Panasonic



Ice Cold Wings

These photos were taken in Hungary, in the Kiskunsag National Park, from a special underwater hide. After spending 20 days in the hide, I was rewarded with these outstanding shooting opportunities. As a photographer, I found it extremely exciting to be able to take motion images of unbelievably good resolution while shooting photos. The viewfinder of this camera is almost as good as a mirror, I can't notice any shutter lag. This is the first digital view finder that works so well. As for settings, I prefer the Custom Multi AF, which is a landmark in photo technology.



BENCE MÁTÉ

In 2010, Bence Mate was selected as the 'BBC Wildlife Photographer of the Year.' He has been the most successful wildlife photographer for the past 49 years. He also runs wildlife photo tours to his special hides equipped with one-way glass.









Light of the Yucatan

I chose the Yucatan of Mexico for this project for its vibrant color palate - the turquoise blues of the Caribbean, juxtaposed with white sand beaches, and vivid green jungle. The Maya temple sites are a bonus, adding a sense of drama and history to the natural theme of this short film. The 4K image detail captured with the new DMC-GH4 is impressive. When a project calls for a small form factor camera shooting in 4k, the GH4 is a great choice.

BRYAN HARVEY

Bryan Harvey is an award-winning commercial and documentary director of photography. He has focused his work on creating ground-breaking imagery using the latest cutting edge photographic tools. He's highly sought after for his keen photographic eye, his ability to elevate the story through stunning cinematography, and the creative spark he brings to each project.



PHOTOS TO IMPRESS, 4K VIDEOS TO INSPIRE LUMIX GH4

The DMC-GH4 raises both still and moving images to a breathtaking new peak of quality.

The newly developed Live MOS Sensor and Venus Engine work together to achieve

lower noise, higher resolution, and more faithful color reproduction.

New DFD (Depth From Defocus) technology dramatically advances

the high-speed, high-precision Contrast AF.

And a tough new design guards the DMC-GH4 in even the harshest shooting conditions.

The DMC-GH4 also debuts as the world's first single lens mirrorless camera with 4K video recording capability,

adding to the amazing potential of this camera for innovative image creators.

The DMC-GH4 clearly brings exciting possibilities to a number of new, uncharted areas of photography.









Innovative Control Further Boosts Image Quality

More faithful, more natural textures

New 16.05-Megapixel Live MOS Sensor & Venus Engine

The newly developed 16M Live MOS Sensor further boosts the quality of the DMC-GH4's high-definition photos. The readout speed is nearly twice that of the previous model (DMC-GH3). In addition to improving the burst shooting performance, this helps to suppress the rolling shutter effect that occurs when using the electronic shutter or shooting videos of moving subjects. The high resolution and wide dynamic range also produce detailed images with lifelike depth. These and other features combine to give you superb mobility and excellent image quality at remarkably high levels. The newly developed Venus Engine boasts higher-speed signal processing with its quad-CPUs. The advanced Multi-process NR (Noise Reduction) applies effective noise reduction according to each frequency component to make the image clearer even when it is shot at high sensitivity. Plus, the combination of a low-pass filter and newly added wideband aperture suppresses moire and achieves high-resolution images to reproduce details faithfully. On the other hand, dynamic range is expanded at the low ISO end to offer finely smooth gradation from dark to bright areas. The Venus Engine also improves color reproduction by accurately

evaluating each color and luminance level. Dramatically advanced in many aspects, the DMC-GH4 achieves stunning image quality in a very natural way.



High-sensitivity, low-noise imaging

Advanced Multi-process NR / New Random Filter

The new Multi-process NR (Noise Reduction) function applies optimal noise reduction to noise according to each component frequency, effectively suppressing noise even during high-sensitivity shooting. In addition, the new Random Filter granulates chromatic noise in order to blend it into the image more naturally. As a result, a maximum ISO 25600 is achieved.

A wider dynamic range

Smooth Gradation, from Dark to Bright Areas

A major advance in dynamic range control enhances the accuracy of gradation processing in dark-area correction. It expands the gradation in low ISO areas to achieve a wider dynamic range than conventional models. And it suppresses blocked shadows and blown highlights to enable fine, smooth gradation from the darkest to the brightest parts of the image.

Freer color adjustment

Accuracy in Colors

with Similar Color Phase and Saturation

Color correction also improves coloring with accurate reproduction of colors even when they are similar in color phase, saturation and luminosity. This provides greater freedom in color adjustment, to produce flesh tones and skies that appear just as they do in nature.

Shooting Functions for Diverse Conditions

On/off control of shutter sound and flash

Electronic Shutter and Silent Mode

The electronic shutter is convenient when shooting in locations where the shutter sound would be a problem, such as when photographing wild birds, or shooting in a quiet meeting room. In Silent mode, the electronic shutter, operating sounds, speaker sound, flash, and AF assist lamp are all turned off with a single operation.

Beautiful photos from a long, 60-minute exposure

Bulb Mode

The DMC-GH4 features a full, 60-minute Bulb mode. The highest level of noise reduction also lets you take stunningly beautiful photos in this mode.

More detailed manual focusing

Focus Peaking

Focus Peaking is handy when you need more precise focusing. It displays the focusing peak in real-time for MF and AF+MF mode when shooting still images or videos. The function can be set to High, Low or Off, and the display color can be set to

blue, white or orange to match the shooting situation. Using the wireless function, Focus Peaking can also be operated from a smartphone or tablet.



Immediate, on-site color and exposure control RAW Data Development in the Camera

On-site RAW development is possible without the need for a computer. You can check the finished image right on the spot.



Keep the camera level and frame your image

Level Gauge

Acceleration sensors inside the camera detect the horizontal condition. A Level Gauge indicating the two directions of horizontal lean and front/rear tilt is displayed. This helps you check whether you are holding the camera horizontally, for example, when shooting scenery.

Freely and dramatically control lighting as you shoot Highlight Shadow

Highlight and shadow details can be freely controlled as you

check the image through the Live View Finder while shooting. Without having to use any image processing software, you can capture images just the way you want, right on the spot.





