

Panasonic

GH4

LUMIX G

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.



Documenting the Samburu

The Samburu are a proud warrior-race of nomadic pastoralists. They have intimate knowledge of the wildlife, flora and fauna in their area, and pass their customs and history down from generation to generation. However, their rich culture is under threat of globalization and encroachment onto their lands. Being able to work closely and discreetly with these people by not having a large intimidating camera was a large advantage. The Silent mode also made it possible to work respectfully in confined areas with people nearby. The short time that I spent with the Samburu was a magical experience that I'll never forget.



DANIEL BEREHULAK

Daniel Berehulak was born in Sydney, Australia. As a photojournalist, he has visited over 40 countries covering history-shaping events, including the Iraq war, the Chernobyl disaster and the Japan Tsunami damage. His photography has earned numerous awards, including three World Press Photo awards.





The Land of South Kyushu - Where Fire and Water Gush -

I became enchanted by an active volcano in Japan called "Sakurajima," which shows signs of life from our mother planet through its dynamic eruptions. I captured the eruptive activities together with special scenery formed of magma and gushes of water. The DMC-GH4 provided highly comfortable operation, and the splash/dustproof mechanisms withstood even the harsh conditions of volcanic ash, volcanic gas vapor, and splashes from a waterfall, allowing me to concentrate on photography.

TAKEHITO MIYATAKE

Born in Osaka, Japan, in 1966, Takehito Miyatake grew up in Tokushima. He had been photographing "water - the essence of life" as his main subject. In 2009, he released a photo collection called "Sakurajima - the Living Earth." Since then, he has been capturing mystic landscapes with the "fire" and "water" created by magma from active volcanoes throughout Japan.





This image was extracted from 4K video.

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.

CHANGING PHOTOGRAPHY
LUMIX G

1st MIRRORLESS
since 2008 1st Digital Single Lens Mirrorless



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-CPU. 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

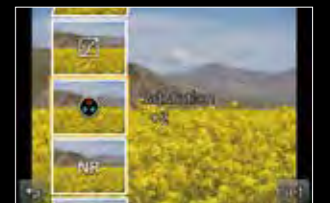
Focus Peaking is handy when you need more precise focusing. It displays the focusing peak in real-time for MF and AF+MF mode when shooting still images or videos. The function can be set to High, Low or Off, and the display color can be set to blue, white or orange to match the shooting situation. Using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



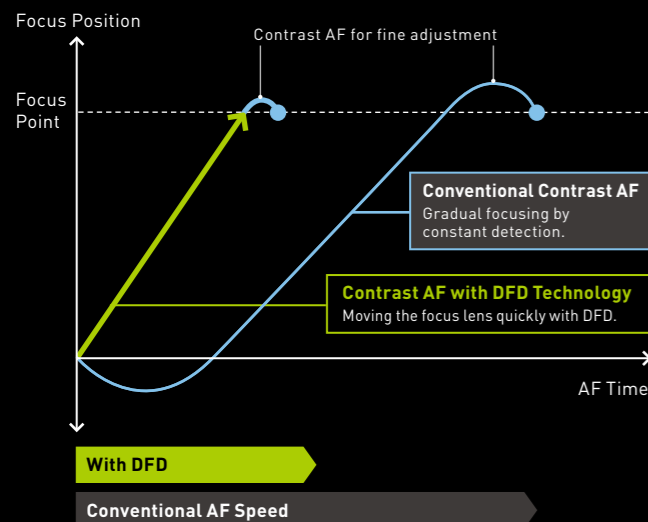
Ultra-High Speed DFD Technology Revolutionizes AF

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

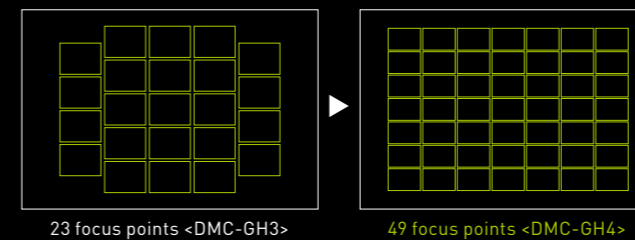
Low Light AF makes it possible to focus on your subject more precisely in situations such as moonlight, even without an AF assist lamp. It further enhances the shooting performance for low-light situations all the way down to -4EV, which is equivalent to a starry sky with no other light source.



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 2,360K-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.

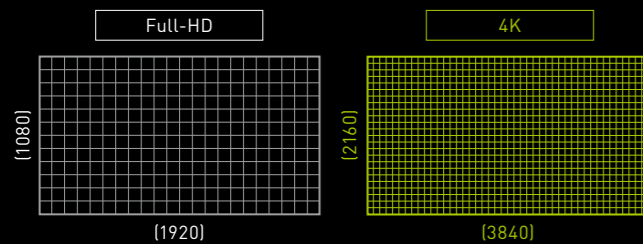
Imaging Advances, Starting with 4K Video Recording

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.

