Panasonic

CHANGING PHOTOGRAPHY
LUMIX

LUMIX S1R | S1

Full-Frame Mirrorless Camera and Lens System

FULL-FRAME WITHOUT COMPROMISE

LUMIX was first to announce a mirrorless camera to the world, setting standards that define digital cameras today. As global pioneers, LUMIX continues to lead through product innovation and to drive the market globally. Now we introduce our first Full-frame Digital Single Mirrorless camera system, the LUMIX S series – crafted to become an extension of yourself, empowering your full creative vision.

The LUMIX craftsmen have masterfully combined generations of innovative technologies inside one unit without any compromise. It is not just that this camera features a 35 mm full-frame image sensor, it is a whole new tool for expression – a flagship built to chart the unexplored realms of hybrid video / photographic creativity. The craft is optimized for intuitive operability, superior image quality, and robust reliability – radiating an integrity and confidence for professionals.

Furthermore, with the alliance of Panasonic, Leica and Sigma, the LUMIX S features the 'L-Mount' bayonet to connect to a wider range of interchangeable lenses. The portal to a bold new frontier of image-culture is now open.

LUMIX
S series

© Annie Griffiths

LUMIX S1R and LUMIX S 24-105mm F4 MACRO O.I.S. (1/800sec, F5, ISO 400)

Through the Eyes of Annie Griffiths

"Detail in everything from the smallest pebble to the expansive canyon walls are faithfully reproduced. Such a flexible camera system, that can render the extraordinary detail of these geological wonders."

© Annie Griffiths

LUMIX S1R and LUMIX S 24-105mm F4 MACRO O.I.S. | 1/125sec, F4, ISO 200 |

© Daniel Berehulak

LUMIX S1 and LUMIX S 24-105mm F4 MACRO O.I.S. [1/1250sec, F9.0, ISO 1000]

Through the Eyes of Daniel Berehulak

"As the sun went down and the light began to fade, I felt at ease knowing that I had a camera that is perfect for low-light photography. Photographing the workers mining the sulfur through the night I thought would be challenging, however, I was easily able to capture their work with precision focus in low-light."

Daniel Berehulak

© Daniel Berehulak

LUMIX S1 and LUMIX S PRO 50mm F1.4 (1/80sec, F4.0, ISO 640)

© Daniel Berehulak

LUMIX S1 and LUMIX S 24-105mm F4 MACRO O.I.S. (1/15sec, F4.0, ISO 12800)

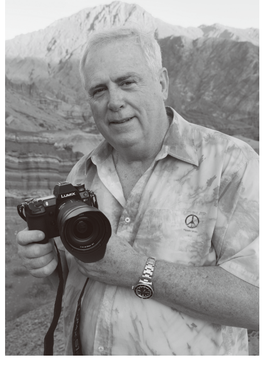
© Ken Duncan

LUMIX S1R and LUMIX S 24-105mm F4 MACRO O.I.S. (1/200sec, F8, ISO 100)

Through the Eyes of Ken Duncan

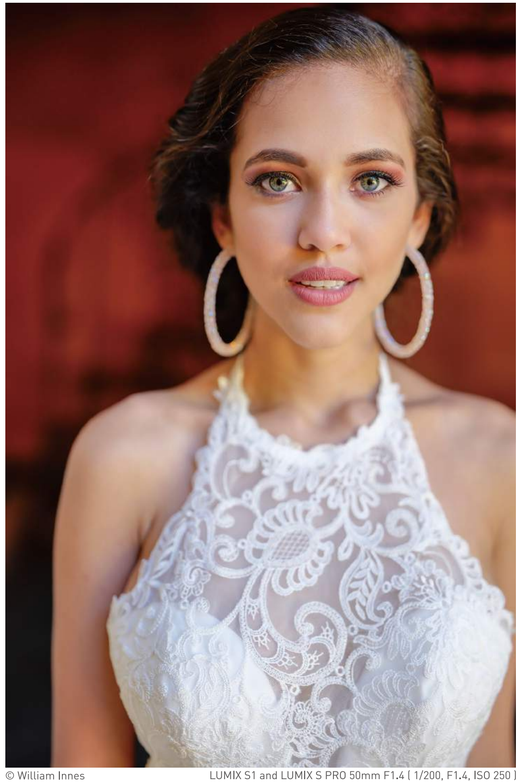
"The Atacama landscape is all about detail and subtlety of colour and the superb LUMIX S1R and LUMIX S 24-105mm lens allowed me to resolve intricate details to the sensor."

Ken Duncan



© Ken Duncan

LUMIX S1R and LUMIX S 24-105mm F4 MACRO O.I.S. (8sec, F11, ISO 100)



© William Innes LUMIX S1 and LUMIX S PRO 50mm F1.4 [1/200, F1.4, ISO 250]

© William Innes LUMIX S1 and LUMIX S 24-105mm F4 MACRO O.I.S. [1/320sec, F4.5, ISO 250]

Through the Eyes of William Innes

"The day a couple gets married is one of the most important chapters of their life. Telling that story requires exceptional camera equipment. Photographing a bride and groom with the new Panasonic LUMIX S1 full-frame camera leaves nothing to chance."

LUMIX S1

Ultimate Hybrid. Fuel the Passion for Stills and Video.

- New 24.2-megapixel CMOS sensor that delivers incredibly realistic detail.
- 4K video recording with no time limit*, meeting professional needs.
- Super high sensitivity shooting with low noise for both photo and video recording.

*Max. 29 minutes 59 seconds in 4K60p until SD Memory Card is full or battery runs out. If ambient temperature is high or with long continuous recording, camera may stop automatically to avoid over-heating. If so, continue when it cools down.

LUMIX S1R

Ultimate Resolution. Professional Performance.

- New 47.3-megapixel CMOS sensor that delivers incredibly realistic detail.
- Focus and O.I.S. systems that capture each instant with stunning clarity.
- Operability from ingenuity for intuitive control.

