIVE VIEW

- Digital zoom 2x, 4x
- Extra Tele Conversion Still image: Max. 2x
- Extra Tele Conversion 4K PHOTO: 1.6x (4:3), 1.5x (3:2), 1.4x (16:9, 1:1)
- Extra Tele Conversion Motion picture: 2.7x (FHD), 1.4x (4K)
- Other functions Level Gauge, Real-time Histogram, Guide Lines (3 patterns), Center Marker, Highlight d (Still image / motion picture), Zebra pattern (Still image / motion picture)

• DIRECTION DETECTION FUNCTION

- Direction Detection Function Yes

• FUNCTION BUTTON

- REC Wi-Fi / Q.MENU / LVF/Monitor Switch / LVF/Monitor Disp. Style / AF/AE LOCK / AF-ON / Preview One Push AE / Touch AE / Level Gauge / Focus Area Set / Zoom Control / 1 Shot RAW+JPG / 1 Shot Spot Metering / Operation Lock / Dial Operation Switch / Photo Style / Filter Select / Aspect Ratio / Picture Size Quality / AFS/AFF / Metering Mode / Burst Rate / 6K/4K PHOTO / Self Timer / Bracket / Highlight Shadow Ex. Tele Conv. / Digital Zoom / Stabilizer / ON/OFF of each item in White Balance / ON/OFF of each item Photo Style / AF Mode/MF / Rec/Playback Switch / Off / 4K Live Cropping / Motion Pic. Rec Format / Motion

Pic. Rec Quality / Variable Frame Rate / Picture Mode in Rec. / Synchro Scan / Time Code Display / Mic. Directivity Adjust / Color Bars / WFM/Vector Scope / Focus Transition / LUT Monitor Display* / LUT HI Display* / Silent Mode / Peaking / Histogram / Guide Line / Zebra Pattern / Monochrome Live View / Rec / Video-Priority Display / Step Zoom / Zoom Speed / Restore to Default / Video Record*7 / Destination Slo Min. Shtr Speed*7 / I.S. Lock (video)*7 / Mic Level Adj.*7 / HLG View Assist (HDMI)*7 / Anamorphic Desqueeze Display*7 / HLG View Assist*7 / Video Guide Line*7 / Constant Preview*7 / Focus Ring Lock* Stabilization (Video)*8 / Mic Rec Level Disp.*8 / Live View Boost*8 / Night Mode*8

- *Upgrade Software Key DMW-SFU1 (sold separately) is required.
- **PLAY** Wi-Fi / LVF/Monitor Switch / Slot Change / 6K/4K Photo Play / Delete Single / Protect / Rating 1, 2 5 / Print Set / Copy / Off / Restore to Default / Rec/Playback Switch*8 / RAW Processing*8 / 6K/4K PHOTO Bulk Saving*8 / Anamorphic Desqueeze Display*8 / HLG View Assist*7 / HLG View Assist (HDMI) *7 / L Monitor Display*1*8 / LUT HDMI Display*1*8 / Night Mode*8
- *Upgrade Software Key DMW-SFU1 (sold separately) is required.

• PHOTO STYLE

- Photo Style Standard / Vivid / Natural / Monochrome / L. Monochrome / L. Monochrome D*8 / Scenery / Portrait / Custom 1, 2, 3, 4 / Cinelike D / Cinelike V / Like709*9 / Hybrid Log Gamma*1*7 / V-LogL**/**9
- Photo Style *When Creative Video Mode is selected. **Upgrade Software Key DMW-SFU1 (sold separately) is required.

• CREATIVE CONTROL

- Creative Control Expressive / Retro / Old Days / High Key / Low Key / Sepia / Monochrome / Dynamic Monochrome / Rough Monochrome* / Silky Monochrome* / Impressive Art / High Dynamic / Cross Process / Toy Effect / Toy Pop / Bleach Bypass / Miniature Effect** / Soft Focus* / Fantasy / Star Filter* / One Point Color / Sunshine*
- *For photos only. **Not available in 4:2:2 10-bit video or 4K video recording.