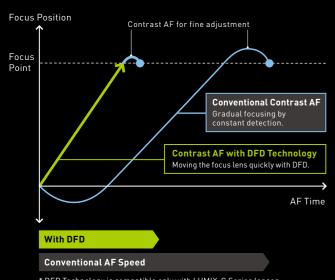
Ultra-High Speed DFD Technology Revolutionizes AF

Ultra-high speed and precision

Contrast AF with DFD Technology

The new DFD (Depth From Defocus) technology instantly calculates the distance among all of the subjects in the frame, and proceeds to instantaneously drive the lens. This results in an auto-focus (AF) speed of 0.07 sec,* and a burst shooting speed with AF tracking of 7 frames per second (fps). Contrast AF, which has long been acclaimed for its high precision and ultra-high speed, now also offers smoother focusing by minimizing the wobbling in both photo and video recording, while improving the stability of continuous focusing. This enables you to catch even those fleeting shutter opportunities.

*AF speed: 0.07 sec (according to the CIPA standard)



 * DFD Technology is compatible only with LUMIX $\,$ G Series lenses.

Higher speed and more shots

AFS Burst Shooting of 12 fps

The high-speed processing of the new sensor and new engine combine with the newly developed shutter unit to enable high-speed burst shooting of 12 fps. Consecutive shooting of 40 frames (including RAW) and approximately 100 frames (excluding RAW) are also possible. The mobility of the DMC-

GH4 has been greatly enhanced by boosting the speed and increasing the number of shots that can be consecutively taken. This helps to capture those decisive scenes.



Focusing clearly, even under starlit conditions

Low Light AF

Low Light AF makes it possible to focus on your subject more precisely in situations such as moonlight, even without an AF assist lamp. It further enhances the shooting performance

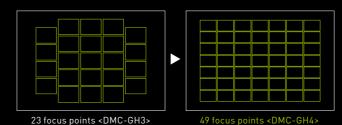
for low-light situations all the way down to -4EV, which is equivalent to a starry sky with no other light source.



Responding precisely to the user's intention

Versatile AF Functions

In addition to the conventional Face Recognition AF, the DMC-GH4 newly incorporates Face/Eye Detection AF, which detects the subject's face and eyes. Quickly focusing on the eye enables more precise focusing for portraits. Focus points have also been increased from the 23 that were available in the DMC-GH3 all the way up to 49. Custom Multi AF lets you select any desired focus area from among those 49 points. And the AF size of 1-Area Focus Point can be seamlessly adjusted by either a pinch or dial operation.



High-definition, high-speed display

Dual OLED Displays - LVF & Monitor

The Live View Finder (LVF) incorporates a 2,359K-dot OLED (Organic Light-Emitting Diode) display, which is superb in response and contrast. It displays even fast-moving subjects with high speed and an almost imperceptible time lag. Its contrast ratio of approximately 10,000:1 or higher faithfully reproduces gradation in both bright and dark areas. It also features a 100% field of view and an eyepoint of approximately 21 mm, which combine with a large, newly designed eyecup to dramatically improve the visibility of the LVF. The rear monitor incorporates a 1,040K-dot OLED electrostatic capacitive touch panel that helps to provide comfortable shooting with intuitive touch operation.



New shutter functions capture more shooting opportunities

Max. 1/8000-sec Shutter Speed and Flash Sync Up to 1/250 sec

The DMC-GH4 has a maximum shutter speed of 1/8000 sec. This lets it easily capture movements that cannot be seen with the naked eye. It can also be used outdoors with the aperture fully open, for portraits with a beautifully defocused background. The internal flash can be synchronized with a maximum 250-sec shutter speed.



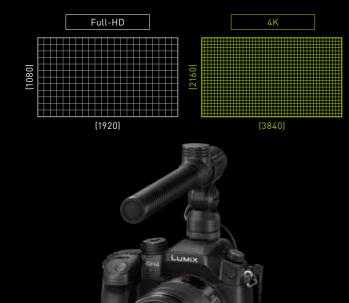
Imaging Advances, Starting with 4K Video Recording

World's first*

4K Video Recording

Marking a first for a single lens mirrorless camera, the DMC-GH4 lets you shoot videos in 4K (3840 x 2160) resolution, which is four times the resolution of Full-HD, or Cinema 4K (4096 x 2160). High-definition, high-quality video recording increases the realism and ambience of the images, and expands the range of expression for image production.

- * For a single lens mirrorless camera, as of February 7, 2014.
- Use SDXC/SDHC Memory Card compatible with UHS Speed Class 3 (U3) when using high bitrate video recording mode of 100 Mbps or greater.



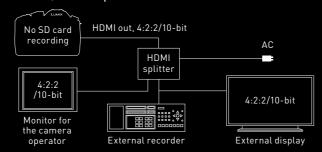
Output to an external recorder for 4:2:2 recording

Real-time Output via HDMI

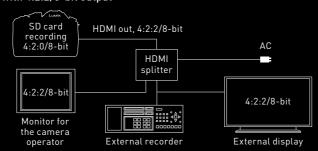
The DMC-GH4 can output 4:2:2/10-bit or 8-bit images in realtime to an external recorder or monitor via an optional micro HDMI cable simultaneously while shooting video. This gives you an external recording capability and allows a director, or a client, to check images on a large monitor as they are being produced.

 ullet When 4:2:2/10-bit output is selected, images cannot be simultaneously recorded onto an SD card in the DMC-GH4.

System diagram when not recording onto an SD card, with 4:2:2/10-bit output



System diagram when recording onto an SD card, with 4:2:2/8-bit output



Direct connection to the video workflow

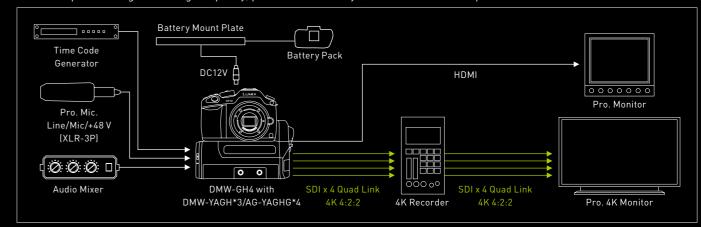
New Interface Unit <DMW-YAGH*/AG-YAGHG**>

The new Interface Unit features SDI video output and XLR audio input. It lets you connect to a 4K-compatible recorder or monitor for editing, or record high-quality sound from an external mic. The 12V DC IN terminal complies with many large-capacity industrial batteries to continuously supply the DMC-GH4 with power. These and other system-expanding features let you draw the full potential of the DMC-GH4 for a wide range of professional applications. *For US and Europe. **For other regions.