The Image Quality – The highest in the industry

Unprecedented Image Quality

47.3MP CMOS Sensor for Uncompromising Expressive Power S1R

The LUMIX S1R is designed to deliver the ultimate in photographic expression. Offering the industry's highest level of resolution,* the 47.3-megapixel full-frame CMOS sensor produces finely detailed and stunningly realistic images without any low-pass filter to get in the way. Featuring an aspherical on-chip micro lens and an optimized design that increases incident light to the photodiode, this new sensor combines a best-in-class megapixel count* with an outstanding light condensing rate. The result is a sky-high signal-to-noise ratio and maximum sensitivity of ISO25600. This is full-frame image quality that allows photographers to pursue their art beyond previous limits.

* Among full-frame digital single-lens mirrorless cameras as of February 1, 2019.

24.2MP CMOS Sensor: Maximizing Sensitivity and Image Quality S1

Whether you're shooting still photographs or video, the LUMIX S1 gives you breathtaking image quality with no compromises. By delivering sufficient light condensation per pixel, the 24.2-megapixel CMOS sensor offers a wide dynamic range and sharp, natural expression even at high sensitivity settings. Leveraging the power of the Venus Engine, the camera offers maximum sensitivity at an impressive ISO51200. Professional photographers and videographers are sure to appreciate this combination of ultra-high sensitivity performance with ultra-high image quality.

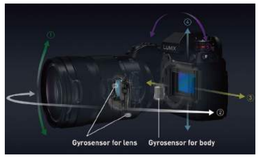
Venus Engine Beauty

The marriage of a CMOS sensor with the beautiful Venus Engine reproduces extraordinary color detail and natural texture expression. Multipixel Luminance Generation and Intelligent Detail Processing render intense brightness and contrast. The Three-Dimensional Color Control with rich colors from dark to bright shades, and high-precision Multi Process NR makes your images clear even at high ISO sensitivity settings.

5-axis Dual I.S. 2: Clearly Capture Each Intriguing Instant

It's difficult to handhold a camera at the best of times, but don't fret: with the 5-axis Dual I.S. 2 (Image Stabilizer),* intelligent compensation comes to your aid. This is the equivalent to 6 doublings of exposure duration, meaning you can use a 6-stop slower shutter speed up to tele-end.** The LUMIX S1 eliminates shake in both body and lens even at the telephoto setting. It also works in both photo and video recording, including 4K video. The astonishing power of the 5-axis Body I.S. with 5.5-stop compensation power*** corrects shake for all lenses, even those not equipped with O.I.S.

* 5-Axis Dual I.S.2 can be used with the lens S-R24105 and S-R70200 as of February 1, 2019.
** Based on the CIPA standard (Yaw/Pitch direction: focusing distance f=200mm when S-R70200 is used).
*** Based on the CIPA standard (Yaw/Pitch direction: focusing distance f=50mm when S-X50 is used).



Works in both photo and video recording

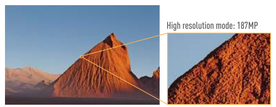
I.S. Status Scope indicates the wobble

High-precision Shutter Unit

This high-precision shutter unit offers ultra-high shutter speed of 1/8,000 second and flash sync speed of 1/320 seconds.* In addition, the newly designed shape and parts have helped increase rigidity and durability and achieve a long 400k shutter life.

* The guide number decreases at 1/320 second, Only when set to M mode or S mode.

High Resolution Mode



In this mode, eight consecutive images are automatically shot while shifting the sensor using the Body I.S. (Image Stabilizer) mechanism. Then, the new Venus Engine, which boasts high-speed signal processing, synthesizes the images into a 187-megapixel equivalent (16,736 x 11,168-pixel) RAW file for LUMIX S1R and 96-megapixel equivalent (12,000 x 8,000-pixel) RAW file for LUMIX S1. This mode is excellent for shooting ultra-detailed nature shots with a tripod, as well as other works of art that combine grandeur with precision. MODE 1 produces shots of moving subjects that appear to be fluid and in motion, while MODE 2 corrects for such motion to produce a static image.

HLG Photo

HLG Photo mode* supports a new style of photographic enjoyment on the screen of HLG-compliant devices — one in which the rendering of bright light is especially impressive. HSP files,** which compress a high degree of brightness, are displayed as images with breathtaking reproduction of dynamic range and extremely fine gradations of light and dark.

• Images shown below are enhanced to more accurately represent the effect of HLG photo mode.
* "HLG (Hybrid Log Gamma)" is an international standard (ITU-R BT.2100) HDR format.
** "HSP" is an HDR picture format using HLG format video technology.

Conventional

HLG Photo

9fps (AFS) / 6fps AFC Burst Shooting

The LUMIX S1R/S1 boasts high speed burst shooting at 9 fps (AFS) / 6 fps (AFC). With its high tracking performance to the subject, the LUMIX S1R/S1 never loses the target subject.

Aspect Ratio 2:1 / 65:24

In addition to the standard 3:2, 4:3, 16:9 and 1:1, 65:24 (Film Panorama) and 2:1 (6 x 12 cm) aspect ratios are available for photo shooting.

2 : 1 Aspect ratio of 6 x 12 cm size

65 : 24 Aspect ratio of Film Panorama

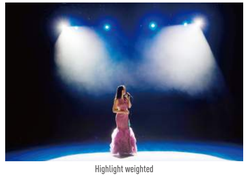
New AWB Mode

In Auto White Balance, a new AWBw that retains a reddish tint is available in addition to conventional AWB (standard) and AWBc (bluish tint).

AWBc AWB AWBw

Highlight Weighted Light Metering Mode

The Highlight Weighted Light Metering mode meters light with a priority on highlighted parts to prevent it from washing out.



Highlight weighted

Multiple

Flicker Decrease

When the flickering of a fluorescent light is detected, the camera indicates it and releases the shutter when its effect is the least to suppress the discontinuity of exposure or color across a sequence of photos.

•Not available in 4K PHOTO, 4K PHOTO and Post Focus.

