

# Clifton Cameras Product Specification

## Panasonic LUMIX GH7 Specifications

### [Panasonic LUMIX GH7](#)

#### Specifications

Type	Digital Single Lens Mirrorless camera
Lens mount	Micro Four Thirds mount

#### IMAGE SENSOR

Type	BSI CMOS sensor (17.3 x 13.0 mm)
Camera effective pixels / Total pixels	Approx. 25.2 megapixels / Approx. 26.5 megapixels
AR (Anti Reflection) coating	Yes
Aspect ratio / Color filter	4:3 / Primary color filter
Dust reduction system	Image sensor shift type

#### LATITUDE

"13+ stops (V-Log) (Sensor output is 60fps or less)

12+ stops (V-Log) (Sensor output is 61fps or higher)"

#### STILL IMAGE

Recording file format	JPEG (DCF, Exif 3.0), RAW
Aspect ratio	4:3 / 3:2 / 16:9 / 1:1
File size (Pixels)	<p>4:3      5776x4336(L) / 4096x3072(M) / 2944x2208(S) / 1920 x 1440(XS) / 11552x8672(XL)* / 8192x6144(LL)*    *High Resolution Mode.</p> <p>3:2      5776x3848(L) / 4096x2728(M) / 2944x1960(S) / 1920x1280(XS) / 11552x7696(XL)* / 8192x5464(LL)*    *High Resolution Mode.</p> <p>16:9    "5776x3248(L) / 4096x2304(M) / 2944x1656(S) / 1920x1080(XS) / 11552x6496(XL)* / 8192x4608(LL)*    *High Resolution Mode.</p> <p>1:1      4336x4336(L) / 3072x3072(M) / 2208x2208(S) / 1440x1440(XS) / 8672x8672(XL)* / 6144x6144(LL)*    *High Resolution Mode.</p>
Image quality	RAW / RAW+Fine / RAW+Standard / Fine / Standard (High Resolution mode: Combined / RAW / RAW+Fine / Fine)
Color space	sRGB, AdobeRGB

## MOTION PICTURE

Recording file format	<p>"MOV: H.264/MPEG-4 AVC, H.265/HEVC, Apple ProRes, Apple ProRes RAW</p> <p>MP4: H.264/MPEG-4 AVC, H.265/HEVC"</p>	
Audio format	<p>4ch Audio Recording: OFF "MOV</p> <p>Linear format: LPCM (2ch stereo 48kHz/24-bit, 96kHz/24-bit*)</p> <p>Float format**: LPCM (2ch stereo 48kHz/32-bit, 96kHz/32-bit)</p> <p>*When attaching <math>\Phi</math>3.5mm microphone or DMW-XLR2 (sold separately). **When attaching DMW-XLR2 (sold separately).</p> <p>MP4</p> <p>Linear format: AAC (2ch stereo 48kHz/16-bit)"</p>	
4ch Audio Recording: XLR*	<p>"MOV</p> <p>Linear format: LPCM (4ch monaural 48kHz/24-bit)</p> <p>Float format: LPCM (4ch monaural 48kHz/32-bit)</p> <p>*When attaching DMW-XLR2 (sold separately)."</p>	
4ch Audio Recording: XLR*+Camera	<p>"MOV</p> <p>Linear format: LPCM (4ch monaural 48kHz/24-bit, 96kHz/24-bit**)</p> <p>*When attaching DMW-XLR2 (sold separately). **When attaching <math>\Phi</math>3.5mm microphone or DMW-XLR2 (sold separately)."</p>	
System frequency	59.94Hz / 50.00Hz / 24.00Hz	
Image area of video	FULL / PIXEL/PIXEL	
Log recording	V-Log	
Proxy	<p>"ON / OFF</p> <p>Proxy Rec Quality: H / M / L</p> <p>Real Time LUT (Proxy): ON / OFF</p> <p>*When the following functions are being used, proxy recording is not available: [MP4], [Rec Quality] exceeding a resolution of C4K, [Rec Quality] with [4:3] or [3:2] aspect ratio, [Rec Quality] with a high frame rate video, [HDMI RAW Data Output], and [Streaming]."</p>	
MOV (*1) (*2) (*3)		
59.94Hz	[5.8K] 5760x4320 (4:3)	<p>"29.97p, 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)*</p> <p>23.98p, 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)*</p>



\*Image Area of Video is set to FULL during this recording mode."

[5.7K] 5728x3024 (17:9) "59.94p, 300Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*  
47.95p, 300Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*  
29.97p, 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*  
23.98p, 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

\*Image Area of Video is set to FULL during this recording mode."

[4.4K] 4352x3264 (4:3) "59.94p, 300Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*  
47.95p, 300Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

\*Image Area of Video is set to PIXEL/PIXEL during this recording mode."

"[C4K] 4096x2160

[4K] 3840x2160" "119.88p, 300Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*\*  
59.94p, 800Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)\*  
59.94p, 600Mbps (4:2:2 10-bit ALL-Intra (L)) (H.264/MPEG-4 AVC, LPCM)\*  
59.94p, 200Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*  
59.94p, 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*  
59.94p, 150Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*  
47.95p, 800Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)  
47.95p, 600Mbps (4:2:2 10-bit ALL-Intra (L)) (H.264/MPEG-4 AVC, LPCM)  
47.95p, 200Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)  
47.95p, 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)  
29.97p, 400Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)\*  
29.97p, 150Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*  
29.97p, 150Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*  
29.97p, 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*  
23.98p, 400Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)\*  
23.98p, 150Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*  
23.98p, 150Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*  
23.98p, 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*



\*Proxy video recording is available.

\*\*An AC Adaptor DMW-AC11 (optional) and DC Coupler DMW-DCC18 (optional) are required to record video on a USB-SSD. "

- [FHD] 1920x1080 "239.76p, 800Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)\*\*/\*\*\*
- 239.76p, 200Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*\*/\*\*\*
- 239.76p, 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*\*/\*\*\*
- 119.88p, 400Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)\*\*\*
- 119.88p, 150Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*\*\*
- 119.88p, 150Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*\*\*
- 59.94p, 200Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)\*
- 59.94p, 100Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*
- 59.94p, 100Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*
- 59.94p, 50Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*
- 59.94i, 100Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)
- 59.94i, 50Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)
- 47.95p, 200Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)
- 47.95p, 100Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)
- 47.95p, 100Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)
- 29.97p, 200Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)\*
- 29.97p, 100Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*
- 29.97p, 100Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*
- 29.97p, 25Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*
- 23.98p, 200Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)\*
- 23.98p, 100Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*
- 23.98p, 100Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*
- 23.98p, 25Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*

\*Proxy video recording is available.

\*\*Image Area of Video is set to FULL during this recording mode.