System Chart with Expansion Interface Unit (Direct Connection to the Video Workflow for Professionals)

- Output of the high-quality 10 bit 4:2:2*1 video signal via Quad Link 4K (SDI x 4, Square Division) allows connection to a professional 4K recorder or 4K monitor. Ideal for high-quality professional 4K image production.
- HDMI (4K/HD) output*2. XLR audio input (LINE/MIC/+48V selectable, 2 channels), audio manual dial, and level meter.
- Compatible with external time code input (BNC x 1).
- DC12V input allowing use of large-capacity, professional battery (other manufacturers' product).



^{*1:} When 10 bit 4:2:2 output is selected, video recording is not possible with the digital camera. *2: HDCP and VIERA LINK are not supported. *3: For US and Europe. *4: For other regions.



Versatile format supported

Video Recording Format / High-Bit-Rate Video Recording

Versatile video formats and bit rates prepare the DMC- GH4 for use in a wide range of applications. You can select from four recording formats: AVCHD and MP4 for playback ease, and MP4 (LPCM) and MOV for editing ease. Bit rates extend up to a maximum of 200 Mbps, for video recording performance that meets the needs of imaging professionals. The system frequency can be selected from three types: 59.94 Hz (NTSC), 50.00 Hz (PAL), or 24.00 Hz (CINEMA).

 \bullet Use SDXC/SDHC Memory Card compatible with UHS Speed Class 3 (U3) when using high bitrate video recording mode of 100 Mbps or greater.

	Format	Recording Size	Frame Rate	Compression	Bit Rate	Sound
		4096x2160	24.00p		100 Mbps	LPCM
4K	MP4/ MOV	3840x2160	29.97p 25.00p 24.00p 23.98p	IPB		
	MP4/ MOV			All-Intra	200 Mbps	
			59.94p 50.00p	IPB	100 Mbps	
				IFB	50 Mbps	
			29.97p 25.00p	All-Intra	200 Mbps	
Full HD				IPB	100 Mbps	
				IFB	50 Mbps	
			24.00p	All-Intra	200 Mbps	
				IPB	100 Mbps	
				IFB	50 Mbps	
			23.98p	All-Intra	200 Mbps	
				IDD	100 Mbps	
				IPB	50 Mbps	

Worldwide broadcast systems supported

Selectable System Frequency

The DMC-GH4's system frequency can be switched to 59.94~Hz (23.98 Hz), 50.00~Hz, or 24.00~Hz to suit the country in which it is used.

System Frequency	Display	Recording Frame Rate	
	60p / 60i	59.94 fps	
59.94Hz (NTSC)	30p	29.97 fps	
	24p	23.98 fps	
50.00Hz (PAL)	50p / 50i	50.00 fps	
50.00HZ (PAL)	25p	25.00 fps	
24.00Hz (CINEMA)	24.00p	24.00 fps	

Slow-motion and quick-motion images

Variable Frame Rate

The video recording rate and output rate can be changed to produce either slow-motion or quick-motion videos. The settings are finer than those on the previous model (DMC-GH3), for a wider range of image expression.

59.9	4Hz	24.00Hz	50.00Hz
29.97p	23.98p	24p	25p
	MOV/FHD	/100Mbps	
	MP(LCPM)/F	HD/100Mbps	
AVCHD/FH	D/24Mbps	-	AVCHD/FHD/24Mbps
2 fps	2 fp	IS	2 fps
15 fps	12 f _l	ps	12 fps
26 fps	20 f	ps	21 fps
28 fps	22 f	ps	23 fps
30 fps	24 f	ps	25 fps
32 fps	26 f	ps	27 fps
34 fps	28 f	ps	30 fps
45 fps	36 f	ps	37 fps
60 fps	48 f	ps	50 fps
75 fps	60 f	ps	62 fps
90 fps	72 f	ps	75 fps
96 fps	84 f	ps	96 fps
-	96 f	os	-

Versatile Functions for Extraordinary Video Performance

Video Operation Type

For easier setting recognition, the DMC-GH4 uses indications that professionals are familiar with, such as shutter speed, gain, etc.







ISO) (Shutter I

(Shutter Duration / db) (Shutter Duration / IS0)

Zebra Pattern

Parts of the image that may be washed out are marked with a Zebra Pattern for easy checking.

Color Bars

Color Bars are convenient for adjusting the picture quality of an external monitor. A 1 kHz Test Tone can also be output.



Center Marker

This is a convenient function for zooming while keeping the subject in the center of the frame.



Master Pedestal

Lowering the pedestal brings crisper blacks to the image, and raising it creates an overall foggy effect.

Luminance Level Adjustment

In addition to the standard video luminance levels of 16-235 and 16-255 (8-bit), the standard photo level of 0-255 (8-bit) is provided. This makes it easy to edit luminance levels when producing images that combine photos and videos.

Time Code

The DMC-GH4 lets you select either of two SMPTE-compliant time codes: Rec Run, in which the time code proceeds only while recording, and Free Run, in which the time code also proceeds while recording is stopped. These are convenient for synchronizing footage during post production.

Spec	SMPTE 12M Standard			
Time Code Display	ON / OFF			
Count Up	Rec Run / Free Run			
Time Code Value	Reset / Manual Input / Current Time			
Time Code Mode	Drop Frame / Non-Drop Frame			

^{*}When system frequency [59.94Hz] is selected

Cinelike Gamma

Gamma presets are available in Creative Video mode. CINELIKE D and CINELIKE V let you shoot with the kind of rich image expression you see on movie screens.



A solid, elegant design with excellent toughness and operating ease

Splash/dustproof, tough construction and a high-grade finish

Magnesium Alloy Full Die-cast Body

The DMC-GH4 frame is constructed of lightweight, durable magnesium alloy. All joints, dials and buttons are sealed to provide a splash/dustproof design. This makes the DMC-GH4 highly suited to active outdoor shooting.





Easy operation as an imaging tool

Large Dials

Three dials are provided on the top and rear of the camera for instinctive operation. The main dial has a lock function to prevent operating mistakes. All dials are large, for sure gripping and easy operation.



Durable shutter — 200,000 releases

High-performance Shutter Unit

The newly developed shutter unit is built to withstand approximately 200,000 releases. It provides a high level of reliability over a long period of use.

Easy operation and solid rigidity

Body Design

The solid but elegant body combines toughness with nimble operating ease. It fits the hand naturally and comfortably, and the button layout enables intuitive parameter setting. Operation is fast and easy, without having to look away from the viewfinder.





