Panasonic

CHANGING PHOTOGRAPHY
Lumix **G**

Lumix
GH5S/GH5

The Ascent of Innovation

Here we witness two visionary cameras designed for superior image quality and realistic color tone reproduction, a perfect pair that also introduce the world's first* 4K/60p and 4:2:2 10-bit 4K/30p video recording** performance. In breaking through the long-standing boundaries of digital imaging the original LUMIX GH5 established a unique position as a high-end hybrid digital single lens mirrorless (DSLM) camera. Photography and video professionals world-wide were both surprised and ecstatic – inspired afresh to adopt the new shooting possibilities. Such expressive capabilities within such a compact body had not been thought possible. Today, the GH5 continues to enable photographers to discover new imagery while also producing superb video and broadcast content. Now, with the debut of the GH5S, these expressive capabilities are further expanded in both fields. These models demonstrate performance levels far surpassing previous digital cameras. Indeed, they deliver quality so high that the user's inner artist can re-imagine and re-interpret every subject – so high they are pioneering a brave new era of image creation. With LUMIX GH5/GH5S the ascendancy of innovation has given rise to a new species of camera and brought the next generation in our image culture.

* 4K 60p/50p (for a Digital Single Lens Mirrorless Camera),4:2:2 10-bit (for a digital interchangeable lens camera) as of January 4, 2017.
** 4:2:0 8-bit in C4K 60p/50p and 4K 60p/50p recording on an SD Memory Card.

LUMIX G

LUMIX GH5S

A new high-end camera evolved to meet professional requirements with newly developed technologies to handle high sensitivity, for demanding video production standards.

DPREVIEW GOLD AWARD

LUMIX GH5 Ver. 2.0

Achieving stunningly realistic image quality and delivering the world's first* 4K/ 60p video.

* 4K 60p/50p (for a Digital Single Lens Mirrorless Camera), 4:2:2 10-bit (for a digital interchangeable lens camera) as of January 4, 2017.

DPREVIEW GOLD AWARD   TIPA AWARDS 2017

Sensitivity-enhanced GH5S

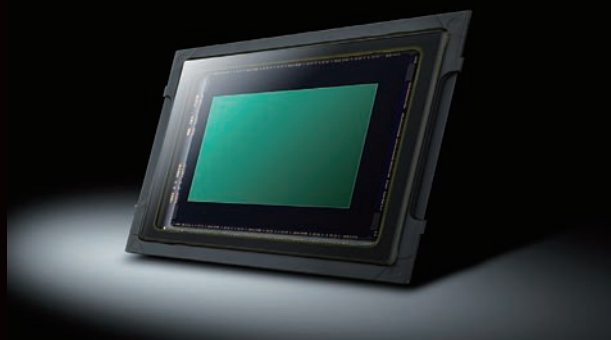| 10.2MP
Live MOS Sensor | ■ New sensor to achieve highest sensitivity, yet best image quality
with higher S/N ratio | P.05 |
	■ Multi aspect ratio, for the perfect focal length and high-resolution 4:3 (Anamorphic) / 16:9 4K/FHD / 17:9 (C4K)	
	■ Suppressed rolling shutter distortion by high-speed readout	
ISO51200 Extended ISO204800	■ Dual Native ISO, a revolutionary technology to realize lower noise in super high-sensitivity shooting	P.05
C4K/60p Video Recording	■ Smooth, high-resolution image rendering (C4K/60p, 4K/60p)	P.11 – 12
	■ 4:2:2 10-bit internal recording (C4K/30p, 4K/30p)	
	■ ALL-Intra recording for post-production efficiencies with non-linear editing (C4K/24p, 4K/30p)	
	■ Unlimited recording time* in all recording formats	
14-bit RAW	■ Switch between 14-bit and 12-bit RAW burst shooting for higher flexibility in professional RAW development workflows	P.05
Anamorphic Mode	■ 4K video recording mode in 4:3 for post-production in CinemaScope size (2.39:1/2.35:1)	P.14 – 15
	■ Anamorphic desqueeze display	
	■ Video guide line	
HLG (Hybrid Log Gamma)	■ HDR video production for C4K/4K/FHD in 4:2:2 10-bit	P.13
	■ HLG View Assist	
V-LogL Pre-installed	■ V-LogL recording for faithful color grading in post-production	P.13
	■ V-LogL View Assist	
TC IN/OUT	■ TC synchronization using bundled cable for easier editing of footage shot with multiple cameras	P.16

High-resolution GH5

20.3MP Live MOS Sensor	■ Realizing highest resolution images in LUMIX history	P.05
	■ Without a low-pass filter for capturing fine detail	
	■ Suppressed rolling shutter distortion by high-speed readout	
4K/60p Video Recording	■ Smooth, high-resolution image rendering (4K/60p)	P.11 – 12
	■ 4:2:2 10-bit internal recording (4K/30p)	
	■ ALL-Intra recording for post-production efficiencies with non-linear editing (4K/30p)	
	■ Unlimited recording time* in all recording formats	
B.I.S. In-Body Stabilizer	■ 5-stop slower shutter speeds** with 5-axis image stabilizer	P.08
	■ Powerful compensation even at telephoto end with Dual I.S.2	
6K PHOTO/4K PHOTO	■ Capturing decisive moments in approx.18MP with innovative burst mode	P.09
High-resolution Anamorphic Mode	■ Approx. 18MP video recording mode in 4:3 for post-production in CinemaScope size (2.39:1/2.35:1)	P.14 – 15
	■ Anamorphic desqueeze display	
	■ Video guide line	
HLG (Hybrid Log Gamma)	■ HDR video production for 4K/FHD in 4:2:2 10-bit	P.13
	■ HLG View Assist	
V-LogL Optional***	■ V-LogL recording for faithful color grading in post-production	P.13

Advanced Technologies Reveal Detail Hidden to the Eye

Image Sensor

20.3MP Live MOS Sensor

The GH5 has a Live MOS Sensor with approx. 20.3MP effective pixels. This is a significant, almost 25%, increase in comparison to the GH4 and its conventional 16MP sensor. Resolution detail is therefore greatly improved. Moreover, to maximize the sensor's resolution performance the camera is designed without a low-pass filter. When used together with the high optical performance of LEICA / LUMIX G lenses, you can shoot highly detailed and beautifully realistic images.

For High Image Quality in High Sensitivity **GH5S**

10.2MP Live MOS Sensor

Dynamic range and S/N ratio play an integral part in determining digital image quality. Now, the GH5S's newly developed Live MOS Sensor, with approx. 10.2MP effective pixels, adopts a proprietary Dual Native ISO technology with extraordinary noise suppression capabilities. Combined with the processing power of a Venus Engine, the resulting image quality is – quite simply – exceptional.

Consistent Focal Length **GH5S**

Multi Aspect Ratio

The LUMIX GH5S sensor handles multiple aspect ratios; 4:3, 3:2, 16:9 as well as C4K 17:9. Thanks to broad margins of effective pixels, focal length does not change in these aspect ratios.

[4:3]   [3:2]   [16:9]

Color Depth Settings to Match Your Scene **GH5S**

14-bit or 12-bit RAW Recording

The GH5S offers the option of recording RAW files as 14-bit or 12-bit data to give you a wider range and freedom of expression. 12-bit is effective when you want to prioritize continuous shooting speeds. Super-detailed 14-bit captures 4 times more information than 12-bit and comes into its own for scenes when you want to record delicate tones and colors.
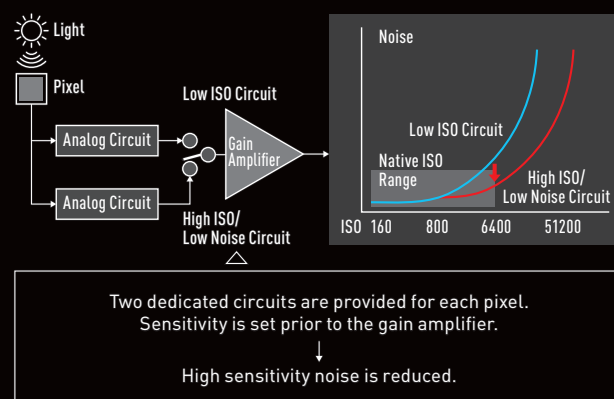
Maximum ISO51200, Extended ISO204800 **GH5S**

Dual Native ISO Technology

With a conventional single ISO sensitivity / gain circuit, the higher the sensitivity the higher the noise level is amplified. This causes image quality to deteriorate. However, the newly developed image sensor implements dual circuits for each pixel, able to switch to high native sensitivity before gain processing. This Dual Native ISO is a revolutionary technology featured on Panasonic's professional video cameras and offers the advantages of very high sensitivity for low-light shoots while suppressing noise levels. The GH5S provides beautiful footage rich in gradation and with high resolution, even in darker locations.

Dual I.S. ISO Image Sensor

Light
Pixel
Analog Circuit
Analog Circuit
Gain Amplifier
Low ISO Circuit
High ISO/ Low Noise Circuit

Noise
Low ISO Circuit
Native ISO Range
High ISO/ Low Noise Circuit
ISO 160   800   6400   51200

Two dedicated circuits are provided for each pixel.
Sensitivity is set prior to the gain amplifier.
↓
High sensitivity noise is reduced.

■ Dual Native ISO Setting*

The GH5S comes with Dual Native ISO Auto, a feature with two dedicated circuits which both handle individual sensor pixels and automatically switch between Low ISO or Low Noise, according to the brightness of the scene. So you can shoot scenes in darkness with the ease of a regular digital camera set to AUTO ISO. There is also a manual option available which makes it possible to choose the circuits based on your needs.

* Applicable ISO sensitivity range will vary depending on which setting is used.

For Smooth and Distortion-free Images **GH5S** **GH5**

Ultra-fast Signal Readout

The speed of the digital signal readout from the GH5's Live MOS Sensor is already double the GH4 standard, and the GH5S has taken this still further – approx. 1.3 times faster than the GH5. This improvement allows smooth, high-definition video recording including C4K/60p (GH5S) or 4K/60p (GH5/GH5S). It has also benefitted the camera's maneuverability and expressive range – contrast AF is faster, tracking performance improved and higher VFR (variable frame rate) settings are now possible.