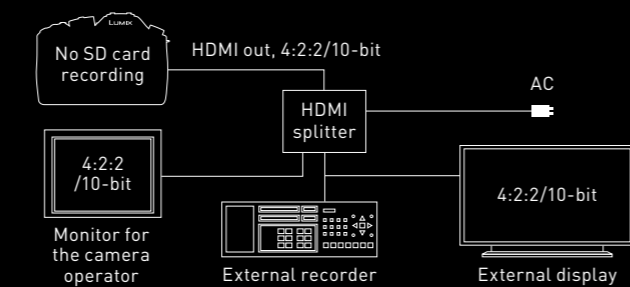


Output to an external recorder for 4:2:2 recording
Real-time Output via HDMI

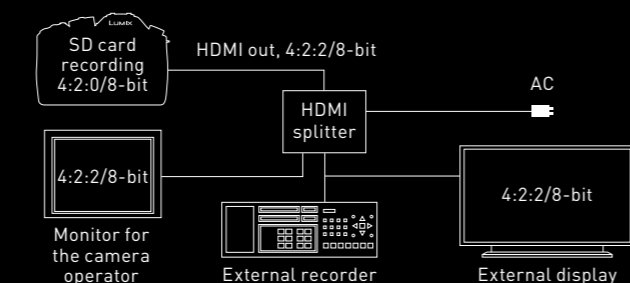
The DMC-GH4 can output 4:2:2/10-bit or 8-bit images in real-time to an external recorder or monitor via an optional micro HDMI cable simultaneously while shooting video. This gives you an external recording capability and allows a director, or a client, to check images on a large monitor as they are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

* 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



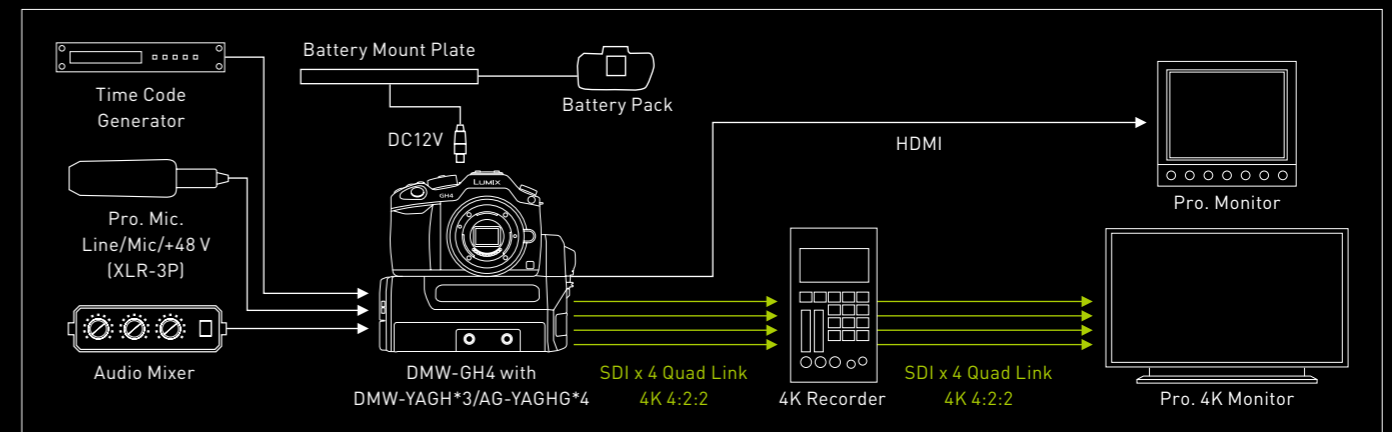
Direct connection to the video workflow
New Interface Unit <DMW-YAGH*/AG-YAGHG**>

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.

VIDEO SHOOTING PERFORMANCE

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).

• 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
4K	MP4/ MOV	4096x2160	24.00p	IPB	100 Mbps	LPCM
		3840x2160	29.97p 25.00p 24.00p 23.98p			
Full HD	MP4/ MOV	1920x1080	59.94p 50.00p	All-Intra	200 Mbps	
				IPB	100 Mbps 50 Mbps	
			29.97p 25.00p	All-Intra	200 Mbps	
				IPB	100 Mbps 50 Mbps	
			24.00p	All-Intra	200 Mbps	
				IPB	100 Mbps 50 Mbps	
			23.98p	All-Intra	200 Mbps	
				IPB	100 Mbps 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
59.94Hz (NTSC)	60p / 60i	59.94 fps
	30p	29.97 fps
	24p	23.98 fps
50.00Hz (PAL)	50p / 50i	50.00 fps
	25p	25.00 fps
24.00Hz (CINEMA)	24.00p	24.00 fps

Slow-motion and quick-motion images

Variable Frame Rate

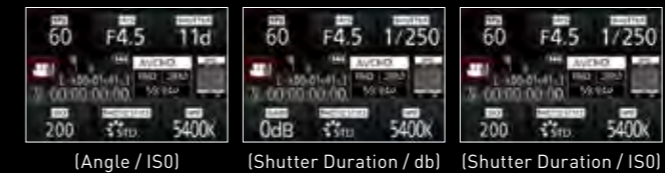
The video recording rate and output rate can be changed to produce either slow-motion or quick-motion videos. The settings are finer than those on the previous model (DMC-GH3), for a wider range of image expression.

59.94Hz		24.00Hz	50.00Hz
29.97p	23.98p	24p	25p
MOV/FHD/100Mbps			
MP(LPCM)/FHD/100Mbps			
AVCHD/FHD/24Mbps		-	AVCHD/FHD/24Mbps
2 fps	2 fps	2 fps	
15 fps	12 fps	12 fps	
26 fps	20 fps	21 fps	
28 fps	22 fps	23 fps	
30 fps	24 fps	25 fps	
32 fps	26 fps	27 fps	
34 fps	28 fps	30 fps	
45 fps	36 fps	37 fps	
60 fps	48 fps	50 fps	
75 fps	60 fps	62 fps	
90 fps	72 fps	75 fps	
96 fps	84 fps	96 fps	
-	96 fps	-	

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.



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

Cineline 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.



BODY DESIGN

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 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.



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.



WIRELESS

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.