\*\*\*An AC Adaptor DMW-AC11 (optional) and DC Coupler DMW-DCC18 (optional) are required to record video on a USB-SSD. "



50.00Hz	[5.8K] 5760x4320 (4:3)	"25.00p, 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)* *Image Area of Video is set to FULL during this recording mode."
	[5.7K] 5728x3024 (17:9)	"50.00p, 300Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)* 25.00p, 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)* *Image Area of Video is set to FULL during this recording mode."
	[4.4K] 4352x3264 (4:3)	"50.00p, 300Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)* *Image Area of Video is set to PIXEL/PIXEL during this recording mode."
	"[C4K] 4096x2160	
	[4K] 3840x2160"	"100.00p, 300Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)** 50.00p, 800Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)* 50.00p, 600Mbps (4:2:2 10-bit ALL-Intra (L)) (H.264/MPEG-4 AVC, LPCM)* 50.00p, 200Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)* 50.00p, 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)* 50.00p, 150Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)* 25.00p, 400Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)* 25.00p, 150Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)* 25.00p, 150Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)* 25.00p, 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)* *Proxy video recording is available.  **An AC Adaptor DMW-AC11 (optional) and DC Coupler DMW-DCC18 (optional) are required to record video on a USB-SSD. "
LPCM)**/**	[FHD] 1920x1080	"200.00p, 800Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, 200.00p, 200Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)**/** 200.00p, 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)**/** 100.00p, 400Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)** 100.00p, 150Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)** 100.00p, 150Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)** 50.00p, 200Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)*



50.00p, 100Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*

50.00p, 100Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

50.00p, 50Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*

50.00i, 100Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)

50.00i, 50Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)

25.00p, 200Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)\*

25.00p, 100Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*

25.00p, 100Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

25.00p, 25Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*

\*Proxy video recording is available.

\*\*Image Area of Video is set to FULL during this recording mode.

\*\*\*An AC Adaptor DMW-AC11 (optional) and DC Coupler DMW-DCC18 (optional) are required to record video on a USB-SSD. "

24.00Hz [5.8K] 5760x4320 (4:3)

"24.00p, 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

\*Image Area of Video is set to FULL during this recording mode."

[5.7K] 5728x3024 (17:9)

"48.00p, 300Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

24.00p, 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

\*Image Area of Video is set to FULL during this recording mode."

[4.4K] 4352x3264 (4:3)

"48.00p, 300Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

\*Image Area of Video is set to PIXEL/PIXEL during this recording mode."

"[C4K] 4096x2160

[4K] 3840x2160"

"120.00p, 300Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*\*

24.00p, 400Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)\*

24.00p, 150Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*

24.00p, 150Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

24.00p, 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*

\*Proxy video recording is available.

\*\*An AC Adaptor DMW-AC11 (optional) and DC Coupler DMW-DCC18 (optional) are required to record video on a USB-SSD. "

[FHD] 1920x1080

"120.00p, 400Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)\*\*



120.00p, 150Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*\*

120.00p, 150Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*\*

24.00p, 200Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)\*

24.00p, 100Mbps (4:2:2 10-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*

24.00p, 100Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

24.00p, 25Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)\*

\*Proxy video recording is available.

\*\*An AC Adaptor DMW-AC11 (optional) and DC Coupler DMW-DCC18 (optional) are required to record video on a USB-SSD. "

MP4 (\*1) (\*2)

59.94Hz [4K] 3840x2160 "59.94p, 100Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, AAC)

29.97p, 72Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, AAC)

29.97p, 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, AAC)

23.98p, 72Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, AAC)

23.98p, 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, AAC)"

[FHD] 1920x1080 "59.94p, 28Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, AAC)

29.97p, 20Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, AAC)

23.98p, 24Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, AAC)"

50.00Hz [4K] 3840x2160 "50.00p, 100Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, AAC)

25.00p, 72Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, AAC)

25.00p, 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, AAC)"

[FHD] 1920x1080 "50.00p, 28Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, AAC)

25.00p, 20Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, AAC)"

24.00Hz - -

ProRes (\*1) (\*3)

59.94Hz [5.7K] 5728x3024 (17:9) "29.97p, 4.2Gps (ProRes RAW HQ) (H.264/MPEG-4 AVC, LPCM)\*/\*\*

29.97p, 2.8Gps (ProRes RAW) (H.264/MPEG-4 AVC, LPCM)\*/\*\*

29.97p, 1.9Gbps (ProRes 422 HQ) (H.264/MPEG-4 AVC, LPCM)\*

29.97p, 1.3Gbps (ProRes 422) (H.264/MPEG-4 AVC, LPCM)\*



23.98p, 3.3Gps (ProRes RAW HQ) (H.264/MPEG-4 AVC, LPCM)\*/\*\*

23.98p, 2.2Gps (ProRes RAW) (H.264/MPEG-4 AVC, LPCM)\*/\*\*

23.98p, 1.5Gbps (ProRes 422 HQ) (H.264/MPEG-4 AVC, LPCM)\*

23.98p, 1.0Gbps (ProRes 422) (H.264/MPEG-4 AVC, LPCM)\*

\*Image Area of Video is set to FULL during this recording mode.

\*\*Software that supports Apple ProRes RAW is required to edit RAW video recorded.

\*\*A LUT (Lookup table) exclusively designed for RAW video is available on the following customer support website to make the same color grading as V-Log/V-Gamut.

[https://panasonic.jp/support/global/cs/dsc/download/lut/s1h\\_raw\\_lut/](https://panasonic.jp/support/global/cs/dsc/download/lut/s1h_raw_lut/)

[C4K] 4096x2160 "59.94p, 4.2Gbps (ProRes RAW HQ) (H.264/MPEG-4 AVC, LPCM)\*/\*\*/\*\*\*\*

59.94p, 2.8Gbps (ProRes RAW) (H.264/MPEG-4 AVC, LPCM)\*/\*\*/\*\*\*\*

59.94p, 1.9Gbps (ProRes 422 HQ) (H.264/MPEG-4 AVC, LPCM)\*

59.94p, 1.3Gbps (ProRes 422) (H.264/MPEG-4 AVC, LPCM)\*

29.97p, 2.1Gbps (ProRes RAW HQ) (H.264/MPEG-4 AVC, LPCM)\*/\*\*/\*\*\*\*

29.97p, 1.4Gbps (ProRes RAW) (H.264/MPEG-4 AVC, LPCM)\*/\*\*/\*\*\*\*

29.97p, 972Mbps (ProRes 422 HQ) (H.264/MPEG-4 AVC, LPCM)\*

29.97p, 648Mbps (ProRes 422) (H.264/MPEG-4 AVC, LPCM)\*

23.98p, 1.7Gbps (ProRes RAW HQ) (H.264/MPEG-4 AVC, LPCM)\*/\*\*/\*\*\*\*

23.98p, 1.1Gbps (ProRes RAW) (H.264/MPEG-4 AVC, LPCM)\*/\*\*/\*\*\*\*

23.98p, 778Mbps (ProRes 422 HQ) (H.264/MPEG-4 AVC, LPCM)\*

23.98p, 519Mbps (ProRes 422) (H.264/MPEG-4 AVC, LPCM)\*

\*Proxy video recording is available.

\*\*Image Area of Video is set to PIXEL/PIXEL during this recording mode.

\*\*\*Software that supports Apple ProRes RAW is required to edit RAW video recorded.

\*\*\*A LUT (Lookup table) exclusively designed for RAW video is available on the following customer support website to make the same color grading as V-Log/V-Gamut.

[https://panasonic.jp/support/global/cs/dsc/download/lut/s1h\\_raw\\_lut/](https://panasonic.jp/support/global/cs/dsc/download/lut/s1h_raw_lut/)

[FHD] 1920x1080 "59.94p, 454Mbps (ProRes 422 HQ) (H.264/MPEG-4 AVC, LPCM)\*





59.94p, 302Mbps (ProRes 422) (H.264/MPEG-4 AVC, LPCM)\*

29.97p, 227Mbps (ProRes 422 HQ) (H.264/MPEG-4 AVC, LPCM)\*

29.97p, 151Mbps (ProRes 422) (H.264/MPEG-4 AVC, LPCM)\*

23.98p, 181Mbps (ProRes 422 HQ) (H.264/MPEG-4 AVC, LPCM)\*

23.98p, 121Mbps (ProRes 422) (H.264/MPEG-4 AVC, LPCM)\*

\*Proxy video recording is available."