■ Suppressed Rolling Shutter

The so-called 'rolling shutter distortion' sometimes occurs when shooting fast moving subjects while panning, or when shooting video with an electronic shutter. The GH5 cameras have now significantly reduced this phenomenon – achieved by increasing the readout speed of the image sensor (compared to the GH4). Now, subjects in motion are recorded with more natural results and much closer to their original proportions.

Image Processor
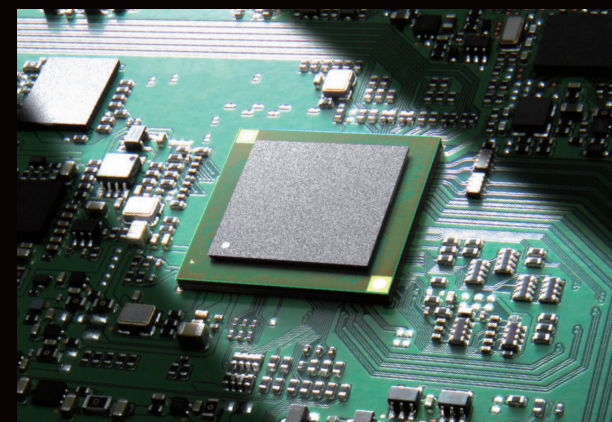
Realism Down to Subject Texture **GH5S** **GH5**

Venus Engine

The GH5 cameras incorporate the newly developed 'Venus Engine' – an advanced processor which effortlessly handles digital signals at ultra-high-speed. Image quality per frame is dramatically improved with faithful color reproduction and grading for both stills and video. Subject textures are expressed to a level of realism beyond the impressive number of pixels, preserving the full depth of emotion and vitality from every scene.

For Delicate Colors, Natural Textures **GH5S** **GH5**

Multipixel Luminance Generation

For rendering clear, sharp images with high contrast reproduction and natural textures, the reference area (pixel information) for generating the RGB luminance signal has been greatly expanded – almost 9 times larger than the conventional processing.

Imaging Technology

■ Intelligent Detail Processing

The characteristic of every single pixel within the subject is analyzed to detect if it is from a flat area, a detail or the edge. Even for scenes with multiple textures and contours, optimum emphasis or optimum suppression is controlled accordingly. The resulting image reproduces the nuances of the subject much more faithfully.
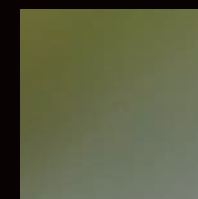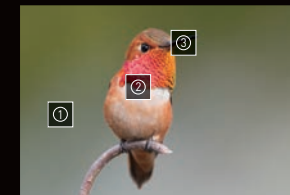
① Flat
Without Emphasis
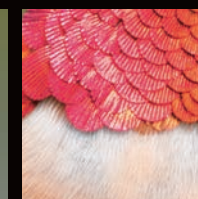
② Details
Emphasized in Resolution
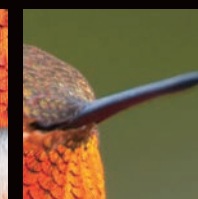
③ Edges
More Natural

■ High-performance Color Moiré Suppression

The undesirable false color moiré effect sometimes generated when shooting a subject with repetitive patterns, e.g. a fabric or fence, is suppressed thanks to improvements in Venus Engine processing. By removing color moiré, a far more natural texture expression is achieved.

■ Three-dimensional Color Control

The new capability of Three-dimensional Color Control delivers richer color expression by optimally controlling brightness. The bright and dark shadow parts are corrected separately. You can now faithfully reproduce, for example, the nuance of smooth, subtle gradations across an evening subject.

■ High-precision Multi-process NR

Multi-process noise reduction has been upgraded over the GH4 for higher precision and suppression. Noise identification now has four times higher resolution for preserving details. Rough textures and tones are ironed out to deliver a natural stereoscopic effect, even for images shot at high ISO settings.

■ Diffraction Compensation

The ultra-high-speed Venus Engine helps correct the softening diffraction phenomenon that can occur when shooting, for example, a landscape using a very small aperture. You will always capture a clear, crisp image with high resolution no matter the location.

Innovative AF and Camera Shake Correction for More Mobility

Focus

High-performance AF – Superb Accuracy, Speed and Tracking
GH5S **GH5**
Depth from Defocus (DFD)* Technology

Depressing the shutter button just half-way triggers a near-instant AF response in a mere approx. 0.05 seconds (GH5)** or 0.07 seconds (GH5S)***. Such amazing auto-focus speeds – the industry's fastest – are achieved through the power of Panasonic's unique spatial recognition technologies, DFD and Contrast AF. These are aided by the high-performance Venus Engine processing real-time distance calculations and the ultra-high dr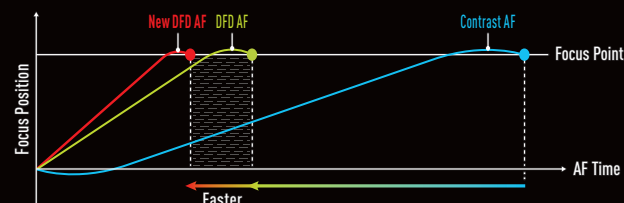ive speed of the Live MOS Sensor. The camera locks on to subjects more securely and precisely than ever before, tracking unpredictable movement even at high speed.

* Contrast AF with DFD Technology works only with Panasonic Micro Four Thirds lenses.
** In AFS, at wide-end with H-ES12060 (CIPA).
*** In AFS, at wide-end with H-ES12060 (CIPA) in LVF120 fps setting.

■ DFD's Excellent Motion Tracking Abilities

The distance to subject detection range in the GH5 cameras is now almost twice that of the GH4. Furthermore the DFD technology features more evolved algorithms, with superior calculating accuracy, for better detecting motion across the horizontal, vertical and depth planes. This greatly improves the ability to track moving subjects when video shooting sports or wildlife scenes.

DFD AF System
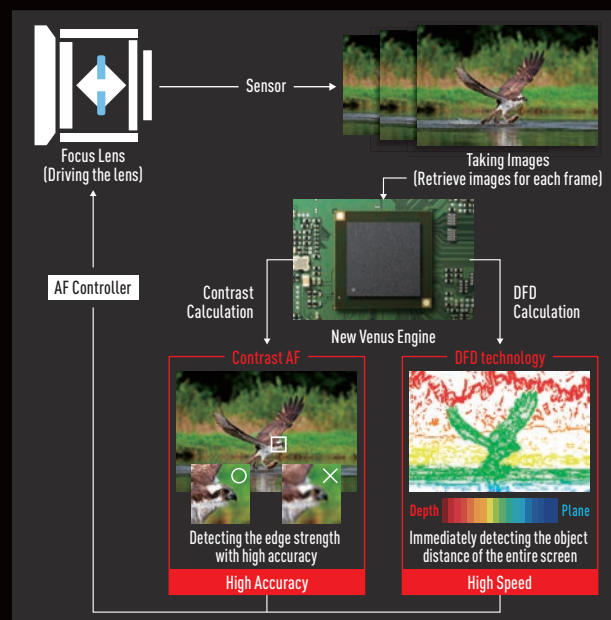
■ Advantages of DFD Technology

The innovative DFD technologies analyze distance to subject by comparing and contrasting multiple images with different focus positions while also referencing the optical characteristics of the lens. DFD immediately detects real-time subject and object distances across the entire frame, near and far – as well as estimating the main subject's direction of movement – to instantly drive the lens to the optimal in-focus position. Contrast AF accurately detects and calculates subject edge strength and marks a significant development over conventional AF methods, achieving both high precision and high speed simultaneously.

Compositional Freedom with Focus Precision
GH5S **GH5**
225-area Multi AF / Pinpoint AF

The GH5 cameras feature highly flexible auto focus control. You can freely and accurately control focus on any sized area made up of between 1 to 225 AF points, even when the subject is not centrally framed. Select the AF-area group in Custom Multi AF mode and compose your subject like a drawing. In particular, moving subjects can be followed with graceful in-focus continuity. Pinpoint AF, which can focus on a point even smaller than the AF area, is useful for finely composing macro photographs, or 1-area AF when precise focusing is required.

Advanced Facial Analysis Algorithms
GH5S **GH5**
Face / Eye Recognition AF

As well as having eye recognition AF, the cameras automatically detect the faces of up to 15 people to determine and show the AF area. In such situations you can specify the main subject by touch-screen operation. So, while the camera may automatically focus on eyes closer to the camera, you can shift it onto somebody further back in frame.

■ Deep Learning Technology
GH5S

GH5S incorporates Deep Learning technology that detects a human body in addition to the conventional face and eye detection. This helps you capture subjects more accurately even when the face is hidden, facing away or not stable.

Capture Subjects Invisible to the Eye
GH5S **GH5**
Low Light AF

By maximizing the photodiode area of each pixel, more accurate focusing is possible in low-light situations. With Low Light AF a luminance detection performance of -4EV is realized in the GH5, and -5EV in the GH5S. So you can clearly monitor, compose and focus your subject when shooting in dark situations.

Optimized AF to Match the Motion
GH5S **GH5**
Customize AF

For better AF performance, and taking full advantage of the AF system's high speed when tracking moving subjects, four AF custom pre-sets are installed (Set 1, Set 2, Set 3, Set 4). You can switch instantly to the one that best suits your intentions or, for greater precision, you can finely tune these pre-sets by adjusting the 'AF Sensitivity', 'AF Area Switching Sensitivity' and 'Moving Object Prediction' within each Set.

[Set 1]
Highly versatile basic setting

[Set 2]
For subjects moving at constant speed in one direction (e.g. trains)

[Set 3]
For subjects moving back and forth, right and left (e.g. sports), and scenes with frequent intrusions

[Set 4]
For subjects frequently changing speed (e.g. motor sports and wildlife)

IMAGE STABILIZATION

For Effective Camera-shake Suppression to 5 Stops on 5-axis
GH5
B.I.S. (Body Image Stabilizer)

The GH5 features body image stabilization with correction on 5-axis – shake blur on the 'yaw / pitch / roll' axes and horizontal / vertical translational motion blur on the 'X / Y' axes. The high-precision gyrosensor and advanced algorithms which calculate the right balance compensation, enable the camera to achieve up to 5-stop slower shutter speeds*. This impressive shake correction is highly effective even when using lenses without Optical I.S..