• 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.



Focus 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 O.I.S. (H-ES045)
		

X Lens

			
LUMIX G X VARIO 12-35mm / F2.8 ASPH. / POWER O.I.S. (H-HS12035)	LUMIX G X VARIO 35-100mm / F2.8 / POWER O.I.S. (H-HS35100)	LUMIX G X VARIO PZ 14-42mm / F3.5-5.6 ASPH. / POWER O.I.S. (H-PS14042)	LUMIX G X VARIO PZ 45-175mm / F4.0-5.6 ASPH. / POWER O.I.S. (H-PS45175)
			

G Lens

			
LUMIX G FISHEYE 8mm / F3.5 (H-F008)	LUMIX G 14mm / F2.5 ASPH. (H-H014)	LUMIX G 20mm / F1.7 ASPH. (H-H020)	LUMIX G 20mm / F1.7 II ASPH. (H-H020A)
			
			
LUMIX G VARIO 7-14mm / F4.0 ASPH. (H-F007014)	LUMIX G VARIO 12-32mm / F3.5-5.6 ASPH. / MEGA O.I.S. (H-FS12032)	LUMIX G VARIO 14-42mm / F3.5-5.6 ASPH. / MEGA O.I.S. (H-FS014042)	LUMIX G VARIO 14-42mm / F3.5-5.6 II ASPH. / MEGA O.I.S. (H-FS1442A)
			
			
LUMIX G VARIO 14-45mm / F3.5-5.6 ASPH. / MEGA O.I.S. (H-FS014045)	LUMIX G VARIO 14-140mm / F3.5-5.6 ASPH. / POWER O.I.S. (H-FS14140)	LUMIX G VARIO HD 14-140mm / F4.0-5.6 ASPH. / MEGA O.I.S. (H-VS014140)	LUMIX G VARIO 45-150mm / F4.0-5.6 ASPH. / MEGA O.I.S. (H-FS45150)
			
			
LUMIX G VARIO 45-200mm / F4.0-5.6 / MEGA O.I.S. (H-FS045200)	LUMIX G VARIO 100-300mm / F4.0-5.6 / MEGA O.I.S. (H-FS100300)	LUMIX G 12.5mm / F12 (H-FT012)	
			

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

External TTL Flash (Wireless compatible)

	
---	---

External TTL Flash

		
---	---	---


LED Video Light

WV-LED1



Interface Unit

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



Stereo Shotgun Microphone

DMW-MS2



Stereo Microphone

VW-VMS10




Mount Adaptor

		
---	---	---


PL Filter (Circular Type)

67mm DMW-LPL67
62mm DMW-LPL62
58mm DMW-LPL58
52mm DMW-LPL52
46mm DMW-LPL46
37mm DMW-LPL37
37mm DMW-LPLA37




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-LMCH52
46mm DMW-LMCH46
37mm DMW-LMCH37



Battery Grip

DMW-BGGH3



Remote Shutter

DMW-RSL1



Battery

DMW-BLF19



Zoom Lever

DMW-ZL1



SD Memory Card

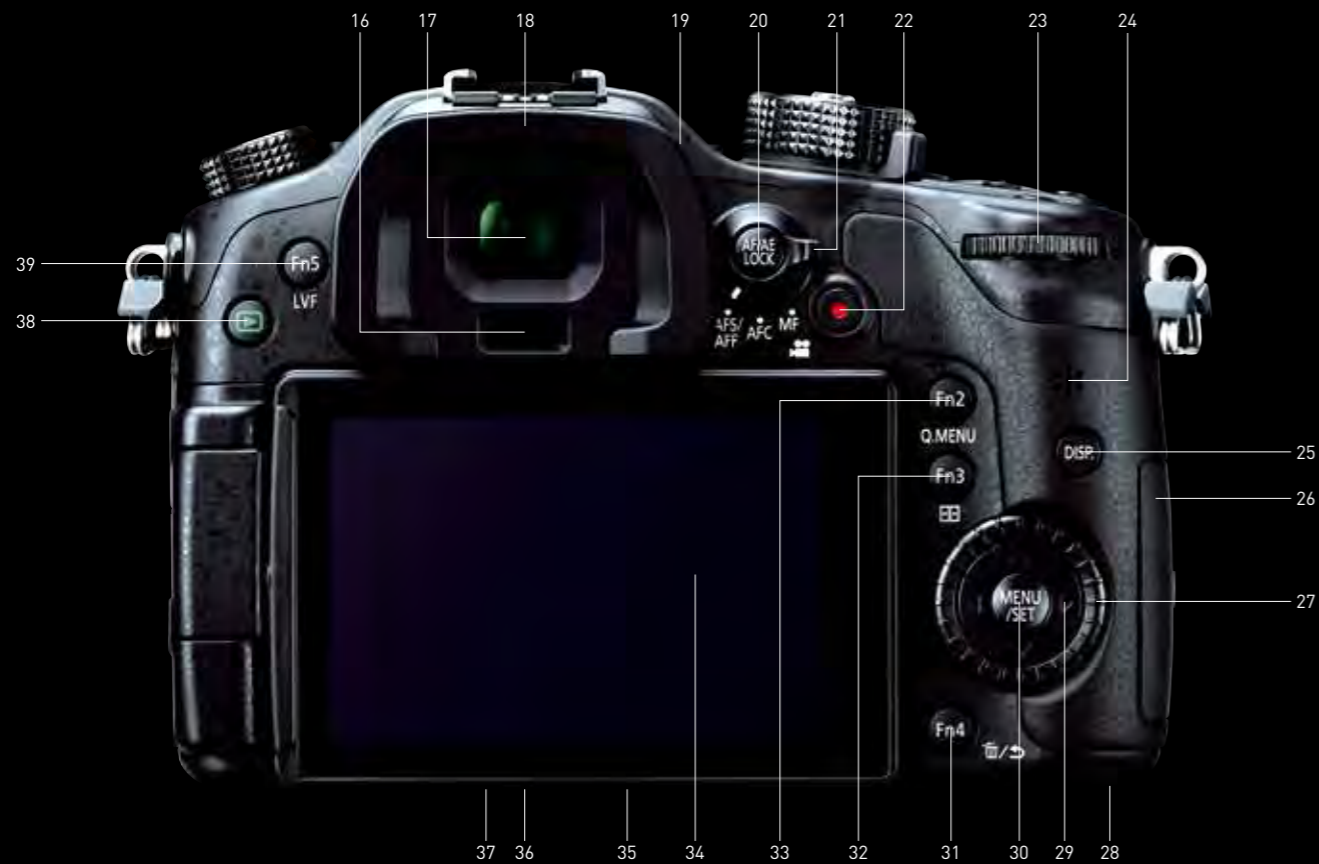
64GB: RP-SDUC64 GAK
32GB: RP-SDUC32 GAK
16GB: RP-SDUC16 GAK