50.00Hz [5.7K] 5728x3024 (17:9) "25.00p, 3.5Gbps (ProRes RAW HQ) (H.264/MPEG-4 AVC, LPCM)\*/\*\*

25.00p, 2.3Gbps (ProRes RAW) (H.264/MPEG-4 AVC, LPCM)\*/\*\*

25.00p, 1.6Gbps (ProRes 422 HQ) (H.264/MPEG-4 AVC, LPCM)\*

25.00p, 1.1Gbps (ProRes 422) (H.264/MPEG-4 AVC, LPCM)\*

\*Image Area of Video is set to FULL during this recording mode.

\*\*Software that supports Apple ProRes RAW is required to edit RAW video recorded.

\*\*A LUT (Lookup table) exclusively designed for RAW video is available on the following customer support website to make the same color grading as V-Log/V-Gamut.

[https://panasonic.jp/support/global/cs/dsc/download/lut/s1h\\_raw\\_lut/](https://panasonic.jp/support/global/cs/dsc/download/lut/s1h_raw_lut/)

[C4K] 4096x2160 "50.00p, 3.5Gbps (ProRes RAW HQ) (H.264/MPEG-4 AVC, LPCM)\*/\*\*/\*\*\*

50.00p, 2.4Gbps (ProRes RAW) (H.264/MPEG-4 AVC, LPCM)\*/\*\*/\*\*\*

50.00p, 1.6Gbps (ProRes 422 HQ) (H.264/MPEG-4 AVC, LPCM)\*

50.00p, 1.1Gbps (ProRes 422) (H.264/MPEG-4 AVC, LPCM)\*

25.00p, 1.8Gbps (ProRes RAW HQ) (H.264/MPEG-4 AVC, LPCM)\*/\*\*/\*\*\*

25.00p, 1.2Gbps (ProRes RAW) (H.264/MPEG-4 AVC, LPCM)\*/\*\*/\*\*\*

25.00p, 811Mbps (ProRes 422 HQ) (H.264/MPEG-4 AVC, LPCM)\*

25.00p, 541Mbps (ProRes 422) (H.264/MPEG-4 AVC, LPCM)\*

\*Proxy video recording is available.

\*\*Image Area of Video is set to PIXEL/PIXEL during this recording mode.

\*\*\*Software that supports Apple ProRes RAW is required to edit RAW video recorded.

\*\*\*A LUT (Lookup table) exclusively designed for RAW video is available on the following customer support website to make the same color grading as V-Log/V-Gamut.



[https://panasonic.jp/support/global/cs/dsc/download/lut/s1h\\_raw\\_lut/](https://panasonic.jp/support/global/cs/dsc/download/lut/s1h_raw_lut/)

- [FHD] 1920x1080 "50.00p, 378Mbps (ProRes 422 HQ) (H.264/MPEG-4 AVC, LPCM)\*
- 50.00p, 252Mbps (ProRes 422) (H.264/MPEG-4 AVC, LPCM)\*
- 25.00p, 189Mbps (ProRes 422 HQ) (H.264/MPEG-4 AVC, LPCM)\*
- 25.00p, 126Mbps (ProRes 422) (H.264/MPEG-4 AVC, LPCM)\*

\*Proxy video recording is available."

- 24.00Hz [5.7K] 5728x3024 (17:9) "24.00p, 3.3Gbps (ProRes RAW HQ) (H.264/MPEG-4 AVC, LPCM)\*/\*\*
- 24.00p, 2.2Gbps (ProRes RAW) (H.264/MPEG-4 AVC, LPCM)\*/\*\*
- 24.00p, 1.5Gbps (ProRes 422 HQ) (H.264/MPEG-4 AVC, LPCM)\*
- 24.00p, 1.0Gbps (ProRes 422) (H.264/MPEG-4 AVC, LPCM)\*

\*Image Area of Video is set to FULL during this recording mode.

\*\*Software that supports Apple ProRes RAW is required to edit RAW video recorded.

\*\*A LUT (Lookup table) exclusively designed for RAW video is available on the following customer support website to make the same color grading as V-Log/V-Gamut.

[https://panasonic.jp/support/global/cs/dsc/download/lut/s1h\\_raw\\_lut/](https://panasonic.jp/support/global/cs/dsc/download/lut/s1h_raw_lut/)

- [C4K] 4096x2160 "24.00p, 1.7Gbps (ProRes RAW HQ) (H.264/MPEG-4 AVC, LPCM)\*/\*\*/\*\*
- 24.00p, 1.1Gbps (ProRes RAW) (H.264/MPEG-4 AVC, LPCM)\*/\*\*/\*\*
- 24.00p, 779Mbps (ProRes 422 HQ) (H.264/MPEG-4 AVC, LPCM)\*
- 24.00p, 519Mbps (ProRes 422) (H.264/MPEG-4 AVC, LPCM)\*

\*Proxy video recording is available.

\*\*Image Area of Video is set to PIXEL/PIXEL during this recording mode.

\*\*\*Software that supports Apple ProRes RAW is required to edit RAW video recorded.

\*\*\*A LUT (Lookup table) exclusively designed for RAW video is available on the following customer support website to make the same color grading as V-Log/V-Gamut.

[https://panasonic.jp/support/global/cs/dsc/download/lut/s1h\\_raw\\_lut/](https://panasonic.jp/support/global/cs/dsc/download/lut/s1h_raw_lut/)

- [FHD] 1920x1080 "24.00p, 182Mbps (ProRes 422 HQ) (H.264/MPEG-4 AVC, LPCM)\*
- 24.00p, 121Mbps (ProRes 422) (H.264/MPEG-4 AVC, LPCM)\*

\*Proxy video recording is available."

## VARIABLE FRAME RATE

MOV (\*1) (\*2)

59.94Hz [5.7K] 5728x3024 (17:9) "29.97p (Maximum output of sensor is 60fps), 200Mbps (4:2:0 10-

bit LongGOP) (H.265/HEVC, LPCM)\*

23.98p (Maximum output of sensor is 60fps), 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

\*Image Area of Video is set to FULL during this recording mode."

"[C4K] 4096x2160

[4K] 3840x2160" "59.94p (Maximum output of sensor is 120fps), 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

29.97p (Maximum output of sensor is 60fps), 400Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)

29.97p (Maximum output of sensor is 120fps), 150Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

23.98p (Maximum output of sensor is 60fps), 400Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)

23.98p (Maximum output of sensor is 120fps), 150Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

\*An AC Adaptor DMW-AC11 (optional) and DC Coupler DMW-DCC18 (optional) are required to record video of 61fps or higher on a USB-SSD. "

[FHD] 1920x1080 "59.94p (Maximum output of sensor is 240fps), 200Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)\*

59.94p (Maximum output of sensor is 300fps), 100Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

29.97p (Maximum output of sensor is 240fps), 200Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)\*

29.97p (Maximum output of sensor is 300fps), 100Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

23.98p (Maximum output of sensor is 240fps), 200Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)\*

23.98p (Maximum output of sensor is 300fps), 100Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

\*Maximum output of sensor is 120fps when Image Area of Video is set to PIXEL/PIXEL.