* Based on the CIPA standard [Yaw/Pitch direction: focusing distance f=50-140mm (35mm film camera equivalent f=100-280mm), when H-FS14140 is used.]
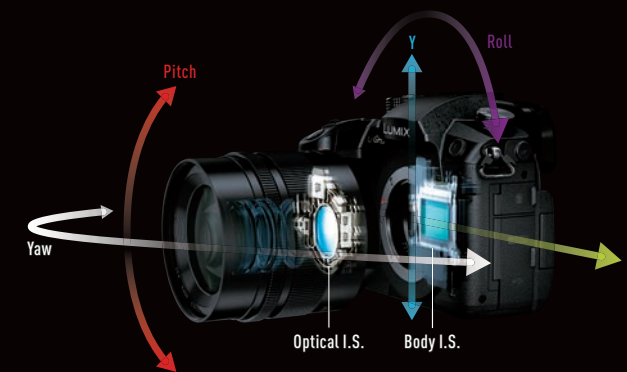
■ Image Stabilizer Lock

By engaging the Image Stabilizer Lock on GH5 when shooting video hand-held from a fixed position, a stable jitter-free image is delivered. This also compensates effectively for even slight movements, so you can shoot confidently without a tripod.

• When you need to intentionally move the camera around or re-compose your subject while shooting, set the Image Stabilizer to 'OFF' then change your angle of view. The button is conveniently located so you can switch 'on' and 'off' as you move. Note that when using a telephoto lens, the correction effect weakens as focal length increases.

Effective Camera Shake Suppression from Wide to Tele
GH5
Dual I.S.2*

The GH5 features the new 5-axis Dual I.S.2* (image stabilizer) for more powerful and effective camera-shake suppression. Through the perfect combination of in-Body I.S. and Optical I.S., conventionally uncontrolled larger movements are corrected. The camera integrates a high-precision gyrosensor that controls the distribution of O.I.S. / B.I.S. compensation by analyzing the focal length and shooting situation, making it possible to achieve up to 5-stop slower shutter speeds**.

* 5-Axis Dual I.S.2 can be used with the H-FS12060 lens, H-FS14140 lens, and H-RS100400 lens (requires updated firmware) as of March 2018. The newly updated H-ES12060, H-HSA12035, H-HSA35100, H-FSA45200, H-FSA100300 and H-ES50200 lens are all compatible with 5-Axis Dual I.S.2.
** Based on the CIPA standard [Yaw/Pitch direction: focusing distance f=140mm (35mm film camera equivalent f=280mm), when H-FS14140 is used.]
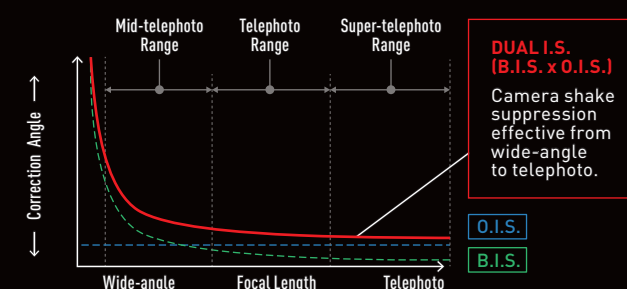
A New Approach to Capturing Special, Life-defining Moments

BURST SHOOTING

Switchable between Speed Priority or Image Quality Options
GH5S

Max. 12fps Bursts (12-bit AFS / MF)

With the GH5S, high-speed burst shooting in 12-bit RAW resolution is possible at up to 12fps (AFS / MF) or 8fps (AFF / AFC), even for AF tracking of subjects in motion. When shooting in 14-bit RAW you can still achieve speeds of 11fps (AFS / MF) or 7fps (AFF / AFC) for the perfect moment in vivid detail.

GH5S (10.2MP)	[H] (High Speed)		[M] (Medium Speed)		[L] (Low Speed)	
	12-bit RAW	14-bit RAW	12-bit RAW	14-bit RAW	12-bit RAW	14-bit RAW
AFS/MF	12fps	11fps	7fps	6fps	2fps	
AFF/AFC	8fps	7fps	6fps	5fps		

High Speed Shooting with 20.3MP High Resolution
GH5

Max. 12fps Bursts (AFS / MF)

The GH5 is capable of burst shooting speeds of approx. 12fps (AFS / MF), even while saving images in high resolution 20.3MP. Even with AF tracking, a rate of approx. 9fps (AFF / AFC) can be relied upon, giving you both high image quality and high speed.

GH5 (20.3MP)	[H] (High Speed)	[M] (Medium Speed)	[L] (Low Speed)
AFS/MF	12fps	7fps	2fps
AFF/AFC	9fps		

Shoot in Bursts and Never Miss the Important Moment
GH5S **GH5**

Approx. 600 Continuous Burst

You can capture up to approx. 600* JPEG burst images consecutively when shooting continuously. If you require the images as RAW (or RAW+JPEG) files you can burst shoot up to about 80 images on the GH5S, or 60 on the GH5.

* Using SDXC / SDHC memory cards UHS-I / UHS-II U3 (UHS Speed Class 3), and before speed begins to slows down, (as based on Panasonic measures).

18MP 30fps or 8MP 60fps
GH5S **GH5**

6K PHOTO* / 4K PHOTO

■ 6K PHOTO*
GH5

High-speed burst shooting at 30fps, in either 4:3 or 3:2 aspect ratios, delivers images about 18-megapixel equiv. high-resolution photo (approx. 6,000 x 3,000). The high pixel count is about 2.25 times the number of pixels within a 4K PHOTO and lets you capture critical split-second moments in stunning, vivid detail.

6K PHOTO

* '6K PHOTO' is a high-speed burst shooting function that cuts still images out from 4:3 or 3:2 video footage to approx. 18-megapixels, (approx. 6,000 x 3,000 effective pixel count). 6K PHOTO recording is not compatible with the GH5S.

■ 4K PHOTO
GH5S **GH5**

High speed burst shooting at 60fps is possible in 4K PHOTO and, what is more, the usual rolling shutter distortion effect has been suppressed to give you more natural looking results.

4K PHOTO

■ Recording Modes

In either 6K PHOTO or 4K PHOTO you can choose from three different burst recording methods depending on the subject you are shooting and these settings make it far less likely that you might miss the special moment you are waiting for.

■ Pre-burst Mode

With Pre-burst Recording in 6K/4K (S/S), when you depress the shutter button all the way down, recording has already started – approx. 1 second before. Shoot with greater certainty because the risk of missing that much-anticipated, prized moment is now minimized.

■ Loop Recording Mode

With continuous Loop Recording at 6K/4K (S/S), when the SD card's maximum capacity is reached, recording does not stop but continues by deleting old data. This means that there is no limit on the remaining recordable time and no need for a new card to be inserted. In effect, you are recording continuously so rare moments which require waiting a long time will always be captured.

CREATIVE TOOLS / STILLS

Simple Control for Various Expression
GH5S **GH5**

Photo Style

Adjusting the tone, saturation, contrast, sharpness, etc. of your images to suit your subject and preferences is easy. You can express your interpretation of an everyday scene and make the ordinary look that much more impressive, ultimately bringing more fun into your shoots.

• Levels of adjustment vary for different Photo Style Modes.

■ Stills Supported by 709Like / V-LogL
GH5S

Until now, 709Like and V-LogL color profiles could only be set within Creative Video mode. Now they can also be selected for shooting stills. So, when used for shooting stills at intervals to create time lapse, the images have the same gamma curve tones as footage shot by a video or cinema camera.

Expand Creativity for Night-shooting
GH5S

Assist Functions

The GH5S is designed to shoot with difficult lighting conditions in mind. Multiple features are included that make stills or video shooting in low-light situations, such as night-time astro-photography, easy and comfortable.

■ Live View Boost

This boosts screen sensitivity for a brighter display so you can better compose the image and check focus in darkness.

Normal Live View
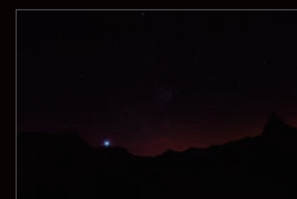
Live View Boost Display

■ MF Assist

MF Assist, which enlarges magnification on the display, can be deployed for checking manual focus. Maximum magnification is 20x on the GH5S*, and 10x on the GH5*. The former range is especially useful when needing to focus on tiny points of light, such as stars in the sky. Faster manual focus is also achieved by deploying 'focus peaking' which overlays a color highlight on those parts of the subject most in focus. This ensures pinpoint focusing accuracy and is useful when shooting 4K videos or macro subjects where depth of field is minimal.

20x (GH5S)

MF Assist's magnified image

■ Night Mode

This mode sets the display icons and menu texts to a gentle red on black to avoid dazzling after your eyes have adjusted to a dark environment.

A World's First* – Cinema 4K/60p Video Recording – The Next Big Innovation in the World of Video-making

* As of January 8, 2018 as a Digital Single Lens Mirrorless camera that complies with Cinema 4K (C4K: 4,096 x 2,160) resolution defined by Digital Cinema Initiatives (DCI). According to a Panasonic study.

RECORDING FORMAT

First Time Ever* for a DSLM Camera

GH5S **GH5**

Cinema 4K/60p Video Recording

The GH5 was the first DSLM ever** to feature 4K/60p video. As such, and thanks to the camera's excellent mobility with superb image quality, it has already been adopted in many professional studios. The GH5S has inherited and further developed these great qualities – another world first* being its new cinematic capability to record 60p in Cinema 4K (4,096 x 2,160) for footage taken that is seductively fine and smooth.

* As of January 8, 2018 as a Digital Single Lens Mirrorless camera that complies with Cinema 4K (C4K: 4,096 x 2,160) resolution defined by Digital Cinema Initiatives (DCI). According to a Panasonic study.
** 4K 60p/50p (for a Digital Single Lens Mirrorless Camera), 4:2:2 10-bit (for a digital interchangeable lens camera) as of January 4, 2017.

