

# Clifton Cameras Product Specification

## Panasonic LUMIX GH5M2

### Specifications

#### 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 and UHS-II Video Speed Class 90 standard SDXC Memory Cards."

Lens mount Micro Four Thirds mount

#### Image Sensor

Type Live MOS sensor (17.3 x 13.0 mm)

Camera effective pixels / Total pixels 20.33 megapixels / 21.77 megapixels

AR (Anti Reflection) coating Yes

Aspect ratio / Color filter 4:3 / Primary color filter

Dust reduction system Image sensor shift type

#### Latitude

Latitude 12 stops (V-Log L)

#### Still Image

Recording file format Still image JPEG (DCF, Exif 2.31), RAW

6K PHOTO (\*1) / 4K PHOTO (\*1) "6K PHOTO: MP4 (H.265/HEVC, Audio format: AAC (2ch))

4K PHOTO: MP4 (H.264/MPEG-4 AVC, Audio format: AAC (2ch))

Extracted still images: JPEG (DCF, Exif 2.31)"

Aspect ratio 4:3 / 3:2 / 16:9 / 1:1

File size (Pixels) 4:3 PHOTO 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)

Image quality RAW / RAW+Fine / RAW+Standard / Fine / Standard

Color space sRGB, AdobeRGB

## Motion Picture

Recording file format "MOV: H.264/MPEG-4 AVC, H.265/HEVC (Audio format: LPCM (2ch 48kHz/16-bit, 48kHz/24-bit\*, 96kHz/24-bit\*)) \*When attaching DMW-XLR1 (sold separately).

MP4: H.264/MPEG-4 AVC, H.265/HEVC (Audio format: AAC (2ch))"

System frequency 59.94Hz / 50.00Hz / 24.00Hz

Image area of video Full / Pixel by Pixel

"MOV (\*1) High-res audio is selectable only when using the DMW-XLR1 (sold separately)."

59.94Hz [C4K] 4096x2160 "59.94p, 200Mbps (4:2:0 10-bit LongGOP)\* (H.265/HEVC, LPCM, High-Res Audio) \*HLG is selectable.

59.94p, 150Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)

29.97p, 400Mbps (4:2:2 10-bit ALL-Intra)\* / 150Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio) \*HLG is selectable.

23.98p, 400Mbps (4:2:2 10-bit ALL-Intra)\* / 150Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio) \*HLG is selectable."

[4K] 3840x2160 "59.94p, 200Mbps (4:2:0 10-bit LongGOP)\* (H.265/HEVC, LPCM, High-Res Audio) \*HLG is selectable.

59.94p, 150Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)

29.97p, 400Mbps (4:2:2 10-bit ALL-Intra)\* / 150Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio) \*HLG is selectable.

23.98p, 400Mbps (4:2:2 10-bit ALL-Intra)\* / 150Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio) \*HLG is selectable."

[Anamorphic 6K] 4992x3744 (4:3) "29.97p, 200Mbps (4:2:0 10-bit LongGOP)\* (H.265/HEVC, LPCM, High-Res Audio) \*HLG is selectable.

23.98p, 200Mbps (4:2:0 10-bit LongGOP)\* (H.265/HEVC, LPCM, High-Res Audio) \*HLG is selectable."

[Anamorphic 4K] 3328x2496 (4:3) "59.94p, 150Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)



29.97p, 400Mbps (4:2:2 10-bit ALL-Intra)\* / 150Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)  
\*HLG is selectable.

23.98p, 400Mbps (4:2:2 10-bit ALL-Intra)\* / 150Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)  
\*HLG is selectable."

[FHD] 1920x1080 "59.94p, 200Mbps (4:2:2 10-bit ALL-Intra)\* / 100Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)  
\*HLG is selectable.

29.97p, 200Mbps (4:2:2 10-bit ALL-Intra)\* / 100Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)  
\*HLG is selectable.

23.98p, 200Mbps (4:2:2 10-bit ALL-Intra)\* / 100Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)  
\*HLG is selectable."

50.00Hz [C4K] 4096x2160 "50.00p, 200Mbps (4:2:0 10-bit LongGOP)\* (H.265/HEVC, LPCM, High-Res Audio) \*HLG is selectable.

50.00p, 150Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)

25.00p, 400Mbps (4:2:2 10-bit ALL-Intra)\* / 150Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)  
\*HLG is selectable."

[4K] 3840x2160 "50.00p, 200Mbps (4:2:0 10-bit LongGOP)\* (H.265/HEVC, LPCM, High-Res Audio) \*HLG is selectable.