\*An AC Adaptor DMW-AC11 (optional) and DC Coupler DMW-DCC18 (optional) are required to record video of 61fps or higher on a USB-SSD. "



50.00Hz [5.7K] 5728x3024 (17:9)	"25.00p (Maximum output of sensor is 60fps), 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)*  *Image Area of Video is set to FULL during this recording mode."
"[C4K] 4096x2160	
[4K] 3840x2160"	"50.00p (Maximum output of sensor is 120fps), 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)*  25.00p (Maximum output of sensor is 60fps), 400Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)  25.00p (Maximum output of sensor is 120fps), 150Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)*  *An AC Adaptor DMW-AC11 (optional) and DC Coupler DMW-DCC18 (optional) are required to record video of 61fps or higher on a USB-SSD. "
[FHD] 1920x1080	"50.00p (Maximum output of sensor is 240fps), 200Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)*  50.00p (Maximum output of sensor is 300fps), 100Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)*  25.00p (Maximum output of sensor is 240fps), 200Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)*  25.00p (Maximum output of sensor is 300fps), 100Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)*  *Maximum output of sensor is 100fps when Image Area of Video is set to PIXEL/PIXEL.  *An AC Adaptor DMW-AC11 (optional) and DC Coupler DMW-DCC18 (optional) are required to record video of 61fps or higher on a USB-SSD. "
24.00Hz [5.7K] 5728x3024 (17:9)	"24.00p (Maximum output of sensor is 60fps), 200Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)*  *Image Area of Video is set to FULL during this recording mode."
"[C4K] 4096x2160	
[4K] 3840x2160"	"24.00p (Maximum output of sensor is 120fps), 150Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)*  24.00p (Maximum output of sensor is 60fps), 400Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)**  *An AC Adaptor DMW-AC11 (optional) and DC Coupler DMW-DCC18 (optional) are required to record video of 61fps or higher on a USB-SSD.  **External USB-SSD recording."
[FHD] 1920x1080	"24.00p (Maximum output of sensor is 240fps), 200Mbps (4:2:2 10-bit ALL-Intra) (H.264/MPEG-4 AVC, LPCM)*



24.00p (Maximum output of sensor is 300fps), 100Mbps (4:2:0 10-bit LongGOP) (H.265/HEVC, LPCM)\*

\*Maximum output of sensor is 120fps when Image Area of Video is set to PIXEL/PIXEL.

\*An AC Adaptor DMW-AC11 (optional) and DC Coupler DMW-DCC18 (optional) are required to record video of 61fps or higher on a USB-SSD. "

## HDMI RAW DATA OUTPUT

Compatible external devices "Blackmagic Video Assist 5" 12G HDR, Blackmagic Video Assist 7" 12G HDR

\*DaVinci Resolve or DaVinci Resolve Studio is required to play back and DaVinci Resolve Studio to edit Blackmagic RAW data.

\*Please refer to the Blackmagic Design website for the information on the corresponding firmware version of Blackmagic Video Assist 5" 12G HDR and Blackmagic Video Assist 7" 12G HDR.

\*All functions may not be available depending on the situation.

\*When recording in C4K 120p/100p or 5.7K 60p/50p, constant bitrate 5:1 or less is recommended for SSD recording and 8:1 or less for SD card recording.

ATOMOS devices ""Ninja V"" / ""Ninja V+"" / ""Ninja"" / ""Ninja Ultra"" / ""Shogun"" / ""Shogun Ultra"" / ""Shogun Connect""

\*All functions may not be available depending on the situation.

\*Please check here for compatible firmware versions of external recorders.

<https://panasonic.jp/support/global/cs/dsc/connect/index.html>

""Ninja V"" ""Ninja"" ""Shogun"" does not support some RAW video data.

\*Software that supports Apple ProRes RAW is required to edit RAW video recorded.

\*A LUT (Lookup table) exclusively designed for RAW video is available on the following customer support website to make the same color grading as V-Log/V-Gamut.

[https://panasonic.jp/support/global/cs/dsc/download/lut/s1h\\_raw\\_lut/](https://panasonic.jp/support/global/cs/dsc/download/lut/s1h_raw_lut/)

Rec quality	NTSC (59.94Hz)	[5.8K] 5760x4320 (4:3)	"29.97p, 12-bit (LPCM)*
			23.98p, 12-bit (LPCM)*
			*Image Area of Video is set to FULL during this recording mode."
		[5.7K] 5728x3024 (17:9)	"59.94p, 12-bit (LPCM)*
			29.97p, 12-bit (LPCM)*
			23.98p, 12-bit (LPCM)*



			*Image Area of Video is set to FULL during this recording mode."
	[4.4K] 4352x3264 (4:3)	"59.94p, 12-bit (LPCM)*	
			*Image Area of Video is set to PIXEL/PIXEL during this recording mode."
	[C4K] 4096x2160 (17:9)	"119.88p, 12-bit (LPCM)*	
		59.94p, 12-bit (LPCM)*	
		29.97p, 12-bit (LPCM)*	
		23.98p, 12-bit (LPCM)*	
			*Image Area of Video is set to PIXEL/PIXEL during this recording mode."
PAL (50.00Hz)	[5.8K] 5760x4320 (4:3)	"25.00p, 12-bit (LPCM)*	
			*Image Area of Video is set to FULL during this recording mode."
	[5.7K] 5728x3024 (17:9)	"50.00p, 12-bit (LPCM)*	
		25.00p, 12-bit (LPCM)*	
			*Image Area of Video is set to FULL during this recording mode."
	[4.4K] 4352x3264 (4:3)	"50.00p, 12-bit (LPCM)*	
			*Image Area of Video is set to PIXEL/PIXEL during this recording mode."
	[C4K] 4096x2160 (17:9)	"100.00p, 12-bit (LPCM)*	
		50.00p, 12-bit (LPCM)*	
		25.00p, 12-bit (LPCM)*	
			*Image Area of Video is set to PIXEL/PIXEL during this recording mode."
Audio format	4ch Audio Recording: OFF	"Linear format: LPCM (2ch stereo 48kHz/24-bit, 96kHz/24-bit*)	
		Float format**: LPCM (2ch stereo 48kHz/32-bit, 96kHz/32-bit)	
		*When attaching $\Phi$ 3.5mm microphone or DMW-XLR2 (sold separately). **When attaching DMW-XLR2 (sold separately). "	
	4ch Audio Recording: XLR*	"Linear format: LPCM (4ch monaural 48kHz/24-bit)	
		Float format: LPCM (4ch monaural 48kHz/32-bit)	
		*When attaching DMW-XLR2 (sold separately)."	



4ch Audio Recording: XLR\*+Camera "Linear format: LPCM (4ch monaural 48kHz/24-bit, 96kHz/24-bit\*\*)

\*When attaching DMW-XLR2/XLR1 (sold separately).  
 \*\*When attaching Ø3.5mm microphone or DMW-XLR2 (sold separately). "

## EXTERNAL USB-SSD RECORDING

Yes (ON / OFF)

## STREAMING

Wi-Fi Protocol RTMP / RTMPS

59.94Hz [FHD] 1920x1080 "59.94p, 16Mbps\* / 8Mbps (H.264) \*Not selectable when RTMPS is set.