•The UHS Speed Class3 (U3) mode write speed is only possible when using with the U3 compliant host devices.
•MB/s = 1,000,000 byte/s •SDHC, SDXC Logos are trademarks of SD-3C,LLC.

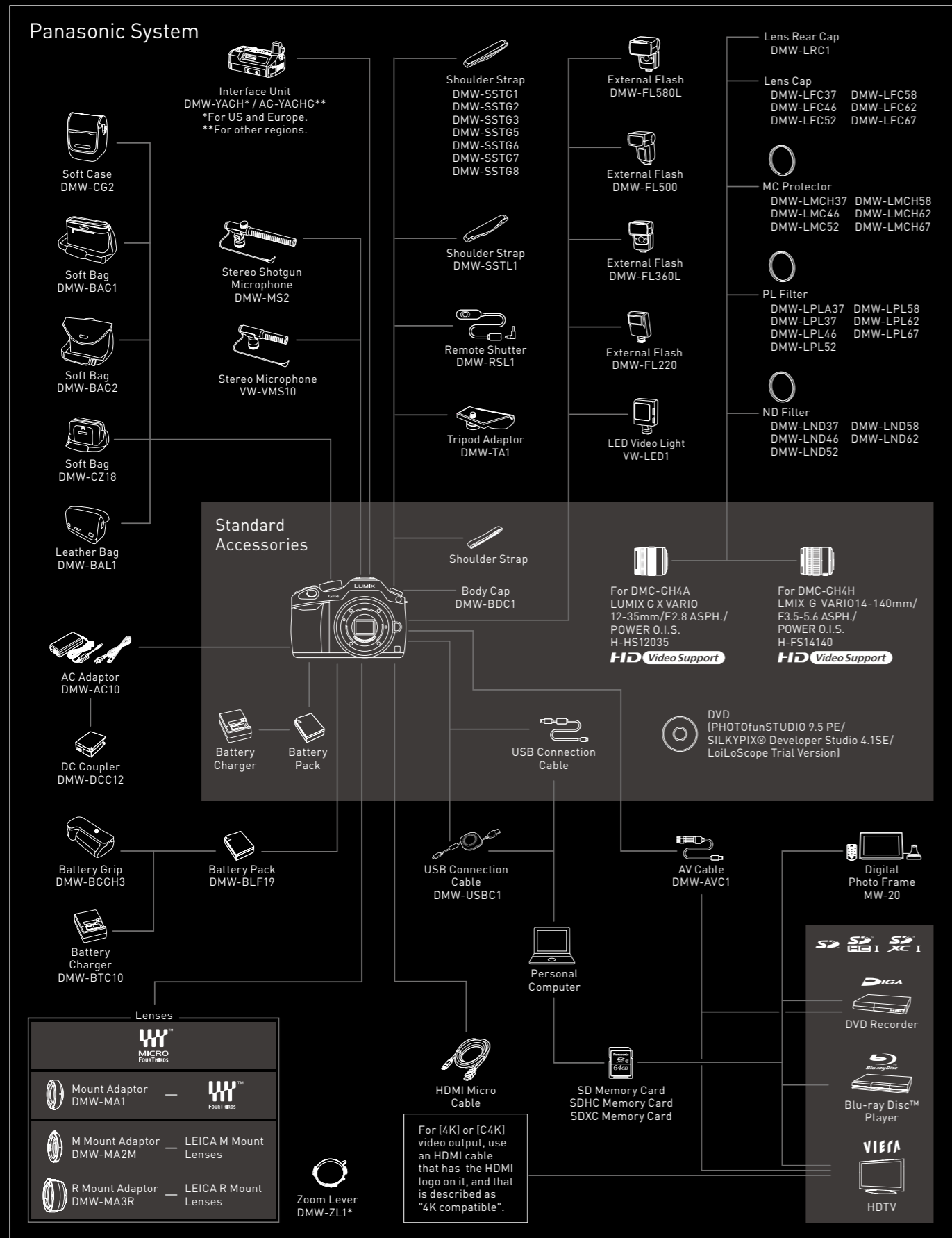
•LUMIX G system cameras come with a function to check whether the battery and unit can be safely used together. •Batteries made by other companies which have been certified by Panasonic may be used with these units, but we offer no guarantee as to the quality, performance or safety of such batteries. •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.