50.00p, 150Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)

25.00p, 400Mbps (4:2:2 10-bit ALL-Intra)\* / 150Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)  
\*HLG is selectable."

[Anamorphic 6K] 4992x3744 (4:3) 25.00p, 200Mbps (4:2:0 10-bit LongGOP)\* (H.265/HEVC, LPCM, High-Res Audio) \*HLG is selectable.

[Anamorphic 4K] 3328x2496 (4:3) "50.00p, 200Mbps (4:2:0 10-bit LongGOP)\* (H.265/HEVC, LPCM, High-Res Audio) \*HLG is selectable.

50.00p, 150Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)

25.00p, 400Mbps (4:2:2 10-bit ALL-Intra)\* / 150Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)  
\*HLG is selectable."

[FHD] 1920x1080 "50.00p, 200Mbps (4:2:2 10-bit ALL-Intra)\* / 100Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)  
\*HLG is selectable.

25.00p, 200Mbps (4:2:2 10-bit ALL-Intra)\* / 100Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)  
\*HLG is selectable."



24.00Hz

[C4K] 4096x2160 24.00p, 400Mbps (4:2:2 10-bit ALL-Intra)\* / 150Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)  
\*HLG is selectable.

[4K] 3840x2160 24.00p, 400Mbps (4:2:2 10-bit ALL-Intra)\* / 150Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)  
\*HLG is selectable.

[Anamorphic 6K] 4992x3744 (4:3) 24.00p, 200Mbps (4:2:0 10-bit LongGOP)\*  
(H.265/HEVC, LPCM, High-Res Audio) \*HLG is selectable.

[Anamorphic 4K] 3328x2496 (4:3) 24.00p, 400Mbps (4:2:2 10-bit ALL-Intra)\* / 150Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio) \*HLG is selectable.

[FHD] 1920x1080 24.00p, 200Mbps (4:2:2 10-bit ALL-Intra)\* / 100Mbps (4:2:2 10-bit LongGOP)\* / 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM, High-Res Audio)  
\*HLG is selectable.

MP4 (\*1)

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)

23.98p, 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, 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 - -

## Variable Frame Rate

"MOV (\*1) High-res audio is selectable only when using the DMW-XLR1 (sold separately)."

59.94Hz

[C4K] 4096x2160 "29.97p (Maximum output of sensor is 60fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)



23.98p (Maximum output of sensor is 60fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)"

[4K] 3840x2160 "29.97p (Maximum output of sensor is 60fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)

23.98p (Maximum output of sensor is 60fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)"

[Anamorphic 4K] 3328x2496 (4:3) "29.97p (Maximum output of sensor is 50fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)

23.98p (Maximum output of sensor is 48fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)"

[FHD] 1920x1080 "59.94p (Maximum output of sensor is 180fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)

29.97p (Maximum output of sensor is 180fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)

23.98p (Maximum output of sensor is 180fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)"

50.00Hz

[C4K] 4096x2160 25.00p (Maximum output of sensor is 60fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)

[4K] 3840x2160 25.00p (Maximum output of sensor is 60fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)

[Anamorphic 4K] 3328x2496 (4:3) 25.00p (Maximum output of sensor is 50fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)

[FHD] 1920x1080 "50.00p (Maximum output of sensor is 180fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)

25.00p (Maximum output of sensor is 180fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)"

24.00Hz [C4K] 4096x2160 24.00p (Maximum output of sensor is 60fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)

[4K] 3840x2160 24.00p (Maximum output of sensor is 60fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)

[Anamorphic 4K] 3328x2496 (4:3) 24.00p (Maximum output of sensor is 48fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)

[FHD] 1920x1080 24.00p (Maximum output of sensor is 180fps), 100Mbps (4:2:0 8-bit LongGOP) (H.264/MPEG-4 AVC, LPCM)

## Streaming

Protocol

RTMP / RTMPS

Streaming quality.