29.97p, 6Mbps / 3Mbps (H.264)"

[HD] 1280x720 "59.94p, 6Mbps (H.264)

29.97p, 4Mbps (H.264)"

50.00Hz [FHD] 1920x1080 "50.00p, 16Mbps\* / 8Mbps (H.264) \*Not selectable when RTMPS is set.

25.00p, 6Mbps / 3Mbps (H.264)"

[HD] 1280x720 "50.00p, 6Mbps (H.264)

25.00p, 4Mbps (H.264)"

USB Tethering Protocol RTMP / RTMPS

59.94Hz [4K] 3840x2160 29.97p, 12.5Mbps (H.264)

[FHD] 1920x1080 "59.94p, 16Mbps / 8Mbps (H.264)

29.97p, 6Mbps / 3Mbps (H.264)"

[HD] 1280x720 "59.94p, 6Mbps (H.264)

29.97p, 4Mbps (H.264)"

50.00Hz [4K] 3840x2160 25.00, 12.5Mbps (H.264)

[FHD] 1920x1080 "50.00p, 16Mbps / 8Mbps (H.264)

25.00p, 6Mbps / 3Mbps (H.264)"

[HD] 1280x720 "50.00p, 6Mbps (H.264)

25.00p, 4Mbps (H.264)"

Wired LAN Protocol RTP / RTSP

59.94Hz [4K] 3840x2160 "59.94p, 50Mbps / 25Mbps (H.265)\*

59.94p, 50Mbps / 25Mbps (H.264)\*



	29.97p, 25Mbps / 12.5Mbps (H.265)
	29.97p, 25Mbps / 12.5Mbps (H.264)
	*When Image Area of Video is set to PIXEL/PIXEL."
[FHD] 1920x1080	"59.94p, 20Mbps / 16Mbps (H.265)
	59.94p, 16Mbps / 8Mbps (H.264)
	29.97p, 12Mbps / 6Mbps (H.265)
	29.97p, 6Mbps / 3Mbps (H.264)"
[HD] 1280x720	"59.94p, 6Mbps (H.264)
	29.97p, 4Mbps (H.264)"
50.00Hz [4K] 3840x2160	"50.00p, 50Mbps / 25Mbps (H.265)*
	50.00p, 50Mbps / 25Mbps (H.264)*
	25.00p, 25Mbps / 12.5Mbps (H.265)
	25.00p, 25Mbps / 12.5Mbps (H.264)
	*When Image Area of Video is set to PIXEL/PIXEL."
[FHD] 1920x1080	"50.00p, 20Mbps / 16Mbps (H.265)
	50.00p, 16Mbps / 8Mbps (H.264)
	25.00p, 12Mbps / 6Mbps (H.265)
	25.00p, 6Mbps / 3Mbps (H.264)"
[HD] 1280x720	"50.00p, 6Mbps (H.264)
	25.00p, 4Mbps (H.264)"

## STREAMING

## VIEWFINDER

Type	OLED Live View Finder
Pixels	Approx. 3.68 million dots
Field of view / Magnification	Approx. 100% / Approx. 1.6x / 0.8x (35mm camera equivalent) with 50 mm lens at infinity; -1.0 m-1, when the aspect ratio is set to 4:3
Eye point / Diopter adjustment	Approx. 21 mm at infinity; -1.0 m-1 / -4.0 - +2.0 (dpt)
Eye sensor	Yes
Display speed	120fps / 60fps



## REAR MONITOR

Type	TFT LCD monitor with static touch control
Monitor size	Tilt free-angle, 3.0-inch (7.6cm), 3:2 aspect
Pixels	Approx. 1.84 million dots
Field of view	Approx. 100%

## FOCUS (\*4)

Type	Phase Detection AF system / Contrast AF system
DFD technology	Yes
Focus mode	AFS (Single) / AFC (Continuous) / MF
AF mode	"Tracking / Full Area AF / Zone (Horizontal/Vertical) / Zone / 1-Area+ / 1-Area / Pinpoint  *Automatic Detection can be turned ON to switch between Human / Animal / Car / Motorcycle / Train / Airplane. Except when Pinpoint is set."
AF detective range	EV -4 - 18 (F2.0, ISO100 equivalent, AFS)
AF custom setting	AF Sensitivity, AF Area Switching Sensitivity, Moving Object Prediction
AF assist light	Yes
AF lock	Set the Fn button in custom menu to AF lock
Focus ring control	Nonlinear / Linear* (90°/ 120°/ 150°/ 180°/ 210°/ 240°/ 270°/ 300°/ 330°/ 360°/ 720°/ 1080°/ Maximum) *When a compatible lens is attached.
Others	AF-ON, AF-ON: Near Shift, AF-ON: Far Shift, Focus Limiter, Focus Peaking, 1-Area AF Moving Speed, AF Micro Adjustment, Continuous AF (during motion picture recording), Focus/Shutter Priority, Focus Switching for Vert/Hor, AF/AE Lock Hold, AF+MF, MF Assist, MF Guide, Focus Ring Lock, Show/Hide AF Mode, AF-Point Scope, Shutter AF, Half Press Shutter, Quick AF, Eye Sensor AF, Loop Focus Frame, Enlarged Live Display (Video), Touch Shutter, Touch AF/AE Function, Touch Pad AF, Lens Focus Resume

## EXPOSURE CONTROL

Light metering system	1,728-zone multi-pattern sensing system
Light metering mode	Multiple / Center Weighted / Spot / Highlight Weighted
Metering range	EV0-18 (F2.0 lens, ISO100 equivalent)
Mode dial	"Program AE (P) / Aperture Priority AE (A) / Shutter Priority AE (S) / Manual Exposure (M) / Creative Video (P/A/S/M)* / Custom 1, 2, 3, 4 / Intelligent Auto



\*The same exposure operations as P/A/S/M mode is available."

Exposure compensation	1/3 EV step $\pm 5$ EV ( $\pm 3$ EV for motion picture)	
ISO sensitivity	Still image	"[Normal]
(Standard output sensitivity)		Auto / 50 (Extended ISO) / 100-25600
		[V-Log]
		Auto / 125 (Extended ISO) / 500-12800
		*Switchable between 1/3 or 1 EV step."
	Motion picture	"[Normal]
		Sensor output is 60fps or less (Base ISO 100): Auto / 50 (Extended ISO) / 100-12800
		Sensor output is 61fps or higher (Base ISO 100): Auto / 50 (Extended ISO) / 100-3200 / 4000-12800 (Extended ISO)
		[V-Log]
		Sensor output is 60fps or less (Base ISO 500): Auto / 125-400 (Extended ISO) / 500-12800
		Sensor output is 61fps or higher (Base ISO 250): Auto / 125-200 (Extended ISO) / 250-3200 / 4000-12800 (Extended ISO)
		[Hybrid Log Gamma]
		Sensor output is 60fps or less (Base ISO 250): Auto / 250-12800
		Sensor output is 61fps or higher (Base ISO 250): Auto / 250-3200 / 4000-12800 (Extended ISO)
		*Switchable between 1/3 or 1 EV step."
ISO Auto	Still image	"[Normal]
		Minimum: 100-12800
		Max: Auto / 200-25600
		[V-Log]
		Minimum: 500-6400
		Max: Auto / 800-12800"
	Motion picture	"[Normal]
		Minimum:
		Sensor output is 60fps or less: 100-6400