MAIN PARTS AND CONTROLS



- | | | |
|--|--|-----------------------------------|
| 1. Shutter button | 21. Focus mode lever | 41. Hot shoe |
| 2. Self-timer indicator/AF assist lamp | 22. Motion picture button | 42. Mode dial |
| 3. Sensor | 23. Rear dial | 43. Mode dial lock |
| 4. Flash | 24. Speaker | 44. Front dial |
| 5. Flash synchro socket | 25. DISP. button | 45. White Balance button |
| 6. MIC socket | 26. Card door | 46. ISO sensitivity button |
| 7. Headphone socket | 27. Control dial | 47. Exposure Compensation button |
| 8. HDMI socket | 28. Battery door | 48. Remote socket |
| 9. AV OUT/DIGITAL socket | 29. Cursor buttons | 49. Focus distance reference mark |
| 10. Lens release button | 30. MENU/SET button | 50. Wi-Fi connection lamp |
| 11. Lens lock pin | 31. Delete/Cancel button/Fn4 button | 51. Wi-Fi button/Fn1 button |
| 12. Lens fitting mark | 32. Auto Focus Mode button/Fn3 button | 52. Camera ON/OFF switch |
| 13. DC coupler cover | 33. Q. MENU button/Fn2 button | 53. Stereo microphone |
| 14. NFC antenna | 34. Touch screen/OLED monitor | 54. Flash open button |
| 15. Shoulder strap eyelet | 35. Cover for the battery grip connector | |
| 16. Eye sensor | 36. Tripod mount | |
| 17. Live View Finder | 37. Cover for the interface unit connector | |
| 18. Eye cup | 38. Playback button | |
| 19. Diopter adjustment dial | 39. LVF button/Fn5 button | |
| 20. AF/AE LOCK button | 40. Drive mode dial | |

SYSTEM CHART



* The DMW-ZL1 is compatible with the following Micro Four Thirds lenses (As of September 2012). H-F007014 / H-HS12035 // H-F5014042 / H-F5014045 / 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