Wi-Fi Functions for Totally New Shooting Styles



Expanded shooting potential

Wi-Fi with NFC Technology

The Wi-Fi function lets you use a smartphone or tablet device to operate the aperture, ISO setting, shutter speed and white balance setting by remote control for shooting both photos and videos. With an NFC-compatible smartphone or tablet, the initial Wi-Fi settings and connection can be made by simply touching the DMC-GH4 with the device. For a smartphone or tablet that is not NFC compatible, you can install an application to the device that enables easy pairing by reading the QR code displayed on the DMC-GH4.

 \bullet The Wi-Fi CERTIFIED Logo is a certification mark of the Wi-Fi Alliance.



Save images to a smartphone

Instant Transfer

The Instant Transfer function is handy for automatically backing up photos for instant enjoyment on supported smartphones or tablets.

Attaching geotags to your photos

GPS Geotagging

If your smartphone has a built-in GPS function, you can easily embed geotags from the smartphone into the photos you take. Recording the shooting location makes it easy to sort and organize your photos.

Versatile smartphone control

Remote Shooting

The DMC-GH4 lets you use your smartphone or tablet to operate the shutter and other controls. For video shooting, you can remotely start timer interval video recordings from your smartphone or tablet. It is also possible to remotely make detailed settings while viewing the live image, such as aperture, ISO, shutter speed, white balance and zooming. For

outdoor fixed-position shooting, you can adjust settings from a distant location while viewing the image.



ocus Peaking

The essence of aesthetics

Already pioneers in the field of digital single lens mirrorless cameras, LUMIX's Micro Four Thirds lenses are once again breaking new ground. Combining state-of-the-art digital technology with cutting-edge optics, the new lenses offer uncompromising quality, exceptional image rendering, and an agility capable of capturing the most fleeting of moments, all in an amazingly compact format. From wide-angle to telephoto, the extensive range delivers top-class performance, whether you are shooting stills or high-quality HD video. Of one thing we are sure, this remarkable family of lenses will take your creativity to a new dimension.

LEICA Lens



LEICA DG NOCTICRON 42.5mm / F1.2 ASPH. / POWER O.I.S. (H-NS043)





LEICA DG SUMMILUX 25mm / F1.4 ASPH. (H-X025)





LEICA DG MACRO-ELMARIT 45mm / F2.8 ASPH. / MEGA 0.I.S. (H-FS045)



X Lens



LUMIX G X VARIO 12-35mm / F2.8 ASPH. / POWER O.I.S. (H-HS12035)





















LUMIX G 20mm / F1.7 II ASPH.

LUMIX G VARIO 14-42mm /

LUMIX G VARIO 45-150mm /

F4.0-5.6 ASPH. / MEGA 0.I.S.

F3.5-5.6 II ASPH. / MEGA 0.I.S.

(H-H020A)

(H-FS1442A)

(H-FS45150)





G Lens



LUMIX G FISHEYE 8mm / F3.5 (H-F008)



LUMIX G VARIO 7-14mm / F4.0 ASPH. (H-F007014)



LUMIX G VARIO 14-45mm / F3.5-5.6 ASPH. / MEGA 0.I.S. (H-FS014045)



LUMIX G VARIO 45-200mm / F4.0-5.6 / MEGA 0.I.S.

(H-FS045200)



LUMIX G 14mm / F2.5 ASPH. (H-H014)



LUMIX G VARIO 12-32mm / F3.5-5.6 ASPH. / MEGA 0.I.S. (H-FS12032)



LUMIX G VARIO 14-140mm / F3.5-5.6 ASPH. / POWER 0.I.S. (H-FS14140)



LUMIX G VARIO 100-300mm / F4.0-5.6 / MEGA 0.I.S. (H-FS100300)



LUMIX G 20mm / F1.7 ASPH. (H-H020)



LUMIX G VARIO 14-42mm / F3.5-5.6 ASPH. / MEGA 0.I.S. (H-FS014042)



LUMIX G VARIO HD 14-140mm / F4.0-5.8 ASPH. / MEGA 0.I.S. (H-VS014140)

(H-FT012)



LUMIX G 12.5mm / F12 30

OPTIONAL ACCESSORIES

External TTL Flash (Wireless compatible)

GN58 DMW-FL580L

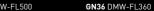






External TTL Flash

GN50 DMW-FL500





GN22 DMW-FL220





LED Video Light

VW-I FD1



Interface Unit

DMW-YAGH*/AG-YAGHG** *For US and Europe. **For other regions



Stereo Shotgun Microphone

DMW-MS2



Stereo Microphone

VW-VMS10



Mount Adaptor

DMW-MA1 for the Four Thirds System standard



DMW-MA2M for M mount lenses from Leica Camera AG



DMW-MA3R for R mount lenses from Leica Camera AG



PL Filter (Circular Type)

67mm DMW-LPL67 62mm DMW-LPL62 58mm DMW-LPL58 52mm DMW-LPL52 46mm DMW-LPL46 37mm DMW-LPL37



ND (Neutral Density) Filter (ND8)

62mm DMW-LND62 58mm DMW-LND58 52mm DMW-LND52 46mm DMW-LND46 37mm DMW-LND37



MC Protector

67mm DMW-LMCH67 62mm DMW-LMCH62 58mm DMW-LMCH58 52mm DMW-LMC52 46mm DMW-LMC46 37mm DMW-LMCH37



Battery Grip

DMW-BGGH3



Remote Shutter

DMW-RSL1



Battery

DMW-BLF19



Zoom Lever

DMW-ZL1



SD Memory Card

64GB: RP-SDUC64 GAK 32GB: RP-SDUC32 GAK 16GB: RP-SDUC16 GAK











[•]LUMIX G system cameras come with a function to check whether the battery and unit can be safely used together. •Batteries made by other companies which have been certified by Panasonic may be used with these units, but we offer no guarantee as to the quality, performance or safety of such batteries. •Exercise care when purchasing batteries. Many fake or imitation batteries have been found among those sold at unusually low prices and those which customers cannot check for themselves before purchasing.

• Leica is a registered trademark of Leica Microsystems IR GmbH.