• CREATIVE VIDEO MODE

- Exposure mode Program AE/ Aperture-Priority / Shutter-Priority / Manual Exposure
- *Variable frame rate*
- 59.94Hz 2, 30, 56, 58, 60, 62, 64, 90, 120, 150, 180 fps
- 59.94Hz 2, 15, 26, 28, 30, 32, 34, 45, 60 fps
- 59.94Hz 2, 15, 26, 28, 30, 32, 34, 45, 60, 75, 90, 105, 120, 135, 150, 165, 180 fps
- 59.94Hz 2, 12, 20, 22, 24, 26, 28, 36, 48, 60 fps
- 59.94Hz 2, 12, 20, 22, 24, 26, 28, 36, 48, 60, 72, 84, 96, 108, 120, 132, 144, 156, 168, 180 fps
- 50.00Hz 2, 25, 46, 48, 50, 52, 54, 75, 100, 150, 180 fps
- 50.00Hz 2, 12, 21, 23, 25, 27, 30, 37, 60 fps
- 50.00Hz 2, 12, 21, 23, 25, 27, 30, 37, 50, 62, 75, 87, 100, 125, 150, 175, 180 fps
- 24.00Hz 2, 12, 20, 22, 24, 26, 28, 36, 48, 60 fps
- 24.00Hz 2, 12, 20, 22, 24, 26, 28, 36, 48, 60, 72, 84, 96, 108, 120, 132, 144, 156, 168, 180 fps

• ANAMORPHIC MODE

- *High-Resolution Anamorphic mode (4:3)*

- MP4*2/59.94Hz <4992x3744> MP4/59.94p 29.97p, 200Mbps (4:2:0 10-bit LongGOP) (LPCM) (HEVC) *7/<4992x3744> MP4/59.94p 23.98p, 200Mbps (4:2:0 10-bit LongGOP) (LPCM) (HEVC) *7
- MP4*2/50.00Hz <4992x3744> MP4/59.94p 25.00p, 200Mbps (4:2:0 10-bit LongGOP) (LPCM) (HEVC) *7
- MP4*2/24.00Hz <4992x3744> MP4/59.94p 24.00p, 200Mbps (4:2:0 10-bit LongGOP) (LPCM) (HEVC) *7
- *Anamorphic 4K mode (4:3)*
- MOV*2/*4-59.94Hz <3328x2496> 59.94p, 150Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res Audio)
- MOV*2/*4-59.94Hz <3328x2496> 29.97p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM, High-Res Audio) *7
- MOV*2/*4-59.94Hz <3328x2496> 29.97p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM, High-Res Audio) *6
- MOV*2/*4-59.94Hz <3328x2496> 29.97p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res Audio)
- MOV*2/*4-59.94Hz <3328x2496> 23.98p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM, High-Res Audio) *7
- MOV*2/*4-59.94Hz <3328x2496> 23.98p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM, High-Res Audio) *6
- MOV*2/*4-59.94Hz <3328x2496> 23.98p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res Audio)
- MOV*2/*4-50.00Hz <3328x2496> 50.00p, 150Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res Audio)
- MOV*2/*4-50.00Hz <3328x2496> 25.00p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM, High-Res Audio) *7
- MOV*2/*4-50.00Hz <3328x2496> 25.00p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM, High-Res Audio) *6
- MOV*2/*4-50.00Hz <3328x2496> 25.00p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res Audio)
- MOV*2/*4-24.00Hz <3328x2496> 24.00p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM, High-Res Audio) *7
- MOV*2/*4-24.00Hz <3328x2496> 24.00p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM, High-Res Audio) *6
- MOV*2/*4-24.00Hz <3328x2496> 24.00p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM, High-Res Audio)
- MP4*2-59.94Hz <3328x2496>59.94p, 150Mbps (4:2:0 8-bit LongGOP) (LPCM)
- MP4*2-59.94Hz <3328x2496>29.97p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM) *7
- MP4*2-59.94Hz <3328x2496>29.97p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM) *6
- MP4*2-59.94Hz <3328x2496>29.97p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM)
- MP4*2-59.94Hz <3328x2496>23.98p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM) *7
- MP4*2-59.94Hz <3328x2496>23.98p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM) *6
- MP4*2-59.94Hz <3328x2496>23.98p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM)
- MP4*2-50.00Hz <3328x2496> 50.00p, 150Mbps (4:2:0 8-bit LongGOP) (LPCM)
- MP4*2-50.00Hz <3328x2496> 25.00p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM) *7
- MP4*2-50.00Hz <3328x2496> 25.00p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM) *6
- MP4*2-50.00Hz <3328x2496> 25.00p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM)
- MP4*2-24.00Hz <3328x2496> 24.00p, 400Mbps (4:2:2 10-bit ALL-Intra) (LPCM) *7
- MP4*2-24.00Hz <3328x2496> 24.00p, 150Mbps (4:2:2 10-bit LongGOP) (LPCM) *6
- MP4*2-24.00Hz <3328x2496> 24.00p, 100Mbps (4:2:0 8-bit LongGOP) (LPCM)