TYPE	Type	Digital Single Lens Mirrorless camera
RECORDING MEDIA	Recording media	SD Memory Card, SDHC Memory Card, SDXC Memory Card (Compatible with UHS-I UHS Speed Class 3 standard SDHC / SDXC Memory Cards)
	Image sensor size	17.3 × 13.0 mm (in 4:3 aspect ratio)
	Lens mount	Micro Four Thirds mount
	Total pixels	Live MOS Sensor
IMAGE SENSOR	Camera effective pixels	16.05 Megapixels
	Color filter	Primary color filter
	Dust reduction system	Supersonic wave filter
	Still image	RAW, RAW+Fine, RAW+Standard, Fine, Standard, MPO+Fine / MPO+Standard (with 3D lens in Micro Four Thirds system standard)
RECORDING SYSTEM	Recording file format	Still Image: JPEG (DCF, Exif 2.3), RAW, MPO (When attaching 3D lens in Micro Four Thirds system standard) Motion picture: MOV (Audio format LPCM), MP4 (Audio format LPCM / AAC 2ch), AVCHD (Audio format Dolby Digital 2ch)
	System frequency	59.94Hz, 50.00Hz, 24.00Hz
	Aspect ratio	4:3, 3:2, 16:9, 1:1
	Image quality	RAW, RAW+Fine, RAW+Standard, Fine, Standard, MPO+Fine / MPO+Standard (with 3D lens in Micro Four Thirds system standard)
STILL IMAGE	Color space	sRGB, Adobe RGB
	Still Image	[4.3] 4608 × 3456 (L) / 3264 × 2448 (M) / 2336 × 1752 (S) / 1824 × 1368 (with 3D lens in Micro Four Thirds System standard)
		[3.2] 4608 × 3072 (L) / 3264 × 2176 (M) / 2336 × 1540 (S) / 1824 × 1216 (with 3D lens in Micro Four Thirds System standard)
		[1.6:9] 4608 × 2592 (L) / 3840 × 2160 (M) / 1920 × 1080 (S)
	MOV*	[4K] 3840×2160: 29.97p, 100Mbps (IPB) (LPCM) / 23.98p, 100Mbps (IPB) (LPCM) [Full HD] 1920×1080: 59.94p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM) 29.97p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM) 23.98p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM)
		[C4K] 4096×2160: 24.00p, 100Mbps (IPB) (LPCM) [Full HD] 1920×1080: 59.94p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM) 25.00p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM)
		[4K] 3840×2160: 25.00p, 100Mbps (IPB) (LPCM) [Full HD] 1920×1080: 59.94p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM) 25.00p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM)
	MP4*	[4K] 3840×2160: 25.00p, 100Mbps (IPB) (AAC) [Full HD] 1920×1080: 59.94p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM) 29.97p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM) 23.98p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM)
		[C4K] 4096×2160: 24.00p, 100Mbps (IPB) (LPCM) [Full HD] 1920×1080: 59.94p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM) 25.00p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM)
		[4K] 3840×2160: 24.00p, 100Mbps (IPB) (AAC) [Full HD] 1920×1080: 59.94p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM) 25.00p, 200Mbps (ALL-Intra) (LPCM) / 100Mbps (IPB) (LPCM) / 50Mbps (IPB) (LPCM)
	AVCHD Progressive** / AVCHD*	[Full HD] 1920×1080: 59.94p, 28Mbps (IPB) (Dolby) / 59.94p, 24Mbps (IPB) (Dolby) (Sensor output is 29.97p) 29.94p, 17Mbps (IPB) (Dolby) (Sensor output is 59.94p) 23.98p, 24Mbps (IPB) (Dolby) [Full HD] 1920×1080: 50.00p, 28Mbps (IPB) (Dolby) / 50.00p, 24Mbps (IPB) (Dolby) (Sensor output is 25.00p) 50.00p, 17Mbps (IPB) (Dolby) (Sensor output is 50.00p)
		[Full HD] 1920×1080: 50.00p, 28Mbps (IPB) (Dolby) / 50.00p, 24Mbps (IPB) (Dolby) (Sensor output is 25.00p) 50.00p, 17Mbps (IPB) (Dolby) (Sensor output is 50.00p)
[Full HD] 1920×1080: 50.00p, 28Mbps (IPB) (Dolby) / 50.00p, 24Mbps (IPB) (Dolby) (Sensor output is 25.00p) 50.00p, 17Mbps (IPB) (Dolby) (Sensor output is 50.00p)		
Wi-Fi FUNCTION	Wi-Fi	IEEE 802.11b/g/n, 2412 MHz - 2462 MHz (11 ch), Wi-Fi / WPA / WPA2, Infrastructure mode, WPS, Wi-Fi Direct
	NFC	ISO/IEC 18092, NFC-F (Passive Mode)
VIEWFINDER	QR Code Connection	Yes
	Field of view	OLED Live View Finder (2,35K dots)
	Magnification	Approx. 100%
	Eye point	Approx. 1.34x/0.67x (35mm camera equivalent) with 50 mm lens at infinity, -1.0 m-1
FOCUS	Dioptric adjustment	-4.0 ~ +4.0 (dpt)
	Eye sensor	Yes
	Eye sensor adjustment	High / Low
	Contrast AF system	Yes
EXPOSURE CONTROL	DFD technology	Yes
	Focus mode	AFS [Single] / AFF [Flexible] / AFC [Continuous] / MF Face/Eye Detection / Tracking / 49-Area / Custom Multi / 1-Area / Pinpoint [Full area touch is available]
	AF mode	EV-4 ~ 18 (ISO 100 equivalent)
	AF assist lamp	Yes [AF/AE LOCK button]
WHITE BALANCE	Light metering system	1.728-zone multi-pattern sensing system
	Light metering mode	Multiple / Center Weighted / Spot
	Metering range	EV0-18 (F2.0 lens, ISO 100 equivalent)
	Exposure mode	Program AE, Aperture Priority AE, Shutter Priority AE, Manual
SHUTTER	ISO sensitivity [Standard Output Sensitivity]	Auto / Intelligent ISO / 100 (Extended) / 200 / 400 / 800 / 1600 / 3200 / 6400 / 12800 / 25600 (changeable to 1/3 EV step)
	ISO sensitivity [Up to ISO 6400 in motion picture recording] [ISO Auto in Mode]	1/3 EV Step ±5EV (±3EV for motion image)
	AE lock	Yes [AF/AE lock button]
	AE bracket	3, 5, 7 frames in 1/3, 2/3 or 1 EV Step, Max. ±3 EV, single/burst
BURST SHOOTING	White balance	Auto / Daylight / Cloudy / Shade / Incandescent / Flash / White Set 1, 2, 3, 4 / Color temperature setting
	White balance adjustment	Blue/Amber bias, Magenta/Green bias
	Color temperature setting	2500 to 10000K in 100K
	White balance bracket	3 exposures in blue/amber axis or in magenta/green axis
OPTIONAL ACCESSORIES	Type	Focal-plane shutter
	Shutter speed	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, 23.98Hz: 1/16,000 - 1/24 (When using Synchro Scan)
	Shutter life	Approx. 200,000 images
	Self timer	2 sec or 10 sec, 3 images / 2 sec / 10 sec
OPTIONAL ACCESSORIES	Remote control	Remote control with Bulb function by DMW-RSL1 (Optional)
	Burst speed (in case SDHC Memory Card is used)	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)
	Number of recordable images	Approx. 40 images (when there are RAW files with the particular speed) Approx. 100 images (when there are no RAW files) Approx. 120 images (when using electronic shutter) (Depending on memory card size, battery power, picture size, and compression)

Partial restrictions on using Panasonic digital video cameras to play AVCHD motion images recorded with the DMC-GH3.
 • AVCHD videos recorded onto an SD Memory Card or a DVD Disc cannot be played on a device that does not support the AVCHD standard.
 • AVCHD motion images recorded with the compatible quality set to 1,280 × 720 cannot be played on AVCHD-compatible digital video cameras.
 • AVCHD motion images recorded with AVCHD-compatible digital video cameras cannot be played on the DMC-GH3.
 • More detailed information is available on our support site: <http://panasonic.jp/support/global/cs/dsc/>

* "AVCHD Progressive", "AVCHD", the "AVCHD Progressive" Logo and the "AVCHD" Logo are trademarks of Panasonic Corporation and Sony Corporation. The release date may differ depending on the country. Check the website of the Panasonic sales company in your country or region for details on the optional accessories that are available in your market. • The DMW-BLF19 comes 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. • Please confirm the latest information about batteries on the following website. <http://panasonic.jp/support/global/cs/info/battery.html> (English). • 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). • HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC. • Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. • Four Thirds™ and Micro Four Thirds™ are trademarks or registered trademarks of Olympus Imaging Corporation, in Japan, the United States, the European Union and other countries. • Other names of systems and products mentioned in this brochure are generally the registered trademarks or trademarks of the manufacturers who developed the system or product concerned. • Some accessories are not available in some countries. • Weight and dimensions shown are approximate. • Overall length of lens is from the tip of the lens to the base of the lens mount. • Some functions may not work when lenses other than the included lens are used. Please refer to Panasonic's website, etc., for the latest information. • Available of OSD languages may vary depending on the sales area. • Some sample images are simulated. • The use of recorded or printed materials that are protected by copyright for any purpose other than personal enjoyment is prohibited, as it would infringe upon the rights of the copyright holder. • The Wi-Fi CERTIFIED Logo is a certification mark of the Wi-Fi Alliance.