MAIN PARTS AND CONTROLS



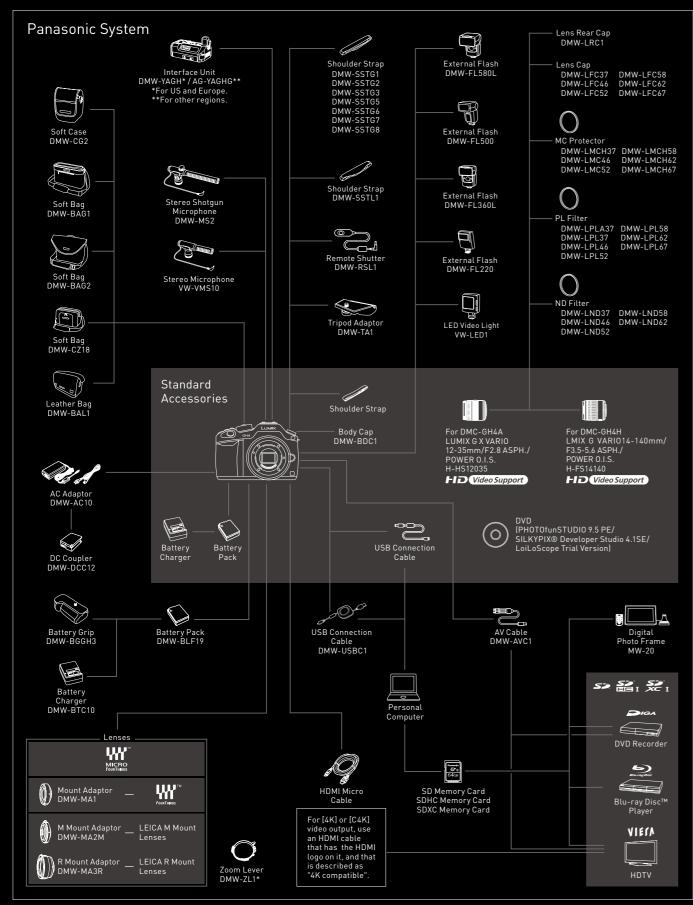




- 1. Shutter button
- 2. Self-timer indicator/AF assist lamp
- 3. Sensor
- 4. Flash
- 5. Flash synchro socket
- 6. MIC socket
- 7. Headphone socket
- 8. HDMI socket
- 9. AV OUT/DIGITAL socket
- 10. Lens release button
- 11. Lens lock pin
- 12. Lens fitting mark
- 13. DC coupler cover
- 14. NFC antenna
- 15. Shoulder strap eyelet
- 16. Eye sensor
- 17. Live View Finder
- 18. Eye cup
- 19. Diopter adjustment dial
- 20. AF/AE LOCK button

- 21. Focus mode lever
- 22. Motion picture button
- 23. Rear dial
- 24. Speaker
- 25. DISP. button
- 26. Card door
- 27. Control dial
- 28. Battery door29. Cursor buttons
- 30. MENU/SET button
- 31. Delete/Cancel button/Fn4 button
- 32. Auto Focus Mode button/Fn3 button
- 33. Q. MENU button/Fn2 button
- 34. Touch screen/OLED monitor
- 35. Cover for the battery grip connector
- 36. Tripod mount
- 37. Cover for the interface unit connector
- 38. Playback button
- 39. LVF button/Fn5 button
- 40. Drive mode dial

- 41. Hot shoe
- 42. Mode dial
- 43. Mode dial lock
- 44. Front dial
- 45. White Balance button
- 46. ISO sensitivity button47. Exposure Compensation button
- 48. Remote socket
- 49. Focus distance reference mark
- 50. Wi-Fi connection lamp
- 51. Wi-Fi button/Fn1 button
- 52. Camera ON/OFF switch
- 53. Stereo microphone
- 54. Flash open button



* The DMW-ZL1 is compatible with the following Micro Four Thirds lenses (As of September 2012). H-F007014 / H-HS12035 / H-FS014042 / H-FS014045 / H-VS014140 / H-HS35100 / H-FS45150 / H-FS045200 / H-FS100300. •Leica is a registered trademark of Leica Microsystems IR GmbH. •When a lens that does not support the Contrast AF function is mounted, operation will automatically switch to manual focus. •Confirm the operation information of compatible lenses at Customer Support http://panasonic.jp/support/global/cs/dsc [English]. •For detailed information about the lenses made by SIGMA, OLYMPUS, LEICA, COSINA and KENKO TOKINA, please see each company's website. •Batteries made by other companies which have been certified by Panasonic may be used with these units, but we offer no guarantee as to the quality, performance or safety of such batteries. • Exercise care when purchasing batteries. Many fake or imitation batteries have been found among those sold at unusually low prices and those which customers cannot check for themselves before purchasing. •Please confirm the latest information about batteries on the following website. http://panasonic.jp/support/global/cs/info/battery.html (English). •The SDXC/SDHC Memory Card can be used only if their logos are indicated on the equipment or in the operation manual. It cannot be used with equipment that supports only the SD Memory Card.