NTSC (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)"

PAL (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)"

## View Finder

|                                |  |
|--------------------------------|--|
| Type                           | OLED Live View Finder  |
| Pixels                         | Approx. 3.68 million dots  |
| Field of view / Magnification  | Approx. 100% / Approx. 1.52x / 0.76x (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 - +3.0 (dpt)  |
| Eye sensor                     | Yes  |
| Display speed                  | 120fps / 60fps   |

## Rear Monitor

|               |   |
|---------------|---|
| Type          | TFT LCD monitor with static touch control |
| Monitor size  | Free-angle, 3.0-inch (7.5cm), 3:2 aspect  |
| Pixels        | Approx. 1.84 million dots                 |
| Field of view | Approx. 100%                              |

## Focus

|                    |   |
|--------------------|---|
| Type               | Contrast AF system  |
| DFD technology     | Yes   |
| Focus mode         | AFS (Single) / AFC (Continuous) / MF  |
| AF mode            | "Auto Detection (Face, Eye, Body, Animal) / Tracking / 225-Area / Zone (Vertical/Horizontal) / Zone (Square) / Zone (Oval) / 1-Area+ / 1-Area / Pinpoint / Custom 1, 2, 3 (Full area touch is available) (Scalable AF frame size and flexible AF position)" |
| 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   |



Post Focus / Focus Stacking Yes / Yes

Focus Ring Control Nonlinear / Linear \*When a compatible lens is attached.

Others Focus Peaking, 1-Area AF Moving Speed, AF-ON, AF-ON: Near Shift, AF-ON: Far Shift, 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 Release, Quick AF, Continuous AF (during motion picture recording), Eye Sensor AF, Loop Focus Frame, AFC Start Point (225-Area), 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)

Recording mode Program AE / Aperture Priority AE / Shutter Priority AE / Manual Exposure / Creative Video / Custom 1, 2, 3, 4 / Intelligent Auto

ISO sensitivity (Standard output sensitivity) "Still image: Auto / 100 (Extended) / 200 / 400 / 800 / 1600 / 3200 / 6400 / 12800 / 25600 (Changeable to 1/3 EV step)

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  $\pm 5$ EV ( $\pm 3$ EV for motion picture)

AE lock Set the Fn button in custom menu to AE lock

## Image Stabilisation System

"Image sensor shift type (5-axis / 6.5-stop\*) \*Based on the CIPA standard [Yaw/Pitch direction: focusing distance  $f=60$ mm (35mm camera equivalent  $f=120$ mm) when H-ES12060 is used.

Dual I.S. (6.5-stop\* Dual I.S. 2 compatible) \*Based on the CIPA standard [Yaw/Pitch direction: focusing distance  $f=140$ mm (35mm camera equivalent  $f=280$ mm) when H-FS14140 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), 1/16,000 - 60   |
| Motion picture:                  | 1/16,000 - 1/25   |
| Creative Video M mode / MF mode: | 1/16,000 - 1/2"   |
| 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

|                             |  |
|-----------------------------|--|
| Burst speed                 | Mechanical shutter / Electronic front curtain shutter  |
|                             | "AFS/MF: H: 12 frames/sec, M: 7 frames/sec (with Live View), L: 2 frames/sec (with Live View)  |
|                             | AFC: H: 9 frames/sec (with Live View), M: 7 frames/sec (with Live View), L: 2 frames/sec (with Live View)                            |
|                             | Electronic shutter   |
|                             | "AFS/MF: H: 12 frames/sec, M: 7 frames/sec (with Live View), L: 2 frames/sec (with Live View)  |
|                             | AFC: H: 7 frames/sec (with Live View), M: 7 frames/sec (with Live View), L: 2 frames/sec (with Live View)                            |
| Number of recordable images | "RAW / RAW+JPEG: More than 108 images  |
|                             | JPEG: More than 999 images (When using a card with SD Speed Class with ""UHS-II UHS Speed Class 3 (U3)"" inserted into card slot 1.) |
|                             | *When recording is performed under the test conditions specified by Panasonic."  |

## 6K PHOTO (\*1) / 4K PHOTO (\*1)

|                  |   |
|------------------|---|
| Burst speed      | "6K PHOTO: 30 frames/sec  |
|                  | 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.) |

## Time Lapse / Stop Motion

|                       |     |
|-----------------------|-----|
| TIME LAPSE SHOT       | Yes |
| STOP MOTION ANIMATION | Yes |

## 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 $\pm$ 3EV   |
| 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  |

## Extra Tele Conversion

|                       |   |
|-----------------------|---|
| EXTRA TELE CONVERSION | 2.0x (EX S), 1.4x (EX M) *Only for still image recording. |
|-----------------------|---|

## Photo Style

|             |   |
|-------------|---|
| Photo Style | Standard / Vivid / Natural / L. Classic Neo / Flat / Landscape / Portrait / Monochrome / L. Monochrome / L. Monochrome D / L. Monochrome S / Cinelike D2 / Cinelike V2 / Like709 / V-Log L / Hybrid Log Gamma / My Photo Style 1-10 |
|-------------|---|

|                    |  |
|--------------------|--|
| Picture adjustment | "Contrast / Highlight / Shadow / Saturation / Color Tone / Hue / Filter Effect / Grain Effect / Color Noise / Sharpness / Noise Reduction / ISO / WB |
|--------------------|--|

\*Adjustable settings vary depending on the Photo Style mode."