FLASH	Built-in flash type	TTL Built-in-Flash, GN12 equivalent (ISO100) / GN17 equivalent (ISO200) / Built-in Pop-up (Reference Lighting angle: 24mm (35mm camera equivalent))
	Flash mode	Auto*, Auto/Red-eye Reduction*, Forced On, Forced On/Red-eye Reduction, Slow Sync., Slow Sync./Red-eye Reduction, Forced Off* For IA, IA* only.
	Synchronization speed	Less than 1/250 second
	Flash output adjustment	1/3EV Step ±3EV
MONITOR	Flash synchronization	1st. Curtain Sync, 2nd Curtain Sync.
	Synchronization for flash dimming and exposure compensation	Yes
	Flash sync socket	Yes
	Type	OLED Monitor with static touch control
LIVE VIEW	Monitor size	Free-angle 3.0-inch / 3.2 Aspect / Wide viewing angle
	Pixels	Approx. 1036K dots
	Field of view	Approx. 100%
	Monitor adjustment	Brightness (7 levels), Contrast and Saturation (7 levels), Red-Green (11 levels), Blue-Yellow (11 levels)
DIRECTION DETECTION FUNCTION	Digital zoom	2x, 4x
	Extra Tele Conversion	Still image: Max. 2x (Aspect ratio set at 4:3. Not effective with L size recording. Magnification ratio depends on the recording pixels and aspect ratio.) Motion picture: 2.4x (FHD), 3.6x (HD), 4.8x (VGA)
	Other functions	Level Gauge, Real-time Histogram, Guide Lines (3 patterns), Center Marker, High/Low display (Still image / motion picture), Zebra pattern (Still image / motion picture)
	Yes	
FUNCTION BUTTON	Wi-Fi / O.MENU / Preview / One Push AE / Touch AE / Level Gauge / Focus Area Set / Zoom Control / 1 Shot RAW-JPEG / 1 Shot Spot Metering / Cursor Button Lock / Photo Style / Aspect Ratio / Picture Size / Quality / AFS/AF / Metering Mode / Burst Rate / Auto Bracket / Self Timer / Highlight Shadow / L. Dynamic / Resolution / HDR / Electronic Shutter / Flash Mode / Flash Adjust. / Ex. Tele Conv. / Digital Zoom / Stabilizer / Motion Pic. Set / Variable Frame Rate / Picture Mode / Synchro Scan / Time Code Display / Mic. Directivity Adjust / Color Bars / Snap Mode / Peaking / Histogram / Guide Line / Zebra Pattern / Rec Area / Video-Priority Display / Step Zoom / Zoom Speed / AF Mode / AF Mode / Restore to Default	
	Fn1, Fn2, Fn3, Fn4, Fn5, Fn6, Fn7, Fn8, Fn9, Fn10	
PHOTO STYLE	Still image and motion picture	Standard / Vivid / Natural / Monochrome / Scenery / Portrait / Custom / Cinelike D* / Cinelike V* *When Creative Video Mode is selected.
	Still image	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
	Motion picture	Expressive / Retro / Old Days / High Key / Low Key / Sepia / Monochrome / Dynamic Monochrome / Impressive Art / High Dynamic / Cross Process / Toy Effect / Toy Pop / Bleach Bypass / Miniature Effect / Fantasy / One Point Color
	Exposure Mode	MOV/FHD/100Mbps/29.97p, MP4/LPCM/FHD/100Mbps/29.97p, 15fps, 26fps, 28fps, 30fps, 32fps, 34fps, 45fps, 60fps, 75fps, 90fps, 96fps MOV/FHD/100Mbps/23.98p, MP4/LPCM/FHD/100Mbps/23.98p, 12fps, 21fps, 23fps, 25fps, 27fps, 30fps, 37fps, 50fps, 62fps, 75fps, 96fps AVCHD/FHD/24Mbps/29.97p, 15fps, 26fps, 28fps, 30fps, 32fps, 34fps, 45fps, 60fps AVCHD/FHD/24Mbps/23.98p, 12fps, 21fps, 23fps, 25fps, 27fps, 30fps, 37fps, 50fps
CREATIVE CONTROL	Variable frame rate	MOV/FHD/100Mbps/25.00p, MP4/LPCM/FHD/100Mbps/25.00p, 12fps, 21fps, 23fps, 25fps, 27fps, 30fps, 37fps, 50fps, 62fps, 75fps, 96fps AVCHD/FHD/24Mbps/25.00p, 12fps, 21fps, 23fps, 25fps, 27fps, 30fps, 37fps, 50fps MOV/FHD/100Mbps/24.00p, MP4/LPCM/FHD/100Mbps/24.00p, 12fps, 21fps, 23fps, 25fps, 27fps, 30fps, 37fps, 50fps
	Master pedestal level	0-235 / 16-235 / 16-295
	Luminance level	31 steps
	Synchro scan	Yes
MOTION PICTURE FUNCTION	Time code	Count Up, Rec Run/Free Run selectable, Time Code Mode, Drop frame/Non-drop frame selectable (When system frequency [59.94Hz] is selected.)
	SS/Gain operation	Shutter Duration/ISO / Angle/ISO / Shutter Duration/GB
	Color bars / 1kHz test tone	Yes [SMPT-E / EBU / ARIB] / Yes
	Cineline gamma	Cineline D / Cineline V
PLAYBACK	Normal playback, 30-thumbstill display, 12-thumbstill display, Calendar display, Zoomed playback (Max. 1x), Slideshow (All / Picture Only / Video Only / 3D / Category Selection / Favorite, duration & effect is selectable), Playback Mode (Normal / Picture / Video / 3D Play / Category / Favorite), Location Logging, RAW Processing, Clear Retouch, Title Edit, Text Stamp, Video Divide, Time Lapse Video, Snap Motion Video, Resize, Cropping, Rotate, Relation Display, Favorite, DPOF Print Set, Protect, Face Recognition Edit, Picture Sort, Delete Confirmation	