• MOTION PICTURE FUNCTION

- Master pedestal level 31 steps

- Luminance level 8-bit: 0-255 / 16-235 / 16-255
- Luminance level 10-bit: 0-1023 / 64-940 / 64-1023
- Wave form monitor / Vectorscope Selectable
- LUT display LUT Monitor Display / LUT HDMI Display *Upgrade Software Key DMW-SFU1 (sold separately) is required.
- Synchro scan Yes
- Time code Count Up: Rec Run/Free Run selectable, Time Code Mode: Drop frame/Non-drop frame select (When system frequency [59.94Hz] is selected.)
- SS/Gain operation Shutter Duration/ISO / Angle/ISO / Shutter Duration/dB
- Color bars / 1kHz test tone Yes (SMPTE / EBU / ARIB) / Yes
- Photo style for motion picture Cinelike D / Cinelike V / Like709*9 / Hybrid Log Gamma*/*7 / V-LogL**/*
- Photo style for motion picture *When Creative Video Mode is selected. **Upgrade Software Key DMW-SFU1 (sold separately) is required.
- Knee control Yes (in Like709 mode)

• PLAYBACK

- Playback mode 30-thumbnail display, 12-thumbnail display, Calendar display, Zoomed playback (Max. 16 Slideshow (All / Picture Only / Video Only, duration & effect is selectable), Playback Mode (Normal / Picture Only / Video Only), Protect, Rating, Title Edit, Face Recognition Edit, DPOF Print Set, RAW Processing, 6K/4K PHOTO Bulk Saving, 6K/4K PHOTO Noise Reduction, Light Composition, Clear Retouch, Text Stamp, Copy, Resize, Cropping, Rotate, Video Divide, Time Lapse Video, Stop Motion Video, Rotation Display, Anamorphic Desqueeze Display*7, HLG View Assist*7, LUT Monitor Display*8, LUT HDMI Display*8, Picture Sort, Delete Confirmation, Creating Still Pictures from a Motion Picture

• IMAGE PROTECTION / ERASE

- Protection Single / Multi or Cancel
- Erase Single / Multi / All / Except Favorite

• PRINT

- Direct Print PictBridge compatible

• INTERFACE

- USB USB Type-C, Super Speed USB3.1 GEN1
- Audio video output No
- Remote input ϕ 2.5mm for remote
- External microphone input ϕ 3.5mm for external microphone
- External microphone input Stereo/Lens Auto/Shotgun/Super Shotgun/Manual is selectable when attaching DMW-MS2 (sold separately).
- Headphone output ϕ 3.5mm for headphone
- Microphone Stereo, Wind Noise Canceller: OFF / Low / Standard / High / AUTO
- High-res audio recording Yes with DMW-XLR1 (sold separately)
- Speaker Monaural
- SD card slot Slot 1, Slot 2
- HDMI*3

- **Monitor-through 4:2:2 10-bit** (When [Rec Quality] is set to [4:2:2 10bit] or when [Rec Quality] is set to [4K/60p]/[4K/50p] and [4K/60p Bit Mode]/[4K/50p Bit Mode] is set to [4:2:2 10bit]. When [4K/60p]/[4K/50p] mode is selected in [Rec Quality], it is not possible to record motion picture or still picture on the SD memory card in the camera unit.)
- **Monitor-through 4:2:2 8bit** (When [Rec Quality] is set to [4:2:0 8bit], except for [4K 60p]/[4K/50p])
- **Monitor-through 4:2:0 8bit** (When [Rec Quality] is set to [4K/60p]/[4K/50p] and [4K/60p Bit Mode]/[4K/50p Bit Mode] is set to [4:2:0 8bit].)
- **Monitor-through Auto / 4K/30p/25p / 1080p / 1080i / OFF**
- **Monitor-through Information display ON/OFF** (selectable)
- **Monitor-through Automatic down-conversion**
- **Monitor-through HLG View Assist (HDMI) AUTO / MODE1 / MODE2 / OFF** (selectable)*7
- **Playback HDMI TypeA / VIERA Link, Audio: Stereo**
- **Playback 59.94Hz: Auto / 4K/60p / 4K/30p / 1080p / 1080i / 720p / 480p**
- **Playback 50.00Hz: Auto / 4K/50p / 4K/25p / 1080p / 1080i / 720p / 576p**
- **Playback 24.00Hz: Auto / C4K / 4K/24p / 1080p**