SPECIFICATIONS

	T			1	Signal Circle Land Misselson of Circle				TTI Dulla in Flank CN122 anniest on DCC1200 1 / CN122
l [Type Recordino	modia		9	Digital Single Lens Mirrorless camera Digital Single Lens Mirrorless camera Digital Single Lens Mirrorless camera		Built in flash type		TTL Built-in-Flash, GN12 equivalent (ISO100•m) / GN17 equivalent (ISO200•m), Built-in Pop-up (Reference) Lighting angle: 24mm (35mm camera equivalent)
TYPE					Compatible with UHS-I UHS Speed Class 3 standard SDHC / SDXC Memory Cards] 17.3 × 13.0 mm (in 4:3 aspect ratio)		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.
	lmage ser Lens mou		!		//.3 × 13.0 mm (in 4:3 aspect ratio) Micro Four Thirds mount	FLASH	Synchronization sp		Less than 1/250 second
	Type	-		L	ive MOS Sensor	FLASH	Flash output adjust Flash synchronizat		1/3EV Step ±3EV 1st. Curtain Sync, 2nd Curtain Sync.
IMAGE 7	Total pixe Camera e		pixels	-	17.20 Megapixels 16.05 Megapixels		Synchronization for	r flash dimming	Yes
SENSUR	Color filte	r		E	Primary color filter		and exposure comp Flash sync socket		Yes
	Dust redu	ction sy	stem	9	Supersonic wave filter Still Image: JPEG (DCF, Exif 2.3), RAW, MPO (When attaching 3D lens in Micro Four Thirds		Type		OLED Monitor with static touch control
	Recording	file for	mat	9	system standard) Motion picture: MOV (Audio format LPCM), MP4 (Audio format LPCM / AAC 2ch), AVCHD	MONTOR	Monitor size Pixels		Free-angle 3.0-inch / 3:2 Aspect / Wide viewing angle Approx. 1036K dots
	Constant			[Audio format: Dolby Digital 2ch) 59.94Hz, 50.00Hz, 24.00Hz	MONITOR	Field of view		Approx. 100% Brightness (7 levels), Contrast and Saturation (7 levels),
	System fr Aspect ra			4	4:3, 3:2, 16:9, 1:1		Monitor adjustmen	nt	Red-Green (11 levels), Blue-Yellow (11 levels)
	lmage qu	lity	-		RAW, RAW+Fine, RAW+Standard, Fine, Standard, MPO+Fine / MPO+Standard (with 3D lens in Micro Four Thirds System standard)		Digital zoom		2x, 4x Still image: Max. 2x (Aspect ratio sets at 4:3. Not effective with L size recording.
	Color spa	ce		9	RGB, Adobe RGB	LIVE VIEW	Extra Tele Convers	sion	Magnification ratio depends on the recording pixels and aspect ratio.] Motion picture: 2.4x [FHD], 3.6x [HD], 4.8x [VGA]
					4:3] 4608 × 3456 (L) / 3264 × 2448 (M) / 2336 × 1752 (S) / 1824 × 1368 (with 3D lens in Micro Four Thirds System standard)		Other functions		Level Gauge, Real-time Histogram, Guide Lines (3 patterns), Center Marker, Highlight
		400.4			3:2] 4608 × 3072 [L] / 3264 × 2176 [M] / 2336 × 1560 [S] / 1824 × 1216 [with 3D lens in Micro Four Thirds System standard]	DIRECTION DI	ETECTION FUNCTIO		display (Still image / motion picture), Zebra pattern (Still image / motion picture) Yes
	Still Image			Ī	16:9] 4608 × 2592 [L] / 3840 × 2160 [M] / 1920 × 1080 [S] / 1824 × 1024 (with 3D lens in Micro Four Thirds System standard)				Wi-Fi / Q.MENU / Preview / One Push AE / Touch AE / Level Gauge / Focus Area Set / Zoom Control / 1 Shot RAW+JPG / 1 Shot Spot Metering / Cursor Button
				Ī	1:1] 3456 × 3456 (L) / 2448 × 2448 (M) / 1744 × 1744 (S) /				Lock / Photo Style / Aspect Ratio / Picture Size / Quality / AFS/AFF / Metering Mode / Burst Rate / Auto Bracket / Self Timer / Highlight Shadow / i. Dynamic /
	-			[712 × 1712 [with 3D lens in Micro Four Thirds System standard] 4K] 3840x2160: 29.97p, 100Mbps (IPB) [LPCM] / 23.98p, 100Mbps (IPB) [LPCM]	FUNCTION BUTTON	Fn1, Fn2, Fn3, Fn4, Fn9, Fn10	, Fn5, Fn6, Fn7, Fn8,	i. Resolution / HDR / Electronic Shutter / Flash Mode / Flash Adjust. / Ex. Tele
				59.94	Full HD] 1920x1080: 59.94p, 200Mbps [ALL-Intra] (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM)				Conv. / Digital Zoom / Stabilizer / Motion Pic. Set / Variable Frame Rate / Picture Mode / Synchro Scan / Time Code Display / Mic. Directivity Adjust / Color Bars /
		N		n2 2	29.97p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM) 23.98p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM)				Silent Mode / Peaking / Histogram / Guide Line / Zebra Pattern / Rec Area / Video- Priority Display / Step Zoom / Zoom Speed / AF Mode/MF / Restore to Default
				- [4K] 3840x2160: 25.00p, 100Mbps (IPB) (LPCM)	PHOTO STYLE	Still image and mot	tion picture	Standard / Vivid / Natural / Monochrome / Scenery / Portrait / Custom / Cinelike D* / Cinelike V* *When Creative Video Mode is selected.
				Hz 5	Full HD] 1920x1080: 50.00p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM)	STILE			Expressive / Retro / Old Days / High Key / Low Key / Sepia / Monochrome / Dynamic Monochrome / Rough Monochrome / Silky Monochrome / Impressive Art /
					25.00p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM) C4K] 4096x2160: 24.00p, 100Mbps (IPB) (LPCM)	CREATIVE	Still image		High Dynamic / Cross Process / Toy Effect / Toy Pop / Bleach Bypass /
				24.00	64K) 3840x2160: 24.00p, 100Mbps (IPB) (LPCM) Full HDI 1920x1080:	CONTROL	<u> </u>		Miniature Effect / Soft Focus / Fantasy / Star Filter / One Point Color / Sunshine Expressive / Retro / Old Days / High Key / Low Key / Sepia / Monochrome /
RECORDING SYSTEM		ļ			24.00p, 200Mbps [ALL-Intra] (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM)		Motion picture		Dynamic Monochrome / Impressive Art / High Dynamic / Cross Process / Toy Effect / Toy Pop / Bleach Bypass / Miniature Effect / Fantasy / One Point Color