Sheer Overlay

This function superimposes a previously shot image on the image currently on the monitor.* This feature is convenient in commercial photography and other situations in which the same subject angle or size needs to be replicated.

* Only photos taken with the same camera model can be displayed.

AUTO FOCUS

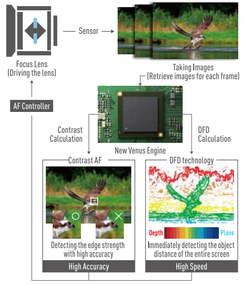
The Accuracy – Advanced Recognition Technology

0.08sec* Fast and Accurate AF

Panasonic's advanced technology provides unified control of the sensor, engine, and lens to deliver high-speed, high-precision focus at every angle. Super-fast sensor-lens communication of 480 fps and Panasonic's DFD (Depth From Defocus) technology help make high-speed, high-precision autofocus of approximately 0.08 seconds* a reality. In addition, the low-light autofocus performs at an impressive -6EV.** Higher sensitivity and optimized tuning of the sensor have increased luminance detection performance, making possible crisp focusing with nothing more than starlight. Advanced AI technology can recognize not only the human body but such animals as canidae, felidae, and birds, while the high-performance tracking system helps keep the subject in focus at all times.

* 11EV, at wide-end with S-R24105 (CIPA) in LVF120 fps setting.
** At ISO100, F1.4, AFS. 100% contrast target.

DFD AF System



-6EV* Accurate AF in Low Light / Low Contrast Scenes

Accurate autofocus is possible even in starlight and other low-light scenes, as well as in fog, haze, and other low-contrast scenes. Higher sensitivity and optimized tuning of the sensor has resulted in luminance detection performance, advancing LUMIX's renowned low-light AF to the -6EV level.* This feature is especially useful in shooting documentaries, nighttime animal scenes, and more.

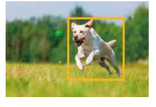
*At ISO100, F1.4, AFS. 100% contrast target.
**At ISO100, F1.4, AFS. 10% contrast target.

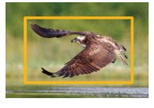
Low light situations

Low contrast situations

Human Body / Animal Recognition Technology

Panasonic's advanced AI technology can recognize not only the human body but such common animals as canidae, felidae, and birds. Panasonic has used deep learning to study a large quantity of images of humans and animals and loaded the resulting AI into the Venus Engine. As a result, the camera can recognize and accurately focus on animals, even when they are facing away from you. This feature allows you to relax and focus on the composition while the camera performs the difficult work of focusing.



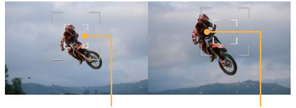


Face / Eye Detection AF

The face/eye detection technology makes it possible to capture people in crisp focus, the Eye AF even detects the pupil of the eye and precisely focuses on it for impressive portrait shooting.

Versatile AF Mode

A total of nine autofocus modes help you achieve outstanding full-frame focus even in challenging situations. The new 1-Area+ AF mode adjusts focus using the auxiliary AF area when the subject moves out of the main focus area. This mode is very effective for shooting moving subjects.


Main focus area is used for focusing
Auxiliary focus area is used for focusing

OPERABILITY / DURABILITY / EXPANDABILITY

The Operability –
Intuitive Interface which Realizes the Instant Shooting

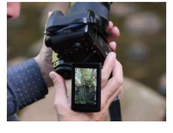
5,760k-dot Resolution Real View Finder

Boasting the world's highest resolution of 5,760k dots, the Real View Finder is the largest in its class.* Outstanding clarity and sharpness make it feel as though you're looking at the subject with your own eye and help you concentrate while shooting. With a lens designed for minimum distortion from the center to the corners and high magnification of 0.78x, the Real View Finder supports both perfect framing and high-precision focusing. The responsive OLED display offers an extremely low 0.005-second minimum lag time and an ultra-high 120 fps refresh rate to help keep fast-moving subjects in view. In addition, the 0.78x magnification ratio can be switched to 0.7x or 0.74x according to the shooting situation.

* Among full-frame digital single-lens mirrorless cameras as of February 1, 2019.

Triaxial Tilt Rear Monitor

The triaxial tilt rear monitor supports photography at both low and high angles and with the camera held vertically. The large 3.2-inch 2,100k-dot monitor features an RGBW liquid crystal display. The inclusion of white (W) pixels increases maximum brightness for outstanding visibility, even outside under strong sunlight. The monitor uses capacitive sensing for convenient touch control similar to that of a smartphone.



Status LCD

Among the largest in its class, status LCD offers instant access to 19 essential camera settings, including the F-number and shutter speed. When camera power is off, it displays the battery level and remaining shots. Pressing a dedicated button causes the LCD to light up for 5 seconds. Two brightness levels allow you select a brightness appropriate for your shoot.

Double Memory Card Slot

The double memory card slot is compatible with SD Memory Cards (UHS-II) and XQD Memory Cards.* Allocation Record mode allows you to specify the card slot to be used for recording for different image formats. This feature is also convenient for recording long videos or as a backup. Relay Recording mode relays recording to the other card slot after the first card runs out of free space during recording. Backup Recording mode* records the same data to the two cards. It will also be compatible with CFexpress in the near future.

* Cannot be used with AVCHD format.
** XQD is a registered trademark of Sony Corporation.

Joystick Control

The joystick moves freely in eight directions, allowing you to intuitively select the focus area with just your thumb. You can concentrate on your subject more easily and quickly get the shot you want.

Lock Lever / Fn Lever

The operation lock lever can help prevent unintentional operation of buttons and dials, including the front dial, rear dial, joystick, cursor button, touch screen, and more. The Fn lever allows you to switch instantly between two functions you have saved. For example, you can conveniently toggle between two Photo Style selections you are using. Up to 20 different functions can be selected, including AF Mode, Photo Style, Picture Quality, Shutter Type, and more.