Sensor output is 61fps or higher: 100-1600

Max:

Sensor output is 60fps or less: Auto / 200-12800

Sensor output is 61fps or higher: Auto / 200-3200 / 6400 (Extended ISO)

[V-Log]

Minimum:

Sensor output is 60fps or less: 500-6400

Sensor output is 61fps or higher: 250-1600

Max:

Sensor output is 60fps or less: Auto / 800-12800

Sensor output is 61fps or higher: Auto / 400-3200 / 6400 (Extended ISO)

"[Hybrid Log Gamma]

Minimum:

Sensor output is 60fps or less: 250-6400

Sensor output is 61fps or higher: 250-1600

Max:

Sensor output is 60fps or less: Auto / 400-12800

Sensor output is 61fps or higher: Auto / 400-3200 / 6400 (Extended ISO)"

Synchro scan

Still image / Motion picture

AE lock

Set the Fn button in custom menu to AE lock

## IMAGE STABILISATION SYSTEM

"B.I.S. (5-axis / 7.5-stop\*)

\*Based on the CIPA standard [Yaw/Pitch direction: focusing distance f=60mm (35mm camera equivalent f=120mm) when H-ES12060 is used.]

Dual I.S. 2 (7.5-stop\*\*)

\*\*Based on the CIPA standard [Yaw/Pitch direction: focusing distance f=140mm (35mm camera equivalent f=280mm) when H-FSA14140 is used.]"

## WHITE BALANCE

White balance	AWB / AWBc / AWBw / 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  Electronic front curtain shutter: Bulb (Max. 30 minutes), 1/2,000 - 60  Electronic shutter: Bulb (Max. 60 sec), 1/32,000 - 60  Motion picture: 1/25,000 - 1/25  Creative Video M mode / MF mode: 1/25,000 - 1/8"
Self timer	10sec, 3 images / 2sec / 10sec / Custom Time
Remote control	Remote control by DMW-RS2 (sold separately)
Silent mode / Shutter type	Yes / Yes (Auto / Mechanical / Electronic front curtain / Electronic / Electronic+NR)

## BRACKET

AE bracket	3, 5, 7 images in 1/3, 2/3 or 1 EV step, max. $\pm 3$ EV, single/burst
Aperture bracket	3, 5 or all positions
Focus bracket	Yes
White balance bracket	3 images in blue/amber axis or in magenta/green axis, color temperature setting

## BURST SHOOTING

Burst speed	Mechanical shutter "H: 14 frames/sec (AFS/MF), 10 frames/sec (AFC) (with Live View)  M: 6 frames/sec (AFS/AFC/MF) (with Live View)  L: 2 frames/sec (AFS/AFC/MF) (with Live View)"
	Electronic front curtain shutter "H: 14 frames/sec (AFS/MF), 9 frames/sec (AFC) (with Live View)  M: 6 frames/sec (AFS/AFC/MF) (with Live View)  L: 2 frames/sec (AFS/AFC/MF) (with Live View)"
	Electronic shutter "SH75: 75 frames/sec (AFS/MF)



SH60: 60 frames/sec (AFS/AFC/MF)

SH20: 20 frames/sec (AFS/AFC/MF)

SH75 PRE: 75 frames/sec (AFS/MF)

SH60 PRE: 60 frames/sec (AFS/AFC/MF)

SH20 PRE: 20 frames/sec (AFS/AFC/MF)

H: 14 frames/sec (AFS/MF), 9 frames/sec (AFC) (with Live View)

M: 6 frames/sec (AFS/AFC/MF) (with Live View)

L: 2 frames/sec (AFS/AFC/MF) (with Live View)"

Number of recordable images

"H/M/L\*

RAW+JPEG: More than 170 images\*\*, More than 165 images\*\*\*

RAW: More than 215 images\*\*, More than 200 images\*\*\*

JPEG: More than 260 images\*\*, More than 250 images\*\*\*

SH

RAW / RAW+JPEG : 190 images

JPEG: 190 images\*\*\*

\*Until the burst shooting speed slows. When recording is performed under the test conditions specified by Panasonic.

\*\*When using a card with CFexpress Type B

\*\*\*When using a card with SD Speed Class with ""UHS-II UHS Speed Class 3 (U3)""."

## 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 only.
Flash synchronization	1st Curtain Sync, 2nd Curtain Sync.
Flash output adjustment	1/3EV step $\pm 3$ EV
Synchronization speed	Less than 1/250 second
Wireless control	Yes (When using DMW-FL200L / FL360L / FL580L (sold separately)), Wireless Channel: 1ch/2ch/3ch/4ch
Flash sync socket	Yes



## CROP ZOOM

Still image / Motion picture

## COLOR

SETTINGS	Photo Style	<p>"Standard / Vivid / Natural / L. Classic Neo / Flat / Landscape / Portrait / Monochrome / L. Monochrome / L. Monochrome D / L. Monochrome S / LEICA Monochrome / Cinelike D2 / Cinelike V2 / Like709 / V-Log / REAL TIME LUT / Hybrid Log Gamma / My Photo Style 1-4 (5-10)*"</p> <p>*Set to ON from Show/Hide Photo Style to select."</p>
	Picture adjustment	<p>"Contrast / Highlight / Shadow / Saturation / Color Tone / Hue / Filter Effect / Grain Effect / Color Noise / Sharpness / Noise Reduction / ISO / WB / LUT"</p> <p>*Adjustable settings vary depending on the Photo Style mode."</p>
	Filter	Expressive / Retro / Old Days / High Key / Low Key / Sepia / Cross Process / Bleach Bypass
	LUT Library	<p>"Supported file types: .vlt, .cube"</p> <p>Vlog_709 / Set 1-39 (Set 1-3: Sample LUT)</p> <p>*REAL TIME LUT in Photo Style, Apply LUT in Fn button, Apply LUT in RAW Processing, LUT View Assist in Log View Assist, LUT can be applied from these settings."</p>

## MOTION PICTURE FUNCTION

Time lapse shot	Yes
Stop motion animation	Yes
SS/Gain operation	Shutter Duration/ISO / Angle/ISO / Shutter Duration/dB
Luminance level	<p>"8-bit: 0-255 / 16-235 / 16-255"</p> <p>10-bit: 0-1023 / 64-940 / 64-1023"</p>
Master pedestal level	31 steps
Color bars / Test tone	Yes (SMPTE / EBU / ARIB) / Yes
LUT view assist	Monitor / HDMI
HLG view assist	Monitor (MODE1 / MODE2 / OFF) / HDMI (AUTO / MODE1 / MODE2 / OFF)
Anamorphic desqueeze display	2.0x / 1.8x / 1.5x / 1.33x / 1.30x / OFF
Wave form monitor / Vectorscope	Selectable
Knee control	Yes (in Like709 mode)
Other functions	Red REC Frame Indicator, Streaming Blue Frame Indicator

## VERTICAL POSITION INFORMATION

Still image / Motion picture (ON/OFF)