	Playback mode	Single / Multi / Cancel
	Protection	Single / Multi or Cancel
	Erase	Single / Multi / All / Except Favorite
IMAGE PROTECTION / ERASE	Direct print	PictBridge compatible
	USB	USB 2.0 High Speed Multi
	Monitor-through	4.2:2.8-bit / 4.2:2.10-bit (When 4.2:2.10-bit mode is selected, it is not possible to record motion picture or still picture on the SD memory card in the camera unit.) Auto / C4K / 4K / 1080p
	HDMI**	Information display ON/OFF (selectable) Automatic down-conversion (4K → 1080p only) microHDMI TypeD / VIERA Link, Audio, Stereo 59.94Hz: Auto / 4K / 1080p / 1080i / 720p / 480p 50.00Hz: Auto / 4K / 1080p / 1080i / 720p / 576p
INTERFACE	Audio video output	Monaural Type
	Remote input	ø2.5mm for remote
	External microphone input	ø3.5mm for external microphone
	Headphone output	ø3.5mm for headphone
LANGUAGE	Microphone	Stereo, Wind-cut: Off / Low / Standard / High / AUTO
	Speaker	Monaural
	OSD language	English, German, French, Italian, Spanish, Polish, Czech, Hungarian, Russian, Chinese (Traditional), Chinese (Simplified), Dutch, Thai, Korean, Turkish, Portuguese, Arabic, Persian, Japanese, Swedish, Danish, Finnish, Greek, Vietnamese *Check the website of Panasonic sales company in your country / region or ask customer support for details of the OSD language available on the products sold in your country / region.
	PHOTOfunSTUDIO 9.5 PE / SILKYPIX Developer Studio 4.1 SE / LoLoScope (trial version) / Windows XP / Vista / 7 / 8	
POWER	Battery	Li-ion Battery Pack (7.2V, 1860mAh) (Included), Battery Charger
	Battery life (CIPA standard)	Approx. 530 images with H-HS12035, Approx. 530 images with H-FS14140
	Dimensions (W × H × D)	132.9 × 93.4 × 83.9 mm / 5.23 × 3.68 × 3.30 in (excluding protrusions)
	Weight	Approx. 560g / 19.75 oz (SD card, Battery, Body) Approx. 480g / 16.93 oz (Body only) Approx. 865g / 30.51 oz (SD card, Battery, H-HS12035 lens included) Approx. 825g / 29.10 oz (SD card, Battery, H-FS14140 lens included)
DIMENSIONS / WEIGHT	Operating temperature	0°C to 40°C (32°F to 104°F)
	Operating humidity	10% to 80%
	Software	PHOTOfunSTUDIO 9.5 PE / Windows XP / Vista / 7 / 8 SILKYPIX Developer Studio 4.1 SE / Windows XP / Vista / 7 / 8, Mac OS X v10.5 / v10.6 / v10.7 / v10.8 LoLoScope (trial version) / Windows XP / Vista / 7 / 8
	Standard accessories	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* Included with DMC-GH4H kit and DMC-GH4H kit
OPTIONAL ACCESSORIES	External Flash (optional)	DMW-FL580L (optional), Wireless Channel: 1ch/2ch/3ch/4ch
	Interface unit (optional)**	DMW-YAGH (optional)**
	AC adaptor (optional)	DMW-AC10 (optional)
	External Microphone (optional)	DMW-MS2 (optional), Stereo/Lens Auto/Shotgun/Super Shotgun/Manual selectable (Battery Grip (optional)) DMW-BGGH3 (optional)

* About motion picture recording • Motion picture can be recorded up to 29 min 59 sec depending on the recording format and the camera's sales area. • Use a card with SD Speed Class with "UHS-I Speed Class 3 (U3)" when recording motion pictures in [4K/100Mbps] [C4K/100Mbps] [FHD/100Mbps] or [FHD/200Mbps]. • Use a card with SD Speed Class with "UHS-I Speed Class 1 (U1)" or higher when recording motion pictures in [FHD/50Mbps]. • Use a card with SD Speed Class with "Class 4" or higher when recording motion pictures in [FHD/28Mbps]. [SD speed class is the speed standard regarding continuous writing].
 ** For [4K] or [C4K] video output, use an HDMI cable that has the HDMI logo on it, and that is described as "4K compatible".
 *** The DMW-YAGH is not available in some countries or regions.

• About the performance of Face Recognition function
 Recognition performance varies greatly depending on shooting conditions, i.e., according to factors such as angles, facial expression and lighting, so operation under all conditions cannot be guaranteed. Because the camera searches for faces that are similar to registered faces, there are cases where the faces are not correctly recognized when the registered faces and the shooting image varies much. When facial characteristics are similar, particularly between parents and their children or brothers and sisters, the camera may not distinguish the faces.