- **OSD language Japanese, English, German, French, Italian, Spanish, Portuguese, Chinese (Traditional)**

- o **POWER**
- o **Battery Li-ion Battery Pack (7.2V, 1860mAh, 14Wh) (included)**
- o **Battery life (CIPA standard) Approx. 410 images (rear monitor), 400 images (LVF), 1,000 images (Power S LVF mode*) with H-FS12060**
- o **Battery life (CIPA standard) Approx. 410 images (rear monitor), 390 images (LVF), 1,000 images (Power S LVF mode*) with H-HSA12035**
- o **Battery life (CIPA standard) Approx. 400 images (rear monitor), 380 images (LVF), 1,000 images (Power S LVF mode*) with H-ES12060**
- o **Battery life (CIPA standard) * Under the test conditions specified by Panasonic based on CIPA standard.† the time to get in the sleep mode is set to 3 sec.**
- o **Battery grip DMW-BGGH5 (sold separately)**
- o ***DIMENSIONS / WEIGHT***
- o **Dimensions (W x H x D) 138.5 x 98.1 x 87.4 mm / 5.45 x 3.86 x 3.44 inch (excluding protrusions)**
- o **Weight Approx. 725g / 1.60 lb (SD card, Battery, Body)**
- o **Weight Approx. 645g / 1.42 lb (Body only)**
- o **Weight Approx. 935g / 2.06 lb (SD card x 1, Battery, H-FS12060 lens included)**
- o **Weight Approx. 1030g / 2.27 lb (SD card x 1, Battery, H-HSA12035 lens included)**
- o **Weight Approx. 1045g / 2.30 lb (SD card x 1, Battery, H-ES12060 lens included)**
- o ***OPERATING ENVIRONMENT***
- o **Operating temperature*5 -10°C to 40°C (14°F to 104°F)**
- o **Operating humidity 10%RH to 80%RH**
- o ***Software***

- Recording LUMIX Tether*7
 - Recording • This software is used to control a Panasonic digital camera from a PC. It allows you to change various settings of the camera, perform remote recording, and save remotely recorded images to the PC. Click the site below to download and install the software.
 - Recording http://panasonic.jp/support/global/cs/soft/download/d_lumixtether.html (For Windows / Mac)
 - Playback / Editing • The software to edit and playback images on computer is not bundled with this camera. To do this, PHOTOfunSTUDIO 10.0XE is available for download at Panasonic website using computer connected to the Internet.
 - Playback / Editing http://panasonic.jp/support/global/cs/soft/download/d_pfs10xe.html (For Windows)
 - Playback / Editing • The software to process RAW file on computer is not bundled with this camera. To do this, SILKYPiX Developer Studio is available for download at Ichikawa Soft Laboratory's website using computer connected to the Internet.
 - Playback / Editing <http://www.isl.co.jp/SILKYPiX/english/p/> (For Windows / Mac)
 - Standard accessories Battery Charger (AC Cable included), Battery Pack, Body Cap, Hot Shoe Cover, Eyepiece Cup, Flash Syncro Socket Cap, Cover for the Battery Grip Connector, USB Connection Cable, Shoulder Strap Cable Holder
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• INTERCHANGEABLE LENS-1