## LEVEL GAUGE

Yes

## FUNCTION BUTTON

### REC

Exposure Comp. / Sensitivity / White Balance / Photo Style / Apply LUT / Metering Mode / Aspect Ratio / Picture Quality / Picture Size / 1 Shot Spot Metering / Long Exposure NR / Min. Shutter Speed / 1 Shot RAW+JPG / i.Dynamic Range / Filter Effect / One Push AE / Touch AE / AWB Lock / Exposure Mode / Synchro Scan (Video) / AF Mode / AF Detection Setting / Detecting Subject / AF Custom Setting (Photo) / AF Custom Setting (Video) / Focus Limiter / Focus Limiter Range Set / Focus Peaking / Focus Peaking Sensitivity / Focus Frame Moving Speed / Focus Ring Lock / AE LOCK / AF LOCK / AF/AE LOCK / AF-ON / AF-ON: Near Shift / AF-ON: Far Shift / AF-Point Scope / Focus Area Set / Enlarged Live Display (Video) / Flash Mode / Flash Adjust. / Wireless Flash Setup / Drive Mode Setting / Bracketing / Silent Mode / Image Stabilizer / Shutter Type / Crop Zoom (Photo) / Live View Composite / Rec. File Format / Rec Quality / Rec Quality (My List) / Variable Frame Rate / Proxy Recording / Time Code Display / Audio Information / Sound Rec Level Disp. / Mute Sound Input / Sound Rec Level Adj. / Sound Rec Quality / Sound Rec Level Limiter / 4ch Audio Recording / XLR Mic Adaptor Setting / Sound Monitoring Channel / Image Stabilizer / E-Stabilization (Video) / Boost I.S. (Video) / Image Area of Video / Crop Zoom (Video) / Focus Transition / Live Cropping / Live Cropping Settings / Q.MENU / Rec/Playback Switch / Video Record / Video Record (Creative Video) / LVF/Monitor Switch / Dial Operation Switch / Preview / Preview Aperture Effect / Constant Preview / Level Gauge / Histogram / Luminance Spot Meter / Frame Marker / Photo Grid Line / Live View Boost / Monochrome Live View / Night Mode / LVF/Monitor Disp. Set / Video-Priority Display / Zebra Pattern / LUT View Assist (Monitor) / LUT View Assist (HDMI) / LUT Select / HLG View Assist (Monitor) / HLG View Assist (HDMI) / Sheer Overlay / I.S. Status Scope / WFM/Vector Scope / Anamorphic Desqueeze Display / Color Bars / Focus Ring Control / AF Micro Adjustment / Zoom Control / Step Zoom / Zoom Speed / Lens Information / Destination Card Micro / Streaming / REAL TIME LUT / Wi-Fi / Fan Mode / Save to Custom Mode / No Setting / Off (Disable Press and Hold) / Restore to Default

### PLAY

Magnify from AF Point / LUT View Assist (Monitor) / HLG View Assist (Monitor) / Anamorphic Desqueeze Display / RAW Processing / Delete Single / Protect / Rating 1, 2, 3, 4, 5 / Copy / Rec/Playback Switch / LVF/Monitor Switch / Video Record / Video Record (Creative Video) / Night Mode / Card Slot Change / Sound Monitoring Channel (Play) / Wi-Fi / Fan Mode / Send Image (Smartphone) / LUT View Assist (HDMI) / HLG View Assist (HDMI) / No Setting / Off (Disable Press and Hold) / Restore to Default

## OSD LANGUAGE

Please refer to "OSD" Sheet

## INTERFACE

### USB

USB Type-C® (USB 10Gbps)

### HDMI (\*5)HDMI

"HDMI

TypeA

Audio: ON / OFF, MP4: 2ch, MOV: 2ch (When [4ch Mic Input] is set to OFF.), 4ch (When [4ch Mic Input] is set to ON.)"

### Monitor-through

"4:2:2 10bit (When [Rec Quality] is set to [4:2:2 10bit] or [4:2:0 10bit].)

4:2:2 8bit (When [Rec Quality] is set to [4:2:0 8bit].)

4K/120p / 4K/100p

Down Convert: Auto / C4K/4K / 1080p / 1080i / OFF"

### Playback

"59.94Hz: 8K/30p\* / C4K/120p / C4K/60p / C4K/30p / 4K/120p / 4K/60p / 4K/30p / 1080/120p / 1080p / 1080i / 720p\*\* / 480p\*\*"



50.00Hz: 8K/25p\* / C4K/100p / C4K/50p / C4K/25p / 4K/100p / 4K/50p / 4K/25p / 1080/100p / 1080p / 1080i / 720p\*\* / 576p\*\*

24.00Hz: 8K/24p\* / C4K/120p / C4K/24p / 4K/120p / 4K/24p / 1080/120p / 1080p

\*Only for still image playback. \*\*Only for playback."

Remote input	φ2.5mm
Audio	Build-in microphone
	"Stereo
	Wind Noise Canceller: OFF / Standard / High"
	External microphone /
	"φ3.5mm for external microphone / external audio device
	External audio device input
	MIC (Plug-in Power) / MIC / LINE
	Wind Cut: OFF / Low / Standard / High *When attaching φ3.5mm microphone.
	Special Mic: Stereo / Shotgun *When attaching DMW-MS2 (sold separately)."
	XLR microphone
	Yes with DMW-XLR2 (sold separately)
	4ch mic input
	Yes with DMW-XLR2 (sold separately)
	Speaker
	Monaural
	Headphone output
	φ3.5mm
Card slot	"Slot 1: CFexpress Card (CFexpress Type B)
	Slot 2: SD Memory Card / SDHC Memory Card* / SDXC Memory Card*
	*Compatible with UHS-I/UHS-II UHS Speed Class 3 standard SDHC/SDXC Memory Cards and UHS-II Video Speed Class 90 standard SDXC Memory Cards."

## TC IN/OUT

TC IN/OUT	Yes with BNC Converter Cable (bundled)
Count up	Rec Run / Free Run
Time code mode	Drop Frame / Non-Drop Frame (When system frequency [59.94Hz] is selected.)
HDMI time code output	ON / OFF
External TC setting	TC Synchronization / TC Output Reference

## FAN

Auto1 / Auto2 / Fast / Normal / Slow / OFF\* \*OFF can be set when in iA/P/A/S/M mode.





## LAMP

Tally Lamp (front/rear) / Card Access Light / Power Indicator / Charging Light/Network Connection Light

## WIRELESS

Wi-Fi "2.4GHz bands (STA/AP) (IEEE802.11b/g/n)

5GHz bands (STA/AP) (IEEE 802.11a/n/ac)

Security: WPA/WPA2/WPA3

Please refer to "Wi-Fi" Sheet"

Bluetooth Bluetooth® v5.0 (Bluetooth Low Energy (BLE))

## DUST AND SPLASH RESISTANT\*

Yes.

\*Dust and Splash Resistant does not guarantee that damage will not occur if this camera is subjected to direct contact with dust and water.

## POWER

Battery "Li-ion Battery Pack (7.2V, 2200mAh, 16Wh) (bundled)

USB power supply, USB power charging, USB power delivery"

Battery lift When using CFexpress Card "Approx. 330 images, 750 images (Power Save LVF mode\*) with

H-ES12060 / DMW-BLK22

Approx. 350 images, 800 images (Power Save LVF mode\*) with H-FS12060 / DMW-BLK22

\*Using a Nextorage CFexpress Type B card. Under the test conditions specified by Panasonic based on CIPA standard. When the time to get in the sleep mode is set to 1 sec."