Assist Functions for Lowlight Shooting

- Button Illumination: The buttons are illuminated to enable accurate operation in the dark.
- Night Mode: When shooting dark scenes like starry skies, this mode suppresses the stimulation of eyes that have become accustomed to the dark. The LVF and rear monitor can be set separately.
- Live View Boost: The display is brightened by lowering the frame rate and increasing the gain. This lets you shoot while framing, even in extremely dark situations.
- MF Assist 20x: The MF Assist display has been enlarged up to 20x. Accurate focusing is possible even on tiny objects like stars.

Button illumination

The Durability –
To Withstand the Most Demanding Situations

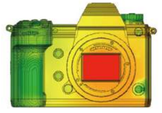
Splash / Dust / Freeze Resistant*

The tough body is ready to take on a variety of challenging shooting environments. The magnesium alloy full die-cast frame is highly durable, while sealing helps protect every seam, dial, and button. The system as a whole is dust- and splash-resistant* and designed for use at temperatures as low as -10°C. In combination, these features help make shooting both productive and enjoyable in a wide range of weather conditions.

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

Heat-Dispersing Design

Panasonic's impressive heat dissipation technology has been further refined and optimized in the design of the more high-powered S1R / S1.



The Expandability –
To Support the Needs for Professionals

USB Power Supply/Power Charging

Convenient during long shoots in the studio and elsewhere, this feature allows you to supply power to the camera while charging the battery.* A USB 3.1 Type-C adaptor is included that is compatible with the USB PD (USB Power Delivery) standard.

* Battery must be installed in camera and retain some charge for feature to work.

HDMI Type A & HDMI Cable Lock Holder

A versatile and durable HDMI Type A terminal is provided. A bundled cable lock holder also prevents unplugging problems on location.

Wi-Fi / Bluetooth

Using Wi-Fi 5GHz (IEEE802.11ac) this feature allows you to connect your camera to a smartphone or tablet, send photos to these devices, and control your LUMIX S1R/S1 remotely. With Panasonic's LUMIX Sync app (Android / iOS), you can remotely control the shutter of your camera and access a wide range of photographic settings. You can even use LUMIX Sync to copy settings from one camera to another,* which is useful when managing multiple cameras in a shoot.

* Copying must done between camera of the same model.
• The Wi-Fi CERTIFIED™ Logo is a certification mark of Wi-Fi Alliance®.

LUMIX Sync

Lumix Sync is a new application for iOS/Android devices, which enables photo transmission to a smartphone or tablet via easy wireless connection. It also allows remote control of the camera using a smartphone or tablet.

LUMIX Tether

The LUMIX S Series allows tethered shooting via USB with "LUMIX Tether" PC software. It enables camera control and shooting while checking the image on a large PC screen. Naturally, it supports both video and 6K PHOTO / 4K PHOTO. This greatly assists professional workflows in commercial photoshoots at studios.

VIDEO

Through the Eyes of Griffin Hammond

"Shooting handheld with Dual I.S. lets me capture more shots per minute, without dragging a tripod through this narrow workshop. My unobtrusive shooting style earns trust from my subjects and grants me better access."

Through the Eyes of Daimon Xanthopoulos

"Having a camera that can capture the magic of these places without any compromise in quality, durability, or flexibility gives me the opportunity to really focus on my creativity and story. I love the fact that I can switch between making photography and creating 4K 60P video films all inside the S1 camera."

Video – Industry-leading Shooting Performance

4K 60p/50p* Smooth Video Recording

In combination, Panasonic's 4K technology, new CMOS sensor, and new Venus Engine deliver spectacular 4K 60p/50p* video (QFHD 4K: 3840 x 2160 MP4) in a full-frame format.** Thanks to these advanced technologies, even rapidly moving scenes look smooth and natural. Further, the LUMIX S1 is designed for outstanding heat dissipation, allowing it to offer both 4K 30p/25p*/24p and full-HD recording with no time limit.*** The capacity to record for extended periods of this time makes this camera an ideal choice for a wide range of professional uses, such as no-cut documentaries, fixed-point observation of wild animals, and more.

* PAL area only.
** Maximum recording time of 29 minutes 59 seconds in 4K 60p/50p* (S1), or 15 minutes in 4K 60p/50p* (S1R).
*** Excludes high-speed video recording. When the ambient temperature is high or continuous recording is performed, the camera may stop the recording to protect itself. Wait until the camera cools down.

High Speed Video 180/150fps*

Offering ultra-fast frame rates, this feature allows you to create dramatic slow-motion video with superb image quality: 60 fps in 4K and an astounding 180 fps in FHD. You can capture and view extremely fast-moving subjects in slow motion and enter a world unseen by the naked eye.

* PAL area only.

HDR Video S1

HDR (High Dynamic Range) video recording is available, processing both the brighter and darker parts of an image together, just as the human eye naturally perceives them. The camera also records video with a designated gamma curve compatible with ITU-R BT.2100, as well as offering the option of Hybrid Log Gamma (HLG) in Like2100.

Standard Dynamic Range (SDR)

High Dynamic Range (HDR)

HLG View Assist

This output mode allows you to visually confirm the gradation and exposure of video shot in HLG mode, depending on the monitor or viewfinder installed in the camera. It can also be used for stills shot in HLG (HLG Photo mode).

Time Lapse Video

The S1 and S1R are both capable of Time Lapse Video recording, interval shooting and image composition processing inside the camera. 8K* time lapse** videos can later be created in post-production editing. Recording HLG or Like709 is also possible.

* In-camera image composition processing up to 4K.
** Only available on the S1R.

Optional Features S1

Addressing the needs of professionals, the LUMIX S1 will offer 4K 30p/25p*/24p 4:2:2 10-bit internal video recording, 4:2:2 10-bit 4K 60p/50p with an HDMI live output, and V-Log with a software upgrade key (to be sold separately). 4:2:2 10-bit video with an incredibly rich color profile is a recording format that has approximately 128 times the data volume of 4:2:0 8-bit and is capable of expressing over 1 billion colors. This massive volume of color data is highly valuable in post-production, making it possible to adjust color dynamically and radically and even turn daylight scenes into nighttime scenes. In addition, 4K 30p/25p*/24p video can be shot with a crop factor of 1.0x and full-pixel** readout. Leveraging the expressive power of a full-frame camera takes 4K video to exciting new places.