	File size			12	4K] 3840x2160: 29.97p, 100Mbps (IPB) (LPCM) / 100Mbps (IPB) (AAC) 23.98p, 100Mbps (IPB) (LPCM)		Exposure Mode		Program AE/ Aperture-Priority / Sutter-Priority / Manual Exposure
ļ i	[Pixels]			- 12	Full HD] 1920x1080: 59.94p, 200Mbps [ALL-Intra] (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM)				MOV/FHD/100Mbps/29.97p, MP4(LPCM)/FHD/100Mbps/29.97p: 2fps, 15fps, 26fps, 28fps, 30fps, 32fps, 34fps, 45fps, 60fps, 75fps, 90fps, 96fps
				39.94	29.97p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM) / 33.98p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM)				MOV/FHD/100Mbps/23.98p, MP4(LPCM)/FHD/100Mbps/23.98p: 2fps, 12fps, 20fps, 22fps, 24fps, 26fps, 28fps, 36fps, 48fps, 60fps, 72fps, 84fps, 96fps
				5	59.94p, 28Mbps (IPB) (AAC) 29.97p, 20Mbps (IPB) (AAC)			37.74112	AVCHD/FHD/24Mbps/29.97p:
	ľ			1	HD] 1280x720: 29.97p, 10Mbps (IPB) [AAC] VGA] 640x480: 29.97p, 4Mbps (IPB) [AAC]	CREATIVE VIDEO MODE	Variable		2fps, 15fps, 26fps, 28fps, 30fps, 32fps, 34fps, 45fps, 60fps AVCHD/FHD/24Mbps/23.98p:
					4K] 3840x2160: 25.00p, 100Mbps (IPB) (LPCM) / 100Mbps (IPB) (AAC) Full HD] 1920x1080:		frame rate		2fps, 12fps, 20fps, 22fps, 24fps, 26fps, 28fps, 36fps, 48fps, 60fps MOV/FHD/100Mbps/25.00p, MP4(LPCM)/FHD/100Mbps/25.00p:
				30.00 ,	50.00p, 200Mbps [ALL-Intra] (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM) 25.00p, 200Mbps [ALL-Intra] (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM)				2fps, 12fps, 21fps, 23fps, 25fps, 27fps, 30fps, 37fps, 50fps, 62fps, 75fps, 96fps AVCHD/FHD/24Mbps/25.00p:
				HZ 5	10.00p, 28Mbps (IPB) (AAC) 25.00p, 20Mbps (IPB) (AAC) HD] 1280x720: 25.00p, 10Mbps (IPB) (AAC)				2fps, 12fps, 21fps, 23fps, 25fps, 27fps, 30fps, 37fps, 50fps MOV/FHD/100Mbps/24.00p, MP4(LPCM)/FHD/100Mbps/24.00p:
				[VGA] 640x480: 25.00p, 4Mbps (IPB) (AAC)			24.00HZ	2fps, 12fps, 20fps, 22fps, 24fps, 26fps, 28fps, 36fps, 48fps, 60fps, 72fps, 84fps, 96fps
				24.00	C4K] 4096x2160: 24.00p, 100Mbps (IPB) (LPCM) 4K] 3840x2160: 24.00p, 100Mbps (IPB) (LPCM)		Master pedestal le Luminance level		31 steps 0-255 / 16-235 / 16-255
					Full HD] 1920x1080: 24.00p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM)	MOTION	Synchro scan		Yes Count Up: Rec Run/Free Run selectable, Time Code Mode: Drop frame/Non-drop
				59.94	Full HD] 1920x1080: 59.94p, 28Mbps (IPB) [Dolby] 59.94i, 24Mbps (IPB) [Dolby] (Sensor output is 29.97fps)	PICTURE FUNCTION	Time code		frame selectable (When system frequency [59.94Hz] is selected.)
			AVCHD Progressive*	n2 5	57.74, 17Mbps (IPB) [Dolby] (Sensor output is 59.94fps) 23.98p, 24Mbps (IPB) [Dolby] Full HD] 1920x1080:				Shutter Duration/ISO / Angle/ISO / Shutter Duration/dB Yes (SMPTE / EBU / ARIB) / Yes
			AVCHD* 50.00 Hz		50.00p, 28Mbps (IPB) (Dolby) 50.00i, 24Mbps (IPB) (Dolby) (Sensor output is 25.00fps)		Cinelike gamma		Cinelike D / Cinelike V Normal playback, 30-thumbnail display, 12-thumbnail display, Calendar display,
	Continuous recordable time			50.00i, 17Mbps (IPB) (Dolby) (Sensor output is 50.00fps) NVCHD: Approx. 220 min with H-HS12035,				Zoomed playback (Max. 16x), Stideshow (Atl / Picture Only / Video Only / 3D / Category Selection / Favorite, duration & effect is selectable), Playback Mode	
	[Motion picture] Actual recordable time				AVCHD: Approx. 220 min with H-FS14140 AVCHD: Approx. 110 min with H-HS12035	PLAYBACK	Playback mode		[Normal / Picture / Video / 3D Play / Category / Favorite], Location Logging, RAW
	[Motion pi				AVCHD: Approx. 110 min with H-FS14140 EEE 802.11b/g/n, 2412 MHz - 2462 MHz (11 ch), Wi-Fi / WPA / WPA2,		S S		Processing, Clear Retouch, Title Edit, Text Stamp, Video Divide, Time Lapse Video, Stop Motion Video, Resize, Cropping, Rotate, Rotation Display, Favorite, DPOF Print
Wi-Fi	Wi-Fi			1	nfrastructure mode, WPS, Wi-Fi Direct	IMAGE			Set, Protect, Face Recognition Edit, Picture Sort, Delete Comfirmation Single / Multi or Cancel
	NFC QR Code (Connect	ion		SO/IEC 18092, NFC-F (Passive Mode) /es	PROTECTION / ERASE	Erase S		Single / Multi / All / Except Favorite
	Type Field of vi	2047			DLED Live View Finder (2,359K dots) Approx. 100%	PRINT	Direct print		PictBridge compatible
	Magnifica			1	Approx. 1.34x/0.67x (35mm camera equivalent) with 50 mm lens at infinity; -1.0 m-1		USB		USB 2.0 High Speed Multi 4:2:28-bit / 4:2:210-bit [When 4:2:210-bit mode is selected, it is not possible to record
VIEWFINDER	Eye point Diopter adjustment				Approx. 21 mm from eyepiece lens			Monitor-through	motion picture or still picture on the SD memory card in the camera unit.) Auto / C4K / 4K / 1080p
	Eye sensor Eye sensor adjustment			1	/es		нрмі**		Information display ON/OFF (selectable) Automatic down-conversion (4K> 1080p only)
	Eye senso Type	a agust	ment		ligh / Low Contrast AF system			r	microHDMI TypeD / VIERA Link, Audio: Stereo
[DFD techi Focus mo)	/es AFS [Single] / AFF [Flexible] / AFC [Continuous] / MF	INTERFACE			59.94Hz: Auto / 4K / 1080p / 1080i / 720p / 480p 50.00Hz: Auto / 4K / 1080p / 1080i / 720p / 576p