When using SD memory card "Approx. 360 images, 850 images (Power Save LVF mode\*) with H-ES12060 / DMW-BLK22

Approx. 380 images, 900 images (Power Save LVF mode\*) with H-FS12060 / DMW-BLK22

\*Using a Nextorage SDXC memory card. Under the test conditions specified by Panasonic based on CIPA standard. When the time to get in the sleep mode is set to 1 sec."

When using external USB-SSD Approx. 280 images with H-ES12060 / DMW-BLK22

Approx. 290 images with H-FS12060 / DMW-BLK22

\*Using a Samsung external SSD (T9\_2TB). Under the test conditions specified by Panasonic based on CIPA standard."



Continuous recordable time	When using CFexpress Card	"MP4 [4K/60p]: Approx. 90 min with H-ES12060 / H-FS12060"
		MP4 [FHD/60p]: Approx. 100 min with H-ES12060 / H-FS12060"
	When using SD memory card	"MP4 [4K/60p]: Approx. 90 min with H-ES12060 / H-FS12060"
		MP4 [FHD/60p]: Approx. 100 min with H-ES12060 / H-FS12060"
	When using external USB-SSD	"MP4 [4K/60p]: Approx. 80 min with H-ES12060 / H-FS12060"
		MP4 [FHD/60p]: Approx. 90 min with H-ES12060 / H-FS12060"
Actual recordable time	When using CFexpress Card	"MP4 [4K/60p]: Approx. 45 min with H-ES12060 / H-FS12060"
		MP4 [FHD/60p]: Approx. 50 min with H-ES12060 / H-FS12060"
	When using SD memory card	"MP4 [4K/60p]: Approx. 45 min with H-ES12060 / H-FS12060"
		MP4 [FHD/60p]: Approx. 50 min with H-ES12060 / H-FS12060"
	When using external USB-SSD	"MP4 [4K/60p]: Approx. 40 min with H-ES12060 / H-FS12060"
		MP4 [FHD/60p]: Approx. 45 min with H-ES12060 / H-FS12060"

## DIMENSIONS / WEIGHT

Dimensions (W x H x D)	"Approx. 138.4 x 100.3 x 99.6 mm / 5.45 x 3.95 x 3.92 inch (Body only, excluding protrusions)
	Approx. 138.4 x 100.3 x 142.0 mm / 5.45 x 3.95 x 5.59 inch (with H-FS12060, excluding protrusions)
	Approx. 138.4 x 100.3 x 157.0 mm / 5.45 x 3.95 x 6.18 inch (with H-ES12060, excluding protrusions)"
Weight	"Approx. 805g / 1.77 lb (Body, Hot Shoe Cover, Battery, SD Memory Card x 1) (excluding body cap)
	Approx. 721g / 1.59 lb (Body, Hot Shoe Cover) (excluding body cap)"

## OPERATING ENVIRONMENT

Operating temperature	-10°C to 40°C (14°F to 104°F)
Operating humidity	10%RH to 80%RH

## STANDARD ACCESSORIES

Software Recording	<p data-bbox="528 340 783 369">"LUMIX Lab / LUMIX Sync</p> <p data-bbox="528 405 1294 461">· This software is used to control a Panasonic digital camera from a smartphone. Check the site below to download and install the software.</p> <p data-bbox="528 497 1137 526"><a href="https://panasonic.jp/support/global/cs/dsc/">https://panasonic.jp/support/global/cs/dsc/</a> (For Android™ / iOS)</p>
	<p data-bbox="528 562 663 591">LUMIX Tether</p> <p data-bbox="528 627 1359 728">· This software is used to control a Panasonic digital camera from a computer. It allows you to change various settings of the camera, perform remote recording, and save remotely recorded images to the PC. Check the site below to download and install the software.</p> <p data-bbox="528 763 1345 817"><a href="http://panasonic.jp/support/global/cs/soft/download/d_lumixtether.html">http://panasonic.jp/support/global/cs/soft/download/d_lumixtether.html</a> (For Windows / Mac)"</p>
Playback / Editing	<p data-bbox="528 853 1359 931">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 Adwaa's website using computer connected to the Internet.</p> <p data-bbox="528 967 1110 996"><a href="http://www.isl.co.jp/SILKYPIX/english/p/">http://www.isl.co.jp/SILKYPIX/english/p/</a> (For Windows / Mac)</p>
Standard accessories	<p data-bbox="528 1032 647 1061">DC-GH7 Kit</p> <p data-bbox="528 1095 1345 1151">Battery Pack, Battery Charger, BNC Converter Cable, Shoulder Strap, Body Cap, Eye Cup, Hot Shoe Cover, Flash Synchro Socket Cap</p> <p data-bbox="528 1184 807 1214">DC-GH7L Kit / DC-GH7M Kit</p> <p data-bbox="528 1247 1345 1326">Battery Pack, Battery Charger, BNC Converter Cable, Shoulder Strap, Body Cap, Eye Cup, Hot Shoe Cover, Flash Synchro Socket Cap, Lens Cap, Lens Hood, Lens Rear Cap</p> <p data-bbox="528 1359 1334 1433">· The Operating Instructions for advanced features is available for downloaded at Panasonic LUMIX Customer Support Site using PC, smartphone or tablet connected to the Internet."</p>

"(\*1) About motion picture recording

- The cards that can be used for recording vary depending on the motion pictures bit rate and format type.

Motion pictures with 72Mbps or less: CFexpress card, SD memory card with SD Speed Class with Class 10 or Video Speed Class 10 or higher

Motion pictures with 200Mbps or less: CFexpress card, SD memory card with UHS-I / UHS-II UHS Speed Class 3 (U3) or Video Speed Class 30 or higher

Motion pictures with 400Mbps or less: CFexpress card, SD memory card with Video Speed Class 60 or higher



Motion pictures with 600Mbps or less: CFexpress card, SD memory card with Video Speed Class 90

Motion pictures with 800Mbps or more, variable frame rate with ALL-Intra, or ProRes: CFexpress card

- A new file will be created to continue recording if the continuous recording time exceeds the following conditions.

Motion pictures with less than 72Mbps: 30 minutes

Motion pictures with 72Mbps or more: 3 hours 4 minutes

- A new file will be created to continue recording if the file size exceeds the following conditions.

[MP4] in [FHD]: 4GB

[MP4] in [4K]: 96GB

[MOV] in 600Mbps or less: 192GB

[MOV] in 800Mbps: 640GB

[ProRes] in [5.7K]: 640GB

- If the resolution is higher than 4K, the frame rate is higher than 60p or set to ProRes, the camera may stop the recording to protect itself. Wait until the camera cools down.

(\*2) Hybrid Log Gamma is selectable in [4:2:2 10bit] or [4:2:0 10bit].

(\*3) High-res audio is selectable only when attaching  $\Phi$ 3.5mm microphone or DMW-XLR2 (sold separately)."

"(\*4) About AF

- Automatic Detection is not available for High Frame Rate video shooting above 60p.

- Tracking and Automatic Detection are not available when using HDMI cable or USB connection cable for High Frame Rate video shooting above 60p.

(\*5) To output motion pictures with 4K or higher, use a Premium High Speed HDMI cable (Type A - Type A plug)."