For Smooth Motion Expression

GH5S **GH5**

Video Recording in 4K/60p

Both the GH5S and GH5 can record 60p at 4K (3,840 x 2,160) resolution making it ideal for shooting 4K broadcast content in the 16:9 aspect ratio. Thanks to the multi-aspect ratio design both 4K and FHD recordings use the full extent of the sensor. Because of non-cropping, focal length does not shift to the telephoto side – an advantage when shooting with a wide-angle lens. In addition, any lowering of resolution is suppressed in FHD for both the horizontal and vertical thanks to original pixel mixing technology. The result is beautiful natural looking, jaggy-free images.

Size	File Format	Frame Rate	Bit Rate (Color Profile)	Compression Method	GH5S	GH5
C4K 4096 × 2160	MOV/MP4	59.94p	150Mbps(4:2:0 8-bit)			—
		50.00p	150Mbps(4:2:0 8-bit)			
		29.97p	150Mbps(4:2:2 10-bit)	LongGOP		
			100Mbps(4:2:0 8-bit)			
		25.00p	150Mbps(4:2:2 10-bit)	LongGOP		
			100Mbps(4:2:0 8-bit)			
		24.00p	400Mbps(4:2:2 10-bit)	ALL-Intra		
			150Mbps(4:2:2 10-bit)	LongGOP		
			100Mbps(4:2:0 8-bit)			
		23.98p	400Mbps(4:2:2 10-bit)	ALL-Intra		
			150Mbps(4:2:2 10-bit)	LongGOP		
			100Mbps(4:2:0 8-bit)			
		59.94p	150Mbps(4:2:0 8-bit)		YES	
		50.00p				
4K 3840 × 2160		29.97p	400Mbps(4:2:2 10-bit)	ALL-Intra		YES
			150Mbps(4:2:2 10-bit)	LongGOP		
			100Mbps(4:2:0 8-bit)			
		25.00p	400Mbps(4:2:2 10-bit)	ALL-Intra		
			150Mbps(4:2:2 10-bit)	LongGOP		
			100Mbps(4:2:0 8-bit)			
		24.00p	400Mbps(4:2:2 10-bit)	ALL-Intra		
			150Mbps(4:2:2 10-bit)	LongGOP		
			100Mbps(4:2:0 8-bit)			
		23.98p	400Mbps(4:2:2 10-bit)	ALL-Intra		
			150Mbps(4:2:2 10-bit)	LongGOP		
			100Mbps(4:2:0 8-bit)			

• For FHD refer to "Specifications"

Supports Many Editing Software Standards

GH5S **GH5**

MOV / MP4 Compatible

The GH5 and GH5S both record the MOV format internally to SD card – highly compatible with most editing software platforms – as well as supporting the highly versatile MP4 format and AVCHD, compatible with a wide range of AV equipment. The mainstream H.264 / MPEG-4 AVC codec is used. The videographer can select the most useful recording format to match the required bit rate, frame rate, compression method, other footage and workflow of a video project.

Select Compression Method by Project Requirement

GH5S **GH5**

ALL-Intra or LongGOP

With ALL-Intra compression, it is possible to record with a high bit rate up to 400Mpbs. Because it uses an intra-frame method to perform compression in single frame unit ALL-Intra is optimal for non-linear video editing. On the other hand, LongGOP performs particularly well for high image quality with a high compression ratio. The resulting data files are lightweight and easy to handle – well-suited to shooting non-stop scenes with long recordings.

For Continuous Shooting

GH5S **GH5**

Unlimited Video Recording Time*

Both cameras are able to record video for unlimited time periods beyond 30 minutes, bringing new possibilities to the shooting of uncut documentary scenes, fixed-point wild-life observations, etc. and new ways to express the subject, such as time-lapse videos.

* Recording duration is only limited by battery and SD card capacities. However, extended shooting may be stopped automatically in order to protect the device if ambient temperatures exceed 40°C (104°F).

Supports Long-duration and Backup Recording

GH5S **GH5**

Double SD Card Slot (UHS-II Compatible)

Both the GH5 and GH5S feature the first UHS-II compatible double SD card slot in the LUMIX G series. In 'Relay Recording', recording onto the second card automatically starts when the first card reaches capacity. In 'Backup Recording', the same contents are recorded on both cards simultaneously. Furthermore, with 'Allocation Recording', it is possible to select either cards in Slot 1 or Slot 2 for RAW, JPEG, 6K/4K PHOTO, or 4K video data recording.
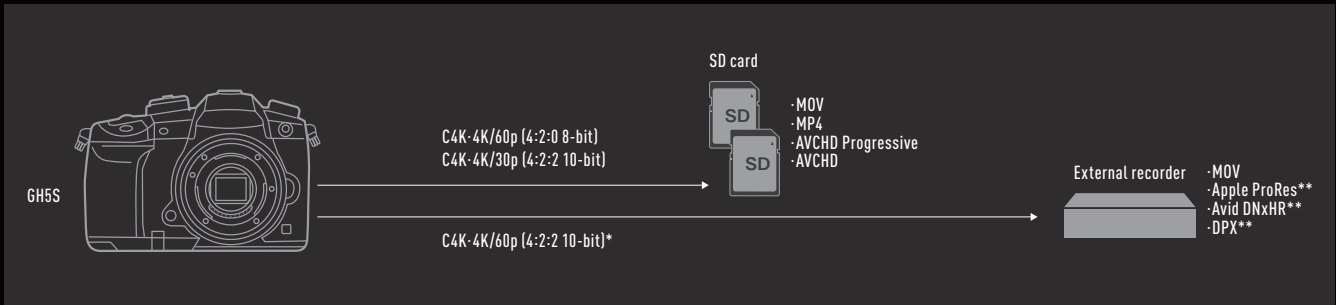
For High-quality Images, without External Recorder

GH5S **GH5**

4:2:2 10-bit* Internal Recording

You can record 4:2:2 10-bit* video data with faithful color and grading internally onto the SD card without requiring any external recorder. This adds great mobility shooting to your projects. The high density information recorded by 4:2:2 10-bit* video means it can be used for chroma key compositing, data processing in a virtual studio, and for flexible post-production color grading. Besides visual effects, 4:2:2 10-bit* is also quality-compatible with other material shot on high-end digital cameras for cinematic projects, promotion videos and TV commercials, as well as for film production where extremely fine quality is required.

* 4:2:0 8-bit in C4K 60p/50p and 4K 60p/50p recording on an SD Memory Card.

Supports External Recording of Cinema 4K and 4K/60p

GH5S **GH5**

4:2:2 10-bit HDMI Output

With both GH5 cameras 4:2:2 10-bit quality 4K/60p video data can be output via HDMI* for recording on an external recorder. 4:2:2 10-bit 4K/60p has previously only been possible on high-end digital cinema and ENG cameras but is now part of the LUMIX DSLM world. More devices and other equipment are now being upgraded for use in high-quality productions.

* When HDMI output is set to 4:2:2 10-bit, video data cannot be recorded to the SD card.

■ Monitoring on an External Display

You can output video images with OSD information superimposed onto an HDMI-connected external display, and you can convert the size and frame rate according to the equipment being connected. Hybrid log gamma and LUT are also supported. Using V-LogL View Assist you can preview and check focus and gradation on a large screen to bring smarter efficiencies to your video shoots.

Format Image (GH5S)

GH5S
C4K-4K/60p (4:2:0 8-bit)
C4K-4K/30p (4:2:2 10-bit)
SD card
SD · MOV · MP4
SD · AVCHD Progressive · AVCHD
External recorder · MOV · Apple ProRes** · Avid DNxHR** · DPX**
C4K-4K/60p (4:2:2 10-bit)*

* When HDMI output is set to 4:2:2 10-bit, data cannot be recorded to the SD card.
** File format will depend on the external recorder being used. Please refer to the respective manufacturer for further details.

With HDR and Log, GH5 Cameras Lead the Next Video-making Generation

CREATIVE TOOLS / VIDEO

A DSLM Camera and Early Entrant to the HDR Era
Hybrid Log Gamma (HLG)

`GH5S` `GH5`

LUMIX has been quick to introduce Hybrid Log Gamma (HLG) to digital single lens mirrorless cameras. This new standard for high dynamic range (HDR) video recording was only recently adopted by the International Telecommunication Union (ITU-R BT.2100). Whether in C4K, 4K, FHD or anamorphic format, HLG mode applies to all 4:2:2 10-bit video recording for preview on HLG-compatible TV via HDMI 2.0. With a wider brightness range, HDR-shot footages simultaneously renders brighter and darker image areas (e.g. strong sun rays and dark shadows).

Standard Dynamic Range (SDR)   High Dynamic Range (HDR)

■ HLG View Assist

This output mode allows you to visually check the gradation and exposure of video shot in HLG mode, depending on the monitor or viewfinder installed in the camera.

MODE 1	MODE 1: Conforms to ITU-R BT.709 and converts for color correction. Conversion emphasizes high brightness subjects, e.g. skies, landscapes, etc. (Total area under-exposed).
MODE 2	MODE 2: Conforms to ITU-R BT.709 and converts for color and brightness correction. Conversion emphasizes intermediate brightness subjects. (High brightness areas over-exposed / white-out).

■ Low Bit Rate 4K HLG Video Recording Mode

Using the 4K HLG video recording mode (4:2:0 10-bit) with its low 72Mbps bit rate enables video playback on AV equipment compatible with HEVC compression systems. So you can playback HDR videos from the SD card onto an HDR-compatible VIERA etc.

* SD cards of Class 10 or UHS-I Speed Class 1 (U1) are recommended.

For Rich Gradation and Grading Flexibility
V-LogL

`GH5S` `GH5`

The GH5 cameras support Log shooting* – the popular digital cinema production standard. V-LogL recording has a wider 12 stops of dynamic range, realizing a richer tonal expression from shadows to highlights. There is now also much more color grading freedom for the post-production process. The videographer can easily match the footage with the image quality of other video materials. Indeed, the cameras perform as worthy partners for large-scale cinema productions that require several diverse cameras and for broadcast-level production environments.