* PAL area only.
** Full-pixel readout cannot be used when APS-C lens is attached.

3.5mm MIC Jack and Headphone Jack

Jack and Φ3.5mm Headphone Jack. LINE input is also supported by the 3.5mm MIC Jack, making it possible to input sounds from an external audio device for more efficient video production.

XLR Mic Adaptor (Optional)

This accessory allows you to connect an XLR microphone and achieve high-quality stereo sound. In addition to recording lip-synched vocals, this accessory lets you control volume, gain, low cut, automatic level, and other audio functions useful in professional videography. This accessory also supports the use of plug-in power.

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

6K PHOTO / 4K PHOTO

Shoot with extended burst, then choose and extract the exact frames you want to keep. The 6K PHOTO* mode at 30 fps allows you to capture the perfect moments at stunningly high resolution of approximately 18 megapixels.** The ultra-high-speed 4K PHOTO mode at 60 fps freezes even faster motion, which is simply not possible in conventional cameras.*** The LUMIX S Series truly does make moments unmissable.

* 6K PHOTO is a high speed burst shooting function that cuts a still image out of a 4:3 or 3:2 video footage with approx.18-megapixel (approx. 6000 x 3000 effective pixel count) that the 6K image manages.
** Maximum recording time of 10 minutes in 6K PHOTO.
*** Maximum recording time of 15 minutes in 4K PHOTO.

LUMIX S series LENSES

S PRO Lens

To satisfy even the most expressive photographers, strict standards were established exclusively for the LUMIX S PRO LENS, extending from planning and design to development and production. Absolutely no compromising was allowed in rendering performance, bokeh effect, or depth. And this high performance and superb quality passed all of the stringent evaluation standards of Leica lenses.

S Lens

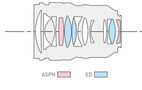
In addition to its high optical performance, the S LENS was developed by placing the emphasis on excellent mobility and usability. It features superb rendering performance, expanding the expressive world of S Series Single Lens Mirrorless Cameras.

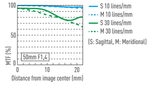
Fixed Focal Length

LUMIX S PRO Certified by LEICA
50mm F1.4 (S-X50)

A large-aperture fixed focal length lens featuring the core of the LUMIX S Series

The LUMIX S PRO 50mm F1.4 is a large-aperture fixed focal length lens with every core element of the LUMIX S Series. Versatile with its 50mm focal length, the wide F1.4 aperture achieves high resolution across the entire image and it provides smooth defocus gradation from the focus peak to the neighboring area of the image. Bokeh effects are a delight even for background light points. Optical performance surpasses even stringent LEICA standards. Comprising 13 lenses in 11 groups, the use of 2 aspherical lenses and 3 ED (Extra-low Dispersion) lenses effectively suppresses both axial and magnification chromatic aberrations. These also correct for astigmatism to achieve high resolutions. Filter diameter is 77mm, with an 11-blade circular aperture diaphragm. The double focus system's linear and stepping motor combination achieves sensor drive speeds up to 480 fps. The high-precision AF is also ultra-fast so you won't miss that critical moment. A focus clutch mechanism allows instant AF/MF switching and spot-on manual focusing. Suppressed focus-breathing delivers superior video recording compared to the lenses designed for still image photography. With a refined design and superb operability this lens is dust/splash-resistant* to withstand harsh conditions in 10 degrees below zero for high mobility – all in all, a consummate tool for professionals.





For lenses that are capable of compensating distortion, the horizontal axis of the MTF shows the distance from the center of the corrected image.

•Lens construction = 13 elements in 11 groups •Mount = L-Mount •Closest focusing distance = 0.44 m / 1.44 ft •Maximum image magnification = Approx. 0.15x •Dust and Splash Resistant* = Yes •Recommended operating temperature = –10°C to 40°C (14°F to 104°F) •Filter size = 77 mm •Dimensions = 90 (dia.) x Approx. 130 mm/3.54 (dia.) x 5.12 in •Weight = Approx. 955 g/33.69 oz •Supplied accessories = Lens cap, Lens rear cap, Lens hood, Lens storage bag

* Dust and Splash Resistant does not guarantee that damage will not occur if this lens is subjected to direct contact with dust and water.
•Leica is a registered trademark of Leica Microsystems IR GmbH.
•For lenses that are capable of compensating distortion, the horizontal axis of the MTF shows the distance from the center of the corrected image.

© Hideki Kono

LUMIX S1R and LUMIX S PRO 50mm F1.4 (1/200sec, F1.8,ISO 100)

Telephoto Zoom

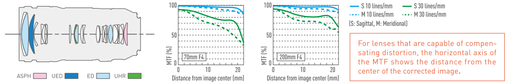
LUMIX S PRO Certified by LEICA
70-200mm F4 O.I.S. **(S-R70200)**

© Masaaki Aihara

LUMIX S1R and LUMIX S PRO 70-200mm F4 O.I.S. (1/2500sec, F18, ISO 320)

A telephoto zoom lens with high resolution and stunning clarity across the entire zoom range

The LUMIX S PRO 70-200mm F4 O.I.S. telephoto zoom lens provides high-resolution, high-contrast images across the entire zoom range, from portraits to sports. Compatible with Panasonic LUMIX's image stabilization system 5-Axis Dual I.S. (Image Stabilizer) 2* can be used for the first time as a lens of a full-frame mirrorless camera system and delivers optical performance beyond stringent LEICA standards. The lens unit comprises 23 lenses in 17 groups with an aspherical and 3 ED (Extra-low Dispersion) lenses effectively suppressing both axial and magnification chromatic aberrations. Designed for optimum lens alignment, it achieves beautiful bokeh with minimum vignetting. Filter diameter is 77mm, with an 9-blade circular aperture diaphragm. The O.I.S. (Optical Image Stabilizer) in the lens effectively compensates for the hand-shake movement, making it easy to shoot even without a tripod or in low-lit situations. Complying with the camera's Body I.S., the 5-Axis Dual I.S. 2* makes it possible to use 6-stop slower shutter speed**. The high-precision linear motor achieves sensor drive speeds up to 480 fps. A focus clutch mechanism allows instant AF/MF switching and accurate manual focusing. Suppressed focus-breathing delivers superior video recording compared to the lenses designed for still image photography. A lens with refined design and superb operability as well as being dust/splash-resistant*** in 10 degrees below zero to withstand extreme outdoor conditions for high mobility for professional shoots.