## Filter

"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. "

## Motion Picture Function

|                                 |  |
|---------------------------------|--|
| Master pedestal level           | 31 steps   |
| Luminance level                 | "8-bit: 0-255 / 16-235 / 16-255<br>10-bit: 0-1023 / 64-940 / 64-1023"  |
| Wave form monitor / Vectorscope | Selectable   |
| 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   |
| Synchro scan                    | Yes  |
| Time code                       | Count Up: Rec Run/Free Run selectable, Time Code Mode: Drop frame/Non-drop frame selectable (When NTSC (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                          |
| 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 / 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 / Exposure Mode / Synchro Scan / AF Mode / AF Custom Setting(Photo) / AF Custom Setting(Video) / Focus Peaking / Focus Peaking Sensitivity / 1-Area AF 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 / Flash Mode / Flash Adjust. / Wireless Flash Setup / Drive Mode / 1 Shot "6K/4K PHOTO" / Bracketing / Silent Mode / Image Stabilizer / Shutter Type / Ex. Tele Conv. / Live View Composite / Motion Pic. Rec File Format / Motion Pic. Rec Quality / Motion Pic. Rec Quality (My List) / Variable Frame Rate / Time Code Display / Sound Rec Level Disp. / Mute Sound Input / Sound Rec Level Adj. / Sound Rec Level Limiter / XLR Mic Adaptor Setting / Special Mic. Directivity Adjust / Image Stabilizer / E-Stabilization (Video) / Boost I.S. (Video) / Image Area of Video / Focus Transition / Live Cropping / Q.MENU / Rec/Playback Switch / Video Record / LVF/Monitor Switch / Operation Lock / 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/ Zoom Control / Step Zoom / Zoom Speed / Destination Card Slot / 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 / 6K/4K PHOTO Bulk Saving / Delete Single / Protect / Rating 1, 2, 3, 4, 5 / Copy / Rec/Playback Switch / LVF/Monitor Switch / Video Record / Night Mode / Card Slot Change / Wi-Fi / Send Image (Smartphone) / LUT View Assist (HDMI) / HLG View Assist (HDMI) / 6K/4K Photo Play / No Setting / Off (Disable Press and Hold) / Restore to Default   |

## OSD Language

Please refer to "OSD" Sheet

## Print

PictBridge compatible

## Interface

|                 |   |
|-----------------|---|
| USB             | SuperSpeed USB 3.1 Gen1 Type-C  |
| HDMI (*2)       | HDMI "HDMI TypeA<br>Audio: Stereo"  |
| 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].)

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

Playback "59.94Hz: Auto / C4K/60p / C4K/30p / 4K/60p / 4K/30p / 1080p / 1080i / 720p / 480p

50.00Hz: Auto / C4K/50p / C4K/25p / 4K/50p / 4K/25p / 1080p / 1080i / 720p / 576p

24.00Hz: Auto / C4K/24p / 4K/24p / 1080p"

Remote input  $\phi$ 2.5mm

Microphone Stereo, Wind Noise Canceller: OFF / Low\* / Standard / High \*When attaching DMW-MS2 (sold separately).

External microphone / external audio device input "3.5mm for external microphone / external audio device MIC (Plug-in Power) / MIC / LINE is selectable. Stereo/Lens Auto/Shotgun/Super Shotgun/Manual is selectable when attaching DMW-MS2 (sold separately)."

XLR microphone Yes with DMW-XLR1 (sold separately)

Speaker Monaural

Headphone output  $\phi$ 3.5mm

SD card slot Slot 1, Slot 2

## Wireless

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

5GHz (STA) (IEEE 802.11a/n/ac) \*5GHz Wi-Fi is not available in some countries.