* For the GH5, the optional DMW-SFU1 Upgrade Software Key is required.

LUT monitor function

V-LOGL (Digital Negative)   Color Grading (post-production)
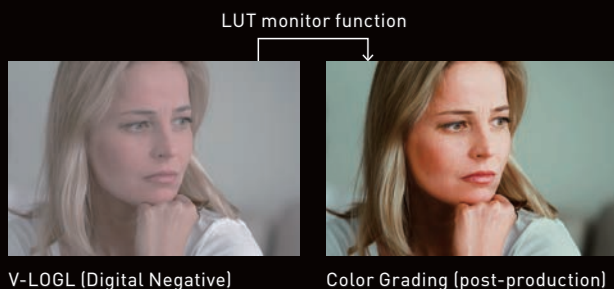
■ V-LogL View Assist

With Look Up Table (LUT) installed on the camera, the video you record with V-LogL can be modified to match the characteristics of your monitor display. With View Assist you can view a simulation of the final look (hue, saturation and brightness) of your video image in camera. As LUTs can also be applied to HDMI outputs, you can easily check the look on an external display too. The V-LogL is the same as that on a Panasonic Cinema VARICAM camera so, when both cameras are used for the same video project, their images can be compared and checked with the same LUT to ensure seamless processing in post-production.

● V-LogL (with 12-stop dynamic range) is designed for easy use in the same environment as V-Log (about 14 stops). More than 80 IRE is clipped accordingly. If you wish to put emphasis on brighter highlights, either set the exposure again or use the ND filter (recommended).

Presetting Various Colors and Gamma
Photo Style

`GH5S` `GH5`

The GH5 cameras offer you a selection of rich photo styles from more than 10 pre-sets – which you can set within Creative Video Mode – to achieve the appropriate stylistic effect for your video. When using a still photo within a video project you can use multiple gamma options to match it with the same look as the other video footage and save time later on in the post-production process. In addition, you can register up to 4 custom settings to suit your own specific production preferences.

■ 709Like

Rec.709 is a major standard used within high-definition broadcasting (known technically as, "ITU-R BT. 709"). '709Like' is a gamma with characteristics very similar to the Rec.709 broadcast gamma. When you use it for HDTV-level project shoots you will not need to adjust image quality of your recorded data later. In addition, a 'Knee Mode' setting (auto or manual) is possible. Use this to adjust the high luminance portion of the gamma curve for suppressing the overexposed (white) parts of your image.

Output Signal Level

Knee Point

109%
100%
90%
80%

Knee Slope

Input Luminance Level
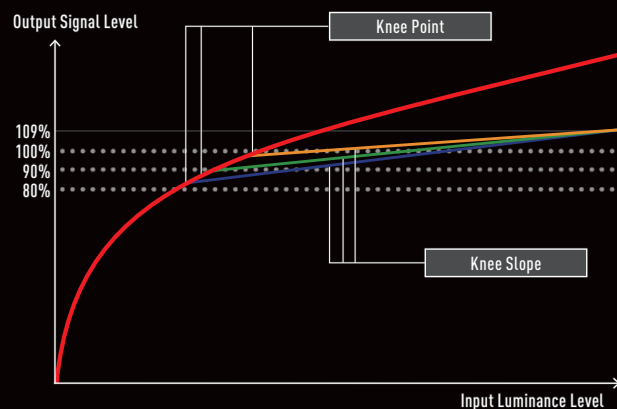
AUTO or MANUAL Knee Control selectable. Manual mode parameters are:

Master Point Setting	Set compression starting point '80.0' to '107.0%' (1 step 0.5 unit).
Master Slope Curve	Set slope curve setting from Master Point to Max. Dynamic Range '0' ~ '99' (1 step 1 unit).

■ Cinelike D / Cinelike V

Cinelike D gives priority to the dynamic range by using a gamma curve designed to create the kind of rich image expression you see on movie screens. Cinelike V gives priority to the contrast by using a gamma curved design to create a sharp movie-like image.

To Bring Expressive Focus Effects to Your Videos
Focus Transition

`GH5S` `GH5`

Focus transition is a dramatic technique to switch between focus subjects within the same frame. You can simply pre-set the focus start and end points and let the camera execute the move automatically at a set speed.

Focus in front   Focus gradually changes depth

Super Slow-motion Images
VFR (Variable Frame Rate)

`GH5S` `GH5`

You can achieve rich and impressive slow motion effects by over-cranking the frame rate (e.g. setting the recording rate higher than the playback rate). You can do this for 4K at a high frame rate of 60fps for smooth slow motion (max. 2.5x slower*) with playback at 24p. At the other extreme, you can create dynamic quick motion effects by under-cranking.

* When shooting with C4K on the GH5, the upper VFR limit at 24p is 48fps (i.e., double speed slow motion).

■ FHD 240fps*

`GH5S`

While the GH5 is capable of 180fps in FHD, thanks to further improvements to its sensor read-out speed, the GH5S can shoot frame rates as high as 240fps* (max.) in FHD. You can now express the most dramatic instants of your subject's movement in super slow motion at max. 10x slower in 24p.

* The degree of effect varies depending on the recording format and frequency, and angle of view narrows if you select a frame rate with a number of frames 204 or more.

Reliving the CinemaScope Movie Experience
Anamorphic (4:3) Mode

`GH5S` `GH5`

Videographers can create the most cinematic movie experience of all using the built-in Anamorphic Mode. By employing the extraordinary horizontal compression properties of an anamorphic lens plus the advantage of the 4:3 sensor used to its full extent the GH5 cameras make it possible to shoot in the CinemaScope format. Furthermore, the GH5 features 'High-resolution Anamorphic Mode' (about 18MP) to deliver images even finer than 4K.

■ Anamorphic Desqueeze Display

You will be shooting with an anamorphic lens that compresses the image width to an almost unrecognizable extreme, yet the GH5 cameras allow you to view a simulation of the final 'desqueezed' CinemaScope format (2.39:1 or 2.35:1) stretched out on the camera monitor. This lets you decide the composition you want, and imagine the impact of the final project using more than intuition.

Display OFF   Display ON

■ Image Stabilization for Shooting Anamorphic Videos

`GH5`

The GH5 has an optimized camera-shake suppression mode when shooting videos with an anamorphic lens. You can select between two modes ('2.0' or '1.33') in the 'Image Stabilizer' menu. This provides a recording that is more stable than when using the standard stabilization setting.

■ Open Gate Mode

`GH5`

You can shoot video in high resolution anamorphic mode, with the H.265 codec, even without an anamorphic lens to capture the fine detail. This gives you greater freedom post-shoot to crop the frame composition you want and add a zoom, pan, tilt or other effect.

Fully-equipped
for Advanced Needs

To Show Field of View and Simplify Framing
GH5S **GH5**
On-screen Video Guide Line

Guide lines are displayed on the recording screen, according to the angle of view, for trimming / cropping with computer editing software. These also correspond to CinemaScope aspects (2.39:1 or 2.35:1) and to 16:9 or 1:1. Compared to using a mask type of display, the Guide Line makes it easier to judge how to frame the image from the larger area captured by the sensor.

For Intuitive Checking and Adjustments
GH5S **GH5**
Control Panel for Videographers

You can easily switch from showing shutter speed to shutter angle instead, or from ISO to Gain. Panel contents and layout have been designed by carefully considering how videographers and cinematographers, with years of experience and professional judgment, instinctively prefer to work.

To Check the Exact Screen Center at a Glance
GH5S **GH5**
Center Marker

This is a convenient function to use while zooming. It helps you keep your subject in the very center of frame throughout.

Reduces Screen Flicker
GH5S **GH5**
Synchro Scan

This function minimizes the flicker or horizontal stripes that appear on screen when shooting under flickering light sources such as fluorescent lights or LEDs. Achieve this by manually adjusting shutter speed until the display is stable.

• This function is available when Exposure Mode is set to either 'S' or 'M' in Creative Video Mode.

Effective for Preventing White-out
GH5S **GH5**
Zebra Pattern

Parts of the image that may become washed out through overexposure are marked with a Zebra Pattern for easy checking beforehand. You set the level of brightness to be indicated as zebra stripes by selecting a luminance value between 50% and 105%. If you need to, you can select 2 values. For example, set 'Zebra 1' to 100% or more and 'Zebra 2' to 90% or more and switch between them for best exposure, or to set your standard.

To Set Black Level as a Reference Standard
GH5S **GH5**
Master Pedestal

Use Master Pedestal to match the black level of other cameras or different conventions, adjusting between the blackest 0 IRE, the 7.5 IRE 'Set Up' pedestal level, etc. This function is also useful when you wish to change contrast or picture quality. Lower the pedestal to bring crisper blacks to the image or raise it to create an overall foggy effect.

• Cannot be used under the 'V-LogL' (Photo Style menu) setting.

For Diverse Video Needs / Workflow Efficiencies
GH5S **GH5**
Luminance Level Adjustment

Select the luminance range from 3 settings to match video use. When recording in 8-bit, set the range to '16-235' (video levels 0 to 100%) or preserve the super whites with '16-255' (video levels 0 to 109%). The third option, '0-255', covers both. These selections make it easy to match grey scales in projects that combine both photos and video. For 10-bit recording you can select between 0-1023, 64-940 or 64-1023.

• When recording in MP4 or AVCHD, the 0-255 setting will switch to 16-255.
• When Photo Style is set to 'Hybrid Log Gamma', the setting is fixed at 64-940.
• When Photo Style is set to 'V-LogL', the setting is fixed at 0-255.

Corresponding to Various Broadcast Standards
GH5S **GH5**
Color Bars and Test Tone

Color Bars are convenient for adjusting the picture quality on an external monitor, and you can select the color bar used for different broadcast systems, such as NTSC (SMPTE / ARIB) or PAL (EBU). A 1 kHz Test Tone can also be output.

SMPTE Color Bar   EBU Color Bar   ARIB Color Bar

To Visualize and Display Brightness
GH5S **GH5**
Waveform Monitor Display

The built-in Waveform Monitor (WFM) quantifies and displays the luminance signal as visual wave data. This is handy for judging correct exposure when doing so by eye alone is difficult, or when you need to comply with a precise broadcast specification. The exposure can be adjusted objectively by reference to its waveform, e.g. when a zebra pattern is displayed or HDR shooting with hybrid log gamma.