For lenses that are capable of compensating distortion, the horizontal axis of the MTF shows the distance from the center of the corrected image.

•Lens construction = 23 elements in 17 groups •Mount = L-Mount •Optical Image Stabilizer = Yes •Closest focusing distance = 0.92 m / 3.02 ft •Maximum image magnification = Approx. 0.25x •Dust and Splash Resistant*** = Yes •Recommended operating temperature = –10°C to 40°C (14°F to 104°F) •Filter size = 77 mm •Dimensions = 84.4 (dia.) x Approx. 179 mm/3.32 (dia.) x 7.05 in •Weight = Approx. 985 g/34.74 oz •Supplied accessories = Lens cap, Lens rear cap, External tripod mount, Lens hood, Lens storage bag

* 5-Axis Dual I.S.2 can be used with the camera LUMIX S1R and S1, as of February 1, 2019.
** Based on the CIPA standard Yaw/Pitch direction: focusing distance f=200mm, when LUMIX S1R is used.
*** Dust and Splash Resistant does not guarantee that damage will not occur if this lens is subjected to direct contact with dust and water.
•Leica is a registered trademark of Leica Microsystems IR GmbH.
•For lenses that are capable of compensating distortion, the horizontal axis of the MTF shows the distance from the center of the corrected image.

Standard Zoom

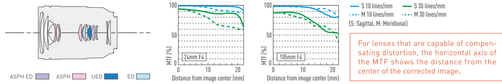
LUMIX S
24-105mm F4 MACRO O.I.S. **(S-R24105)**

© Annie Griffiths

LUMIX S1R and LUMIX S 24-105mm F4 MACRO O.I.S. (1.6sec, F8, ISO 400)

A versatile standard zoom lens with macro and covering wide-angle to medium telephoto.

The LUMIX S 24-105mm F4 MACRO O.I.S. is a standard zoom covering wide-angle to medium-telephoto with high performance throughout. On top of this versatility is a 0.5x macro capability to 0.3m focusing distance (min.). It works with Panasonic LUMIX's image stabilization system 5-Axis Dual I.S. (Image Stabilizer) 2* can be used for the first time as a lens of a full-frame mirrorless camera system so you can't miss a single photo opportunity. The lens unit comprises 16 lenses in 13 groups, with 2 aspherical, and 2 ED (Extra-low Dispersion) lenses effectively suppressing chromatic aberrations as well as delivering high resolution. Filter diameter is 77mm, with an 9-blade circular aperture diaphragm. The O.I.S. (Optical Image Stabilizer) in the lens effectively compensates for the hand-shake movement, making it easy to shoot even without a tripod or in low-lit situations. Complying with the camera's Body I.S., the 5-Axis Dual I.S. 2* makes it possible to use 6-stop slower shutter speed**. The high-precision linear motor achieves sensor drive speeds up to 480 fps for super-fast AF. Suppressed focus-breathing delivers superior video recording compared to the lenses designed for still image photography. A lens with refined design, superb operability and high mobility for professionals that is also, dust/splash-resistant*** in 10 degrees below zero to withstand extreme outdoor conditions. In addition, a fluorine coating on the front element repel water and oil and prevent them from attaching.



For lenses that are capable of compensating distortion, the horizontal axis of the MTF shows the distance from the center of the corrected image.

•Lens construction = 16 elements in 13 groups •Mount = L-Mount •Optical Image Stabilizer = Yes •Closest focusing distance = 0.30 m / 0.98 ft •Maximum image magnification = Approx. 0.5x •Dust and Splash Resistant*** = Yes •Recommended operating temperature = –10°C to 40°C (14°F to 104°F) •Filter size = 77 mm •Dimensions = 84 (dia.) x Approx. 118 mm/3.31 (dia.) x 4.65 in •Weight = Approx. 680 g/23.99 oz •Supplied accessories = Lens cap, Lens rear cap, Lens hood, Lens storage bag

* 5-Axis Dual I.S.2 can be used with the camera LUMIX S1R and S1, as of February 1, 2019.
** Based on the CIPA standard Yaw/Pitch direction: focusing distance f=105mm, when LUMIX S1R is used.
*** Dust and Splash Resistant does not guarantee that damage will not occur if this lens is subjected to direct contact with dust and water.
•Leica is a registered trademark of Leica Microsystems IR GmbH.
•For lenses that are capable of compensating distortion, the horizontal axis of the MTF shows the distance from the center of the corrected image.

Welcome to a new world of possibilities: the L-Mount, developed by Leica Camera, marks the start of a new era of creative freedom. Never before has one lens mount standard allowed for an almost limitless array of options in combining different interchangeable lenses with cameras featuring different sensor formats.

Leica Camera, Panasonic and Sigma are set to offer a user-friendly solution that will allow photographers to 'mix and match' any of the three manufacturers' APS-C and full-frame cameras with any lens from each other' s product portfolios. Regardless of which combination you might choose: virtually all functional and qualitative characteristics of each respective system will be fully retained. The L-Mount thereby opens up an almost limitless spectrum of new creative possibilities.