Please refer to ""Wi-Fi"" Sheet"

Bluetooth Bluetooth® v4.2 (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 life (CIPA standard) "Approx. 400 images, 1200 images (Power Save LVF mode\*) with H-ES12060 / DMW-BLK22

Approx. 410 images, 1200 images (Power Save LVF mode\*) with H-FS12060 / DMW-BLK22

\*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."



|  |   |
|--|---|
| Continuous recordable time (Motion picture) (*1) | "MP4 [4K/60p]: Approx. 120 min with H-ES12060 / H-FS12060<br>MP4 [FHD/60p]: Approx. 140 min with H-ES12060 / H-FS12060" |
| Actual recordable time (Motion picture) (*1)     | "MP4 [4K/60p]: Approx. 60 min with H-ES12060 / H-FS12060<br>MP4 [FHD/60p]: Approx. 70 min with H-ES12060 / H-FS12060"   |
| Battery grip                                     | DMW-BGGH5 (sold separately)   |

## Dimensions / Weight

|                        |  |
|------------------------|--|
| Dimensions (W x H x D) | Approx. 138.5 x 98.1 x 87.4 mm / 5.45 x 3.86 x 3.44 inch (excluding protrusions)                   |
| Weight                 | "Approx. 727g / 1.60 lb (SD Memory Card x 1, Battery, Body)<br>Approx. 647g / 1.43 lb (Body only)" |

## Operating Environment

|                            |                               |
|----------------------------|-------------------------------|
| Operating temperature (*3) | -10oC to 40oC (14oF to 104oF) |
| Operating humidity         | 10%RH to 80%RH                |

## Standard Accessories

|          |                    |   |
|----------|--------------------|---|
| Software | Recording          | "LUMIX Sync<br><br>• This software is used to control a Panasonic digital camera from a smartphone. Check the site below to download and install the software.<br><br><a href="https://panasonic.jp/support/global/cs/dsc/">https://panasonic.jp/support/global/cs/dsc/</a> (For Android™ / iOS)<br><br>LUMIX Network Setting Software<br><br>• This software is used to write in streaming destination setting information into an SD card from a computer. Check the site below to download and install the software.<br><br><a href="https://panasonic.jp/support/global/cs/dsc/">https://panasonic.jp/support/global/cs/dsc/</a> (For Windows / Mac)<br><br>LUMIX Tether<br><br>• 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.<br><br><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) |
|          | 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.<br><br><a href="http://www.isl.co.jp/SILKYPIX/english/p/">http://www.isl.co.jp/SILKYPIX/english/p/</a> (For Windows / Mac)"   |



Standard accessories

"DC-GH5M2 Kit: Body Cap, Hot Shoe Cover, Eye Cup, Flash Synchro Socket Cap, Cover for the Battery Grip Connector, Shoulder Strap, Battery Pack, Battery Charger, AC Adaptor, USB Connection Cable (A-C), Cable Holder

DC-GH5M2L Kit / DC-GH5M2M Kit: Body Cap, Hot Shoe Cover, Eye Cup, Flash Synchro Socket Cap, Cover for the Battery Grip Connector, Shoulder Strap, Battery Pack, Battery Charger, AC Adaptor, USB Connection Cable (A-C), Cable Holder, Lens Cap, Lens Hood, Lens Rear Cap

• 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."

"(\*1) About motion picture recording:

- Use a card with SD Speed Class with "Class 4" or higher when recording motion pictures in [MP4(under 28Mbps)].
- 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] or [MOV]. (SD speed class is the speed standard regarding continuous writing.)
- 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 C4K/4K ALL-Intra video recording.
- MP4 motion pictures with [MP4] in [4K]:
- When using an SDHC memory card: You can continue recording without interruption even if the file size exceeds 4 GB, but the motion picture file will be divided and recorded/played back separately.
- When using an SDXC memory card: You can continue recording without interruption even if the file size exceeds 96 GB or 3 hours 4 minutes in length, but the motion picture file will be divided and recorded/played back separately.
- MP4 motion pictures with [MP4] in [FHD]:
- 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.
- 4:2:2 10-bit recording is a recording mode for film production and the video needs to be processed on PC.
- The original video cannot be played on standard TV, Blu-ray Disc™ recorder and Blu-ray Disc™ player.
- It may cause problems such as freezing when played on these devices.
- When the ambient temperature is high or continuous recording is performed, the camera may stop the recording to protect itself. Wait until the camera cools down.
- (\*2) For [C4K/60p] [C4K/50p] [4K/60p] [4K/50p] video output, use an HDMI2.0 cable that has the HDMI logo on it, and that is described as "4K compatible".
- (\*3) The camera may stop recording when used in lower or higher than recommended operating temperature: -10 to 40 degrees."