For Setting Correct White Balance
GH5S **GH5**
Vector Scope

This allows you to view and measure waveforms as vectors and check the color phase and saturation on the recording screen. You can instantly judge if you have the right colors or not, and adjust the white balance accordingly. The Vector Scope function is also useful when you want to match the saturation of multiple pieces of footage.
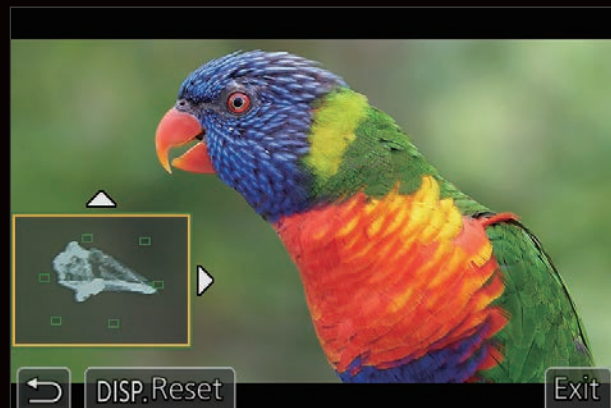
For Non-linear Editing
GH5S **GH5**
Time Code

The LUMIX GH5 and GH5S support Time Code recording which is essential in video editing or editing between several sources shooting the same scene simultaneously. Time Code can be recorded onto the internal SD Card or the LTC signal with video data can be output via HDMI for recording on an external recorder or directly into the non-linear editing process.

• Time Code is not recorded when using the MP4 format.

Standards	SMPTE 12M Compliant
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

To Sync Time Code with Multiple Devices
GH5S
TC IN/OUT

The LUMIX GH5S is now fitted with a TC IN/OUT terminal. By setting up TC synchronization – through the flash synchro terminal and bundled BNC conversion cable with optional BNC cable – it is easy to carry out non-linear timeline editing of footage shot with multiple cameras. For more flexible video production, LINE input is supported by a 3.5mm mic jack to enable sound input from an external audio device.

GH5S

Flash Sync. Terminal

BNC conversion cable (bundled)   TC IN/OUT designated

GH5S, VARICAM or other professional video equipments
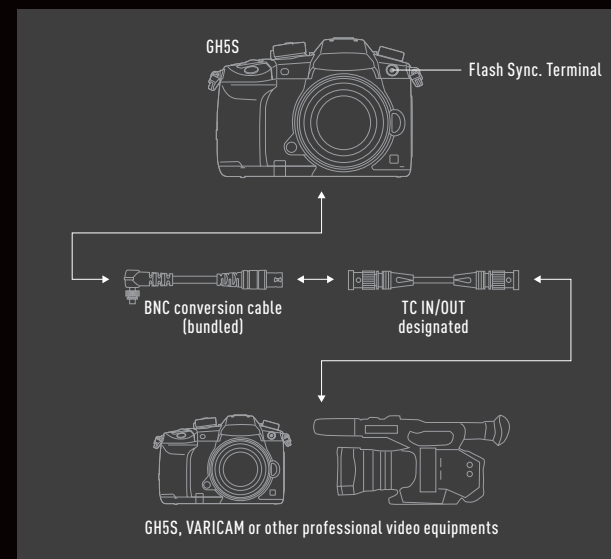
■ Time Code Output

You can synchronize time code between the GH5S and external devices, and also connect via HDMI. The standard Time Code output enables convenient shooting with multiple cameras, with no delay when recording to an external recorder.

■ Time Code Input

It is simple to synchronize the GH5S with time code output from an external Master via the BNC conversion cable. Superbly agile, even with cable disconnected, the camera TC continues to clock up in slave mode which means it can be used as a standalone device.

With Mobility a Priority,
the Design Favors Minimalism

DIGITAL AUDIO

Delivering Clearer Audio Recordings
Built-in Noise Reference Mic and Noise Suppression
GH5S **GH5**

As well as the camera's main microphone for recording stereo sound there is also a noise reference microphone monitoring operational noises from the camera itself, such as the lens drive. By generating a signal in reverse phase with the unwanted noise in real time, it can be effectively cancelled. With improvements also made to wind noise suppression, unnecessary noises are reduced to enable clear audio recording.

External		Inside Camera
Wind Noise	Mic Input	Audio Data
	L R	L R → Clearly Recorded Audio Data
Internal		Wind and Operational Noise Canceling
Operational Noises → Built-in Noise Reference Mic		
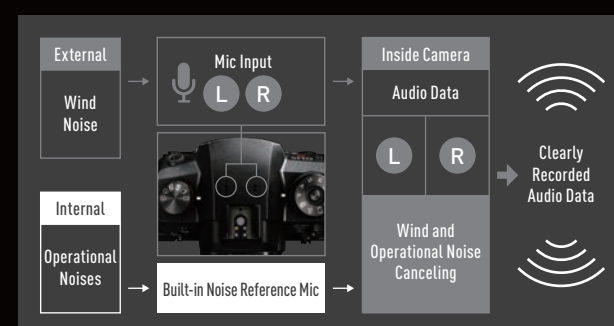
For More Silent Control of Key Settings
Touch Quiet Monitor
GH5S **GH5**

When shooting video you sometimes end up with the sound of the control buttons being operated on the audio recording. But with the GH5S or GH5 you can avoid this by using the touch-screen monitor to silently adjust the zoom, aperture, shutter speed, and microphone level, etc.

For High-quality High-resolution Sound Recording
XLR Mic Adaptor (Optional)
GH5S **GH5**

When shooting video, this adaptor allows you to record high-grade stereo sound to the camera directly through a high-spec XLR microphone. High-res recording* (at 96kHz/24-bit) is also possible when shooting 4K video. Selecting between separate MIC / LINE / CONDENSER MICROPHONES is also possible using the input switches on the control panel.
* In MOV only

01 LINE/MIC/+48V switch	05 CH 1/2 switch
02 Gain switch	06 ALC switch
03 LOW CUT switch	07 XLR terminal (INPUT 2)
04 AUDIO LEVEL dial	08 XLR terminal (INPUT 1)
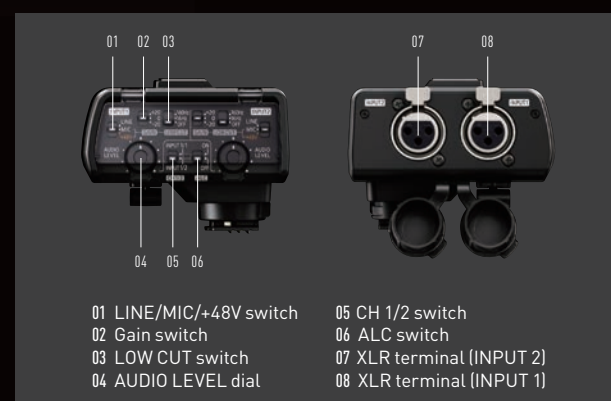
XLR microphone adaptor DMW-XLR1 sold separately

To Visually Monitor Audio Input Status
Recording Level Display
GH5S **GH5**

The audio recording level is adjustable across 19 levels, from -12dB to 6dB. It can also be displayed while shooting – very useful for keeping a quick visual check on voice levels and watching out for break up, or signal drop out. You can connect any commercially available headphones to monitor sound in real time while shooting your video.

REMOTE OPERATION

Supports Pro-level Tethering
LUMIX Tether
GH5S **GH5**

LUMIX Tether software lets you control the camera while tethered to a laptop via USB connection and you can check your stills or video on a large PC monitor in real time. As well as controlling the shutter from your laptop you can also adjust aperture, shutter speed, ISO, white balance, flash, etc. for a much more efficient portrait or product shoot in studio. Video recording and 6K* / 4K PHOTO modes are also supported.

• Free for download. For details, please check the support website at http://panasonic.jp/support/software/
* The GH5S is not compatible with 6K PHOTO

USB3.1 GEN1 Type C (bundled)

GH5S/GH5 USB terminal

Stable Connectivity with Strong Resistance to Interference
Wi-Fi® 5GHz (IEEE802.11ac)* / 2.4GHz (IEEE802.11b/g/n)
GH5S **GH5**

Faster 5GHz* and conventional 2.4GHz Wi-Fi® are both supported. Having both bands ensures you always have a stable connection, even in an unstable network environment caused by radio or similar interference. Remote controlling your camera from a smartphone is a smooth, comfortable and flexible experience without the worry of malfunction.

* 5GHz Wi-Fi® is not available in some countries.
• The Wi-Fi CERTIFIED Logo is a certification mark of the Wi-Fi Alliance®.

For Energy Saving / Easy Pairing
Bluetooth® 4.2
GH5S **GH5**

Bluetooth® 4.2 (Bluetooth Low Energy) is supported so you can easily pair with a smartphone or tablet – and with energy saving enabled too. When operating remotely using the installed Panasonic Image App, you stay connected even when on standby to launch your device and always with minimal battery consumption. The same is also the case when connected using Wi-Fi®.

• The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Panasonic Corporation is under license. Other trademarks and trade names are those of their respective owners.

For Remote Shooting by Smartphone or Tablet
Panasonic's Image App
GH5S **GH5**

By installing the proprietary Panasonic Image App application onto your smartphone or tablet, you can use it to trigger the camera shutter remotely. Also, if you are using multiple cameras* your shoot settings can be copied by Image App onto the other cameras, a far easier method than via SD card.

* Settings cannot be copied between GH5S and GH5.

For Those Who Know What to Achieve, the GH5 has the Tools `GH5S` `GH5`

High Resolution, Higher Magnification, Highly Responsive
3,680k-dot OLED LVF

The GH5 cameras are fitted with a high resolution Live View Finder (LVF) of 3,680k-dot. The display is a smooth 60fps, and the GH5S can even be switched to 120fps. The Organic Light-Emitting Diode (OLED) responds in a mere 0.01 seconds* – a lag that is imperceptible. The display also boasts more than 10,000:1 high contrast for exceptional visibility. The magnification ratio is approx. 1.52x (or 0.76x 35mm camera equivalent), and opens up to a 100% field of view.