Unlimited scope of applications

Due to its diameter of 51,6 millimetres, the L-Mount is suitable for cameras with a full-frame sensor as well as cameras with an APS-C sensor. Equally, L-Mount lenses are compatible with both types of camera, which significantly expands their scope of applications.

Optimal focus results

The cameras' bayonet mount is made of welded stainless steel to ensure exceptional resilience to wear-and-tear. Featuring four tabs, the L-Mount prevents tilting and ensures a particularly tight and flush coupling of camera and lens – leading to optimal focus results on the sensor.

Future proof flange distance

The very short flange distance of 20 millimetres leads to a minimal distance between lens and sensor. This eliminates the need for elaborate retrofocus designs – thereby facilitating a more compact lens construction. The short flange distance also enables the straightforward application of adaptors for lenses with different bayonet mounts.

Electronic components: smooth communication

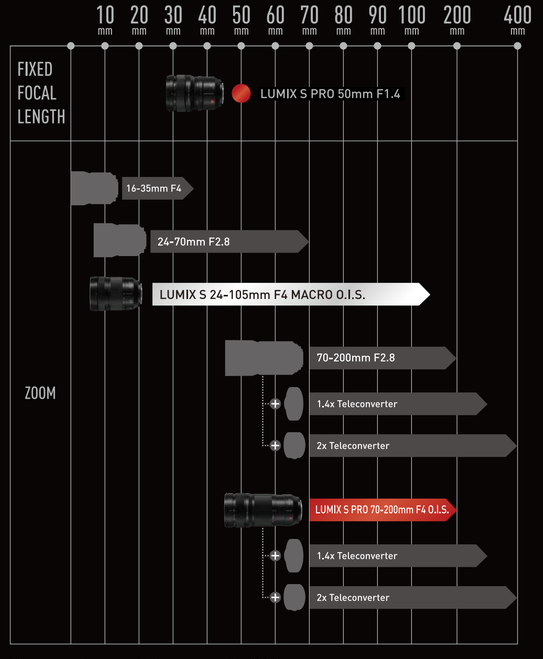
The standardised L-Mount bar code ensures smooth communication between the electronic components of camera and lens-including the lens-to-camera transfer of digital compensation values, and the camera-to-lens transfer of firmware updates.

An Alliance by Leica SIGMA Panasonic

Discover the possibilities at www.l-mount.com

• The L-Mount Logo mark is a trademark or registered trademark of Leica Camera AG.

S Series Lens Roadmap

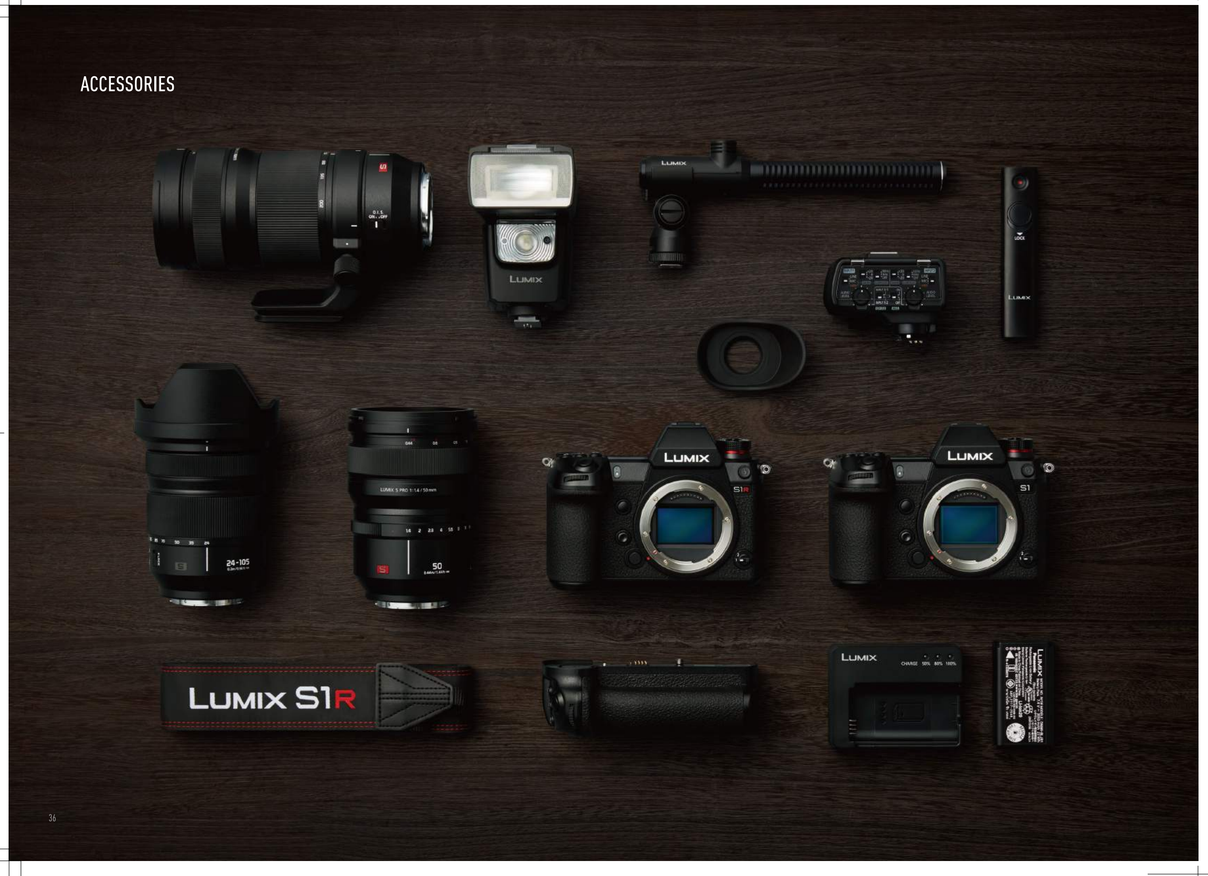


10 or more lenses will be released by 2020.