- Lens Name LEICA DG VARIO-ELMARIT 12-60mm / F2.8-4.0 ASPH. / POWER O.I.S.
- Lens Construction 14 elements in 12 groups (4 aspherical lenses, 2 ED lenses)
- Nano Surface Coating Yes
- Mount Micro Four Thirds mount
- Optical Image Stabilizer Yes (POWER O.I.S.)
- Focal Length f=12-60mm (35mm camera equivalent 24-120mm)
- Aperture Type 9 diaphragm blades / Circular aperture diaphragm
- Aperture range N/A
- Aperture N/A
- Maximum Aperture F2.8 (Wide) - F4.0 (Tele)
- Minimum Aperture F22
- Closest Focusing Distance 0.20m/0.66ft (at focal length 12mm) / 0.24m/0.79ft (at focal length 60mm)
- Maximum magnification Approx. 0.3x / 0.6x (35mm camera equivalent)
- Diagonal Angle of View 84°(Wide) - 20°(Tele)
- Weatherproof Splash/Dust/Freezeproof
- *General*
- Filter Size ϕ 62mm / 2.44inch
- Max. Diameter ϕ 68.4mm / 2.69inch
- Overall Length Approx. 86mm / 3.39inch (from the tip of the lens to the base side of the lens mount)
- Weight [g] Approx. 320g (excluding lens cap, lens rear cap and lens hood)
- Weight [oz] Approx. 11.29oz (excluding lens cap, lens rear cap and lens hood)

- Others N/A

• NOTES

- IMAGE STABILIZATION SYSTEM Image sensor shift type (5-axis / 5-stop*), Dual I.S. (Dual I.S. 2 compatible)
- IMAGE STABILIZATION SYSTEM * Based on the CIPA standard [Yaw/Pitch direction: focusing distance f=60mm (35mm camera equivalent f=120mm), when H-FS12060 is used.
- NOTE *1 6K PHOTO is a high speed burst shooting function that cuts a still image out of a 4:3 or 3:2 video footage with approx. 18-megapixel (approx. 6000 x 3000 effective pixel count) that the 6K image manages.
- NOTE *2 About motion picture recording / 6K PHOTO/4K PHOTO recording
- NOTE - Use a card with SD Speed Class with "Class 4" or higher when recording motion pictures in [AVC] or [MP4(under 28Mbps)].
- NOTE - Use a card with SD Speed Class with "UHS-I / UHS-II UHS Speed Class 3 (U3)" when recording motion pictures with [MP4] in [4K], [MOV], [VFR] or [6K PHOTO/4K PHOTO].
- NOTE (SD speed class is the speed standard regarding continuous writing.)
- NOTE - MP4 motion pictures with [MP4] in [4K]:
- NOTE - When using an SDHC memory card: You can continue recording without interruption even if the size exceeds 4 GB, but the motion picture file will be divided and recorded/played back separately.
- NOTE - When using an SDXC memory card: You can continue recording without interruption even if the size exceeds 96 GB or 3 hours 4 minutes in length, but the motion picture file will be divided and recorded/played back separately.
- NOTE - MP4 motion pictures with [MP4] in [FHD]:
- NOTE - You can continue recording without interruption even if the file size exceeds 4 GB or 30 minutes in length, but the motion picture file will be divided and recorded/played back separately.
- NOTE *3 For [4K 60p] [4K 50p] video output, use an HDMI2.0 cable that has the HDMI logo on it, and the cable is described as "4K compatible".
- NOTE *4 High-res audio is selectable only when using the DMW-XLR1 (sold separately).
- NOTE *5 The camera may stop recording when used in lower or higher than recommended operating temperature: -10 to 40 degrees.
- NOTE *6 Firmware must be updated to version 1.1 or later.
- NOTE *7 Firmware must be updated to version 2.0 or later.
- NOTE - Video Speed Class 60 or higher is required for ALL-Intra 400Mbps recording. Use of SD Memory Card with Video Speed Class 60 or higher is recommended for 4K ALL-Intra video recording.
- NOTE - Use of Panasonic SD Memory Card with Video Speed Class 90 is recommended for [Loop Rec] of [6K PHOTO].
- NOTE • 4:2:2 10-bit recording is a recording mode for film production and the video needs to be processed on a PC.
- NOTE The original video cannot be played on standard TV, Blu-ray Disc™ recorder and Blu-ray Disc™ player.
- NOTE It may cause problems such as freezing when played on these devices.
- NOTE *8 Firmware must be updated to the latest version 2.3.
- NOTE *9 Firmware must be updated to the latest version 2.3. for shooting in modes other than Creative Video mode.

- ○ UPC885170307117

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