* Based on Panasonic measurement standards.

Increased Brightness for Superior Visibility
Large 3.2" 1,620k-dot RGBW Monitor

The GH5 cameras feature an 'RGBW' monitor which, in addition to the usual Red / Green / Blue pixels adopts White in order to deliver a greater maximum brightness. So, compared to conventional RGB systems, visibility is excellent even in sunny outdoor situations. The free-angle design lets you tilt the monitor up and down to make shooting at either high or low angles easy and to open up far more creative framing possibilities.

Extra Power plus Extended Controls
DMW-BGGH5 Battery Grip (Optional)

The DMW-BGGH5 battery grip features controls and a joystick similar to that on the camera body. This lets you continue freely adjusting AF positions without having to look away from the viewfinder, even when you turn the camera from landscape to portrait handling. The battery grip loads the same batteries as used in the camera body so you can shoot more and record for longer. Indeed, it almost doubles the shooting time.

Joystick on the battery grip

Designed for Smooth, Comfortable Operation
Controls Layout

A thumb-position joystick for quickly mapping out the AF area you want is added to the GH5 cameras. You never need look away from the viewfinder while freely arranging up to 225 AF points. In addition, when using MF Assist, you can simply and smoothly scroll the magnified display position. GUI menu navigation is also effortless. Furthermore, the GH5S offers a distinctly visible video REC button.

Joystick/ Function buttons

Video REC button (GH5S)

For Intuitively Simple Operation
Touch Screen Controls

The rear monitor adopts a static-type touch control system. This lets you effortlessly control AF area and menu selections by finger touch. Other functions also gain the same convenience, e.g., AF, AE, and shutter release. You can also operate by intuitive on-screen dragging, 2-finger dragging, or pinching in or out.

Excellent Versatility and Fail-safe
HDMI Type A Terminal

The HDMI Type A terminal is more versatile and sturdy than the micro HDMI Type D, and by applying the cable lock holder (included)*, you avoid unintended disconnection mishaps during busy shoots.

* HDMI cables of 6 mm or less diameter are recommended. Some HDMI cable types may not attach correctly, depending on cable shape.

Standing Up to Tough Conditions
Rugged Mg Alloy Body

The frame of the GH5/GH5S consists of a lightweight and durable magnesium alloy. This gives the body extremely high strength and excellent shock resistance while also allowing effective heat dissipation. It also shields the precision-built mechanism within from electromagnetic waves. All this adds great reliability to an already compact and lightweight body to expand your shooting options in the field.

Effectively Removing Particles from the Sensor
Non-dust System

A Supersonic Wave Filter (SSWF) generating about 80,000 ultrasonic vibrations per second is part of the Live MOS Sensor. With sudden, intense accelerations, the filter scatters any unwelcome dust particles that might potentially appear on the image. SSWF activates automatically when the camera is switched on but can also be operated from the menu.

Enhanced for Use in Multiple Environments
Splash-* / Dust- / Freeze-proof** Design

The camera body, as well as its DMW-BGGH5 battery grip (sold separately) has a sealed structure for every joint, dial and button. In combination with a splash*- / dust- / freeze-proof** lens, the whole system demonstrates excellent resilience to different environments. With a freeze-proof design, the body can even withstand low temperatures to as cold as -10°C (14°F).

* 'Splash-proof' is a term used to describe an extra level of protection this camera has against exposure to a minimal amount of moisture, water or dust. Splash-proof protection does not guarantee that damage will not occur if the camera is subjected to direct contact with water.
** When using with Panasonic's optional lenses (H-E08018, H-ES12060, H-ES200, H-HSA1205, H-HSA35100) with low temperature resistant designs to -10°C (14°F). At temperatures between 10°C (50°F) to 0°C (32°F), the battery performance (number of shots / duration) may temporarily decrease.

High Durability, Accuracy and Reliability
Durable Shutter Unit

The shutter unit and shutter button are essential for exposure accuracy. The mechanisms on the GH5 and GH5S cleared quality tests to perform approx. 200,000 releases, successfully proving their excellent resilience and durability.

* Based on Panasonic's own testing standards.

GH5S / GH5 Capacities for Still Images (approx. quantity) and Video recordings (approx. total time).

		SD Memory Card Capacity		32GB		64GB	
		Aspect Ratio / Quality		RAW*+FINE	FINE	RAW*+FINE	FINE
Number of Recordable Images (Stills) (approx.)	GH5S 4:3	L	3680 × 2760	1260	5360	2520	10510
		M	2592 × 1944	1400	9390	2800	18300
		S	1824 × 1368	1550	23830	3080	44910
	GH5 4:3	L	5184 × 3888	900	2910	1810	5810
		M	3712 × 2784	1050	5280	2110	10510
		S	2624 × 1968	1150	9220	2290	17640

		SD Memory Card Capacity	64GB	128GB
Recordable Time (Videos) (approx.) [Frequency: 59.94Hz MP4 (LPCM) / MOV]	GH5S	C4K	59.94p Recording, 150Mbps(4:2:0 8-bit LongGOP)	56min.	1hr.50min.
			29.97p/23.98p Recording, 150Mbps(4:2:2 10-bit LongGOP)	56min.	1hr.50min.
		4K	59.94p Recording, 150Mbps(4:2:0 8-bit LongGOP)	56min.	1hr.50min.
			29.97p/23.98p Recording, 150Mbps(4:2:2 10-bit LongGOP)	56min.	1hr.50min.
		FHD	59.94p/29.97p/23.98p Recording, 100Mbps(4:2:0 8-bit LongGOP)	1hr.20min.	2hr.45min.
	GH5	C4K	23.98p Recording, 150Mbps(4:2:2 10-bit LongGOP)	56min.	1hr.50min.
		4K	59.94p Recording, 150Mbps(4:2:0 8-bit LongGOP)	56min.	1hr.50min.
			29.97p/23.98p Recording, 150Mbps(4:2:2 10-bit LongGOP)	56min.	1hr.50min.
		FHD	59.94p/29.97p/23.98p Recording, 100Mbps(4:2:0 8-bit LongGOP)	1hr.20min.	2hr.45min.

* To process / adjust RAW file images or convert them to JPEG or TIFF formats the "SILKYPIX® Developer Studio SE" software is recommended.
• For MP4 video in FHD quality, if continuous recording exceeds 30 minutes or if the file size exceeds 4GB, you can continue recording without interruption but the video file will be divided and recorded separately, (and for playback also).
• For MP4 video in 4K quality, when using an SDHC memory card and the file size exceeds 4GB, or when using an SDXC memory card and the file size exceeds 96GB (or 3 hours 4 minutes in length), you can continue recording without interruption but the video file will be divided and recorded separately, (and for playback also).
- Use a SDXC / SDHC memory card with UHS-I / UHS-II U3 (UHS Speed Class 3) when shooting 4K video.
- Video shooting may be stopped automatically to protect the device if shooting time is excessive and/or ambient temperatures are very high.

GH5S

GH5

01 Self-timer indicator / AF Assist Lamp
02 Flash synchro socket (Flash synchro socket cap)
03 Shoulder strap eyelet
04 Lens release button
05 Lens lock pin
06 Mount
07 Sensor
08 Lens fitting mark
09 Preview button/ Function button (Fn6)
10 Card door
11 [MIC] socket
12 Headphone socket
13 Cable holder mount
14 [HDMI] socket
15 USB socket

16 Self-timer indicator / AF Assist Lamp
17 Shutter button
18 Front dial
19 (White Balance) button
20 (ISO sensitivity) button
21 (Exposure Compensation) button
22 Motion picture button
23 [Fn1] button
24 WIRELESS connection lamp
25 [REMOTE] socket
26 Access lamp (card 1)
27 Card slot 1
28 Card slot 2
29 Access lamp (card 2)
30 Status indicator
31 Camera ON/OFF switch

32 Mode dial lock button
33 Mode dial
34 Stereo microphone
35 Drive mode dial
36 (Playback) button
37 [LVF] button / [Fn5] button
38 Eyecup
39 Eye sensor
40 Viewfinder
41 Speaker
42 Diopter adjustment dial
43 Joystick/Function buttons
44 [AF/AE LOCK] button
45 Focus mode lever
46 [Q.MENU] button/[Fn2] button
47 (Auto Focus Mode) button / [Fn3] button

48 Rear dial
49 [DISP.] button
50 Cursor buttons/ Function button/[Fn17]/ [Fn18]/[Fn19]/[Fn20]
51 [MENU/SET] button
52 (Delete/Cancel) button/ [Fn4] button
53 Battery door
54 Release lever
55 DC coupler cover
56 Cover for the battery grip connector
57 Tripod mount
58 Touch screen/monitor

System Chart

Stereo Shotgun Microphone DMW-MS2
Stereo Microphone VW-VMS10
External Flash DMW-FL580L (Wireless control is available.)
External Flash DMW-FL360L (Wireless control is available.)
External Flash DMW-FL200L (Wireless control is available.)
LED Video Light VW-LED1

Leather Bag DMW-BAL1
Soft Bag DMW-CZ18
Tripod Adaptor DMW-TA1
XLR Microphone Adaptor DMW-XLR1

Standard Accessories

Soft Bag DMW-BAG2
Soft Bag DMW-BAG1
DC-GH5S
DC-GH5
KEY CODE: XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
Upgrade Software Key DMW-SFU1 [DMW-SFU1 is preinstalled with the GH5S.]
Remote Shutter DMW-RSL1

DC Coupler DMW-DCC12*2
Battery Charger DMW-BTC10
BNC Conversion Cable
Shoulder Strap
Shoulder Strap DMW-SSTL1
Shoulder Strap DMW-SSTG1 DMW-SSTG6 DMW-SSTG2 DMW-SSTG7 DMW-SSTG3 DMW-SSTG8 DMW-SSTG5 DMW-SSTG9

AC Adaptor DMW-AC10*2
Battery Charger DMW-BTC13
Battery Pack
USB Connection Cable
Personal Computer
HDMI Cable*5