LUMIX PRO

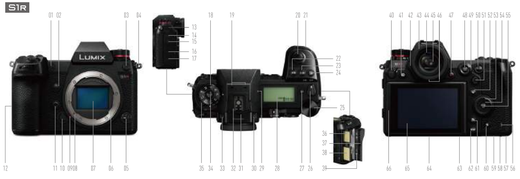
Panasonic launches LUMIX PRO program, a hub for its LUMIX Professional Services that is designed to satisfy the needs of creative professional and to ensure that they can continue to work, through a range of service and repair benefits, and consistent global support. For more information about the support registration and qualified products, please visit; https://lumixpro.panasonic.com/

ACCESSORIES

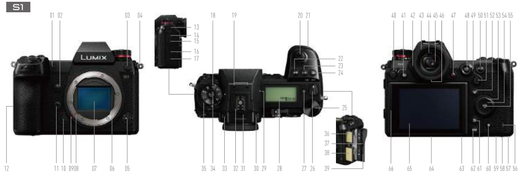


Parts & Controls

S1R

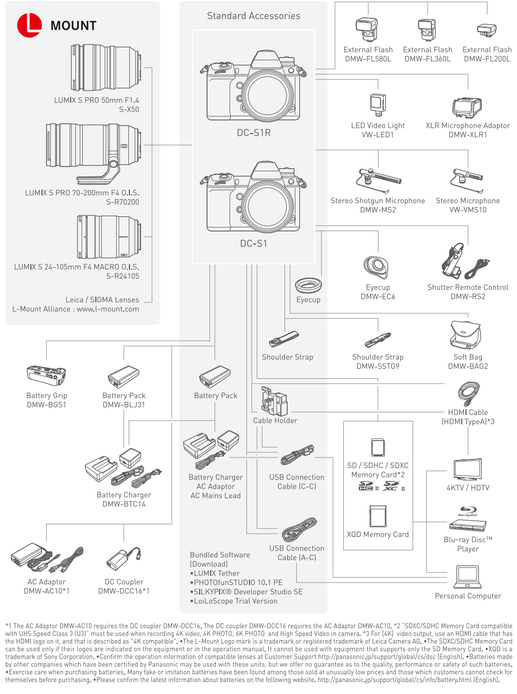


S1



01 Self-timer lamp / AF assist lamp
02 Fn button
03 Flash synchro socket (flash synchro socket cap)
04 Strap holder
05 Fn lever
06 Mount
07 Sensor
08 Lens lock pin
09 Lens fitting mark
10 Lens release button
11 Preview button / Fn button
12 Grip
13 [REMOTE] socket
14 [MIC] socket
15 Headphone socket
16 [USB] port
17 [HDMI] socket
18 Mode dial
19 Stereo microphone
20 Shutter button
21 Front dial
22 [White balance] button
23 [ISO sensitivity] button
24 [Exposure compensation] button
25 Rear dial
26 Camera on/off switch
27 [Status LCD backlight] button
28 Status LCD
29 Recording distance reference mark
30 [V.MODE] button
31 Speaker
32 Hot shoe (hot shoe cover)
33 [LVF] button
34 Mode dial lock button
35 Drive mode dial
36 Card slot 2
37 Cord door lock lever
38 Card slot 1
39 Card door
40 Operation adjustment dial
41 [Playback] button
42 Dioptre adjustment dial
43 Eye cup
44 Eye sensor
45 Viewfinder
46 Eye cup lock lever
47 Video rec. button
48 [AF mode] button
49 Focus mode lever
50 [AF ON] button
51 Joystick / Fn buttons
52 [Q] button
53 Control dial
54 Cursor buttons / Fn buttons
55 [MENU/SET] button
56 Card access lamp
57 Battery door
58 Battery door release lever
59 DC coupler cover
60 [Delete] button
61 [Cancel] button
62 [DISP.] button
63 Battery grip connector (cover for the battery grip connector)
64 Tripod mount
65 Monitor / Touch screen
66 Monitor lock lever

System Chart



*1 The AC Adaptor DMW-AC10 requires the DC coupler DMW-DCC16, The DC coupler DMW-DCC16 requires the AC Adaptor DMW-AC10, *2 "SDXC/SDHC Memory Card compatible with UHS Speed Class 3 (U3)" must be used when recording 4K video, 4K PHOTO, 6K PHOTO and High Speed Video in camera. *3 For [4K] video output, use an HDMI cable that has the HDMI logo on it, and that is described as "4K compatible". •The L-Mount Logo mark is a trademark or registered trademark of Leica Camera AG. •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. •XQD is a trademark of Sony Corporation. •Confirm the operation information of compatible lenses at Customer Support http://panasonic.jp/support/global/cs/dsc (English). •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).

S1R Specifications

TYPE	Type		Digital Single Lens Mirrorless camera
	Recording media		XQD Memory Card, SD Memory Card / SDHC Memory Card* / SDXC Memory Card* *Compatible with UHS-I/UHS-II UHS Speed Class 3 standard SDHC/SDXC Memory Cards and UHS-II Video Speed Class 90 standard SDXC Memory Cards.
	Lens mount		L-Mount
IMAGE SENSOR	Type		35mm full-frame (36.0 x 24.0mm) CMOS sensor
	Camera effective pixels / Total pixels		47.30 megapixels / 50.44 megapixels
	Aspect ratio / Color filter		3:2 / Primary color filter
	Dust reduction system		Supersonic wave filter
STILL IMAGE	Recording file format	Still image	JPEG (DCF, Exif 2.31), RAW, HLG Photo (CTA-2072)
		6K PHOTO** / 4K PHOTO**	6K PHOTO: MP4 (H.265/HEVC, Audio format: AAC (2ch)) 6K PHOTO: MP4 (H.264/MPEG-4 AVC, Audio format: AAC (2ch)) Extracted still images: JPEG (DCF, Exif 2.31)
	Aspect ratio		4:3 / 3:2 / 16:9 / 1:1 / 65:24 / 2:1
	File size (Pixels)	When using full