l 1	AF mode			E	Face/Eye Detection / Tracking / 49-Area / Custom Multi / 1-Area / Pinpoint		Audio video output Remote input		Monaural Type φ2.5mm for remote
	AF detective range				Full area touch is available) EV -4 - 18 (ISO 100 equivalent)		External micropho	one input	ø3.5mm for external microphone
	AF assist AF lock			١	res [AF/AE LOCK button]		Headphone output Microphone		φ3.5mm for headphone Stereo, Wind-cut: Off / Low / Standard / High / AUTO
l [- 1	One Shot AE Shutter AE Half Press Release Quick AE Continuous AE Iduring		Speaker		Monaural English, German, French, Italian, Spanish, Polish, Czech, Hungarian, Russian,
	Others			i i	notion picture recording), Eye Sensor AF, AF+MF, MF Assist, Touch MF Assist, Focus Peaking, Touch AF/AE Function, Touch Pad AF, Touch Shutter				Chinese (Traditional), Chinese (Simplified), Dutch, Thai, Korean, Turkish,
	Light met			1	,728-zone multi-pattern sensing system Multiple / Center Weighted / Spot	LANGUAGE	OSD language		Portuguese, Arabic, Persian, Japanese, Swedish, Danish, Finnish, Greek, Vietnamese *Check the website of Panasonic sales company in your country /
	Light metering mode Metering range				EV0-18 (F2.0 lens, ISO 100 equivalent)				region or ask customer support for details of the OSD language available on the products sold in your country / region.
EVENCUEE	Exposure mode				Program AE, Aperture Priority AE, Shutter Priority AE, Manual Auto / Intelligent ISO / 100 [Extended] / 200 / 400 / 800 / 1600 / 3200 / 6400 / 12800 /	POWER			Li-ion Battery Pack (7.2V, 1860mAh) (Included), Battery Charger Approx. 530 images with H-HS12035, Approx. 530 images with H-FS14140
CONTROL	ISO sensitivity [Standard Output Sensitivity]			2	25600 (Changeable to 1/3 EV step) Up to ISO 6400 in motion picture recording) (ISO Auto in M mode)		Dimensions (W × H		132.9 x 93.4 x 83.9 mm / 5.23 x 3.68 x 3.30 in (excluding protrusions)
	Exposure compensation			1	1/3 EV Step ±5EV (±3EV for motion image)	DIMENSIONS	Woight		Approx. 560g / 19.75 oz (SD card, Battery, Body) Approx. 480g / 16.93 oz (Body only)
	AE lock AE bracket				(es (AF/AE lock button) 3, 5, 7 frames in 1/3, 2/3 or 1 EV Step, Max. ±3 EV, single/burst	/ WEIGHT	weight		Approx. 865g / 30.51 oz (SD card, Battery, H-HS12035 lens included) Approx. 825g / 29.10 oz (SD card, Battery, H-FS14140 lens included)
	White balance			-	Auto / Daylight / Cloudy / Shade / Incandescent / Flash / White Set 1, 2, 3, 4 / Color temperature setting	OPERATING	Operating temperature		0°C to 40°C [32°F to 104°F]
WUITE	White balance adjustment				Blue/Amber bias, Magenta/Green bias	ENVIRONMENT			10% to 80% PHOTOfunSTUDIO 9.5 PE (Windows XP / Vista / 7 / 8)
DALANUE	White balance bracket				2500 to 10000K in 100K B exposures in blue/amber axis or in magenta/green axis		6-11		SILKYPIX® Developer Studio 4.1 SE [Windows XP / Vista / 7 / 8, Mac OS X v10.5 / v10.6 / v10.7 / v10.8]
-	Туре			E	ocal-plane shutter	STANDARD ACCESSORIES			LoiLoScope (trial version) (Windows XP / Vista / 7 / 8)
	Shutter s	eed			Still image: Bulb (Max. 60 minutes), 1/8,000 - 60 Motion picture: 59,94Hz: 1/16,000 - 1/30, 50.00Hz: 1/16,000 - 1/25,		Standard accessor		Battery Charger (AC Cable included), Battery Pack, Body Cap, Hot Shoe Cover, USB Connection Cable, Shoulder Strap, DVD, Lens Cap*, Lens Hood*, Lens Rear Cap*
·	Shutter life				23.98Hz: 1/16,000 - 1/24 (When using Synchro Scan) Approx. 200,000 images		External Flash (opt	tionall	*Included with DMC-GH4A kit and DMC-GH4H kit. DMW-FL580L (optional), Wireless Channel: 1ch/2ch/3ch/4ch
SHUTTER	∠natteF tif			- 2	2 sec or 10 sec, 3 images / 2 sec / 10 sec	OPTIONAL	Interface unit (option	ional)	DMW-YAGH (optional)***
SHUTTER	Self timer			E	Remote control with Bulb function by DMW-RSL1 (Optional)	ACCESSORIES	AC adaptor (optional External Microphor		DMW-AC10 (optional)
HUTTER	Self timer Remote c	ontrol		l l	Mechanical shutter: H: 12 frames/sec (with AFS) 7 framos/coc (with AFC)				[DMW-M52 [optional], Stereo/Lens Auto/Shotgun/Super Shotgun/Manual selectable]
HUTTER	Remote co	ed	mony Carel I	1	Mechanical shutter: H: 12 frames/sec (with AFS), 7 frames/sec (with AFC), M: 7 frames/sec (with Live View), L: 2 frames/sec (with Live View)		Battery Grip (option		DMW-MS2 (optional), Stereo/Lens Auto/Shotgun/Super Shotgun/Manual selectable] DMW-BGGH3 (optional)
HUTTER	Remote co	ed	nory Card is us	sed) [Mechanical shutter: H: 12 frames/sec [with AFS], 7 frames/sec [with AFC], M: 7 frames/sec [with Live View], L: 2 frames/sec [with Live View] Electronic shutter: SH: 40 frames/sec, H: 12 frames/sec, M: 7 frames/sec [with Live View], L: 2 frames/sec [with Live View]	* About motion	Battery Grip (option	Motion picture ca	DMW-BGGH3 (optional) In be recorded up to 29 min 59 sec depending on the recording format and the
HUTTER	Remote co Burst spe (In case SI	ed DHC Mer	nory Card is us	sed) [Mechanical shutter: H: 12 frames/sec [with AFS], 7 frames/sec [with AFC], H: 7 frames/sec [with Live View], L: 2 frames/sec [with Live View] Lectronic shutter: SH: 40 frames/sec, H: 12 frames/sec,	camera's sale: [C4K/100Mbps	Battery Grip (option n picture recording. s area. • Use a card s] [FHD/100Mbps] or	• Motion picture ca with SD Speed Clas r [FHD/200Mbps]. • I	DMW-BGGH3 (optional)