Battery Grip DMW-BGGH5
Battery Pack DMW-BLF19
Battery Charger (included with GH5S)
Battery Charger (included with GH5)
Blu-ray Disc™ Player
4KTV / HDTV

MICRO FourThirds
FourThirds
Mount Adaptor DMW-MA1

LEICA M Mount Lenses
M Mount Adaptor DMW-MA2M

LEICA R Mount Lenses
R Mount Adaptor DMW-MA3R

Bundled Software
DC-GH5S * Download. [LUMIX Tether / PHOTOfunSTUDIO 10.0 XE/ SILKYPIX® Developer Studio SE/ LoiLoScope Trial Version]

Bundled Software
DC-GH5 * Download. [LUMIX Tether / PHOTOfunSTUDIO 10.0 XE/ SILKYPIX® Developer Studio SE/ LoiLoScope Trial Version]

SD Memory Card
2GB SD
SDHC Memory Card*3
32GB
SDXC Memory Card*3
128GB
Zoom Lever DMW-ZL1*1
Body Cap DMW-BDC1

MC Protector	DMW-LMCH37	DMW-LMC52	DMW-LMCH62
	DMW-LMC46	DMW-LMCH58	DMW-LMCH67
PL Filter	DMW-LPLA37	DMW-LPL52	DMW-LPL62
	DMW-LPL46	DMW-LPL58	DMW-LPL67
ND Filter	DMW-LND37	DMW-LND52	DMW-LND62
	DMW-LND46	DMW-LND58	

Lens Cap DMW-LFC37 DMW-LFC52 DMW-LFC62
DMW-LFC46 DMW-LFC58/LFC58A DMW-LFC67
Lens Rear Cap DMW-LRC1

*1 The DMW-ZL1 is compatible with the following Micro Four Thirds lenses (As of January 2018). H-F007014 / H-E08018 / H-HSA12035 / H-ES12060 / H-FS12060 / H-FS014042 / H-FS014045 / H-FS14140 / H-HSA35100 / H-FS45150 / H-FSA45200 / H-FSA100300. *2 The AC Adaptor DMW-AC10 requires the DC coupler DMW-DCC8 / DCC11 / DCC12 / DCC15 / DCC15A. The DC coupler DMW-DCC8 / DCC11 / DCC12 / DCC15 / DCC15A requires the AC Adaptor DMW-AC10. *3 "SDXC/SDHC Memory Card compatible with UHS Speed Class 3 (U3)" must be used when recording 4K video, 4K Photo and 6K Photo in camera. *4 Use this SD Memory Card for GH5S/GH5 All-Intra 400Mbps mode requiring Video Speed Class V60 or V90. *5 For [4K] or [C4K] video output, use an HDMI cable that has the HDMI logo on it, and that is described as "4K compatible". •Some functions of LUMIX G cameras cannot be used when mounting the Four Thirds lenses with the Mount Adaptor DMW-MA1, the LEICA M or R lenses with the Mount Adaptor DMW-MA2M or DMW-MA3R. •Leica is a registered trademark of Leica Microsystems IR GmbH. •Confirm the operation information of compatible lenses at Customer Support. •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.

GH5S Specifications

TYPE	Type	Digital Single Lens Mirrorless camera
	Recording media	SD Memory Card, SDHC Memory Card, SDXC Memory Card(Compatible with UHS-I / UHS-II UHS Speed Class 3 standard SDHC/SDXC Memory Cards and UHS-II Video Speed Class 60 standard SDXC Memory Cards)
IMAGE SENSOR	Image sensor size	17.3 x 13.0 mm (in 4:3 aspect ratio)
	Lens mount	Micro Four Thirds mount
	Type	Live MOS Sensor
	Total pixels	11.93 Megapixels
	Camera effective pixels	10.28 Megapixels
	Color filter	Primary color filter
	Dust reduction system	Supersonic wave filter

(Full detailed specification tables for GH5S and GH5 cameras — extensive recording format, frame rate, bitrate, anamorphic mode, interface, power, dimensions and footnote data.)

GH5 Specifications

TYPE	Type	Digital Single Lens Mirrorless camera
	Recording media	SD Memory Card, SDHC Memory Card, SDXC Memory Card(Compatible with UHS-I / UHS-II UHS Speed Class 3 standard SDHC/SDXC Memory Cards)
IMAGE SENSOR	Image sensor size	17.3 x 13.0 mm (in 4:3 aspect ratio)
	Lens mount	Micro Four Thirds mount
	Type	Live MOS Sensor
	Total pixels	21.77 Megapixels
	Camera effective pixels	20.33 Megapixels
	Color filter	Primary color filter
	Dust reduction system	Supersonic wave filter

MICRO FOUR THIRDS

35mm Camera Equivalent Focal Length

Lens	Range (mm)
LUMIX G VARIO 7-14mm / F4.0 ASPH.	14 – 28
LEICA DG VARIO-ELMARIT 8-18mm / F2.8-4.0 ASPH.	16 – 36
LUMIX G VARIO 12-32mm / F3.5-5.6 ASPH. / MEGA O.I.S.	24 – 64
LUMIX G X VARIO 12-35mm / F2.8 II ASPH. / POWER O.I.S.	24 – 70
LEICA DG VARIO-ELMARIT 12-60mm / F2.8-4.0 ASPH. / POWER O.I.S.	24 – 120
LUMIX G VARIO 12-60mm / F3.5-5.6 ASPH. / POWER O.I.S.	24 – 120
LUMIX G X VARIO PZ 14-42mm / F3.5-5.6 ASPH. / POWER O.I.S.	28 – 84
LUMIX G VARIO 14-42mm / F3.5-5.6 II ASPH. / MEGA O.I.S.	28 – 84
LUMIX G VARIO 14-45mm / F3.5-5.6 ASPH. / MEGA O.I.S.	28 – 90
LUMIX G VARIO 14-140mm / F3.5-5.6 ASPH. / POWER O.I.S.	28 – 280
LUMIX G X VARIO 35-100mm / F2.8 II / POWER O.I.S.	70 – 200
LUMIX G VARIO 35-100mm / F4.0-5.6 ASPH. / MEGA O.I.S.	70 – 200
LUMIX G VARIO 45-150mm / F4.0-5.6 ASPH. / MEGA O.I.S.	90 – 300
LUMIX G X VARIO PZ 45-175mm / F4.0-5.6 ASPH. / POWER O.I.S.	90 – 350
LUMIX G VARIO 45-200mm / F4.0-5.6 II / POWER O.I.S.	90 – 400
LEICA DG VARIO-ELMARIT 50-200mm / F2.8-4.0 ASPH. / POWER O.I.S.	100 – 400
LUMIX G VARIO 100-300mm / F4.0-5.6 II / POWER O.I.S.	200 – 600
LEICA DG VARIO-ELMAR 100-400mm / F4.0-6.3 ASPH. / POWER O.I.S.	200 – 800
LUMIX G FISHEYE 8mm / F3.5	16
LEICA DG SUMMILUX 12mm / F1.4 ASPH.	24
LUMIX G 14mm / F2.5 II ASPH.	28
LEICA DG SUMMILUX 15mm / F1.7 ASPH.	30
LUMIX G 20mm / F1.7 II ASPH.	40
LEICA DG SUMMILUX 25mm / F1.4 ASPH.	50
LUMIX G 25mm / F1.7 ASPH.	50
LUMIX G MACRO 30mm / F2.8 ASPH. / MEGA O.I.S.	60
LEICA DG NOCTICRON 42.5mm / F1.2 ASPH. / POWER O.I.S.	85
LUMIX G 42.5mm / F1.7 ASPH. / POWER O.I.S.	85
LEICA DG MACRO-ELMARIT 45mm / F2.8 ASPH. / MEGA O.I.S.	90
LEICA DG ELMARIT 200mm / F2.8 / POWER O.I.S.	400

RECOMMENDED LENSES FOR LUMIX GH5S & GH5

LEICA DG Lenses

LEICA DG LENS

LEICA DG VARIO-ELMARIT 50-200mm / F2.8-4.0 ASPH. / POWER O.I.S. (H-ES50200)

LEICA DG ELMARIT 200mm / F2.8 / POWER O.I.S. (H-ES200)

LEICA DG VARIO-ELMARIT 8-18mm / F2.8-4.0 ASPH. (H-E08018)

LEICA DG VARIO-ELMARIT 12-60mm / F2.8-4.0 ASPH. / POWER O.I.S. (H-ES12060)

LEICA DG VARIO-ELMAR 100-400mm / F4.0-6.3 ASPH. / POWER O.I.S. (H-RS100400)

LEICA DG SUMMILUX 12mm / F1.4 ASPH. (H-X012)

LEICA DG SUMMILUX 15mm / F1.7 ASPH. (H-X015)

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

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

LUMIX G Lenses and X Lenses

LEICA DG MACRO-ELMARIT 45mm / F2.8 ASPH. / MEGA O.I.S. (H-ES045)

LUMIX G X VARIO 12-35mm / F2.8 II ASPH. / POWER O.I.S. (H-HSA12035)

LUMIX G X VARIO 35-100mm / F2.8 II / POWER O.I.S. (H-HSA35100)

* Lenses with earlier firmware versions require a firmware update to be compatible with Dual I.S.; [RS100400 & FS12060: ver1.1 / HS030 & FS14140: ver1.2 / NS043: ver1.3] ** 'Splash-proof' is a term used to describe an extra level of protection this camera has against exposure to a minimal amount of moisture, water or dust. Splash-proof protection does not guarantee that damage will not occur if the camera is subjected to direct contact with water. • Four Thirds™ and Micro Four Thirds™, and Four Thirds and Micro Four Thirds Logo marks are trademarks or registered trademarks of Olympus Imaging Corporation, in Japan, the United States, the European Union and other countries. • Leica is a registered trademark of Leica Microsystems IR GmbH. ELMARIT is a registered trademark of Leica Camera AG. The LEICA DG lenses are manufactured using measurement instruments and quality assurance systems that have been certified by Leica Camera AG based on the company's quality standards.• 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 •For detailed information about the lenses made by SIGMA, OLYMPUS, LEICA, COSINA, KENKO TOKINA, KOWA and TAMRON, please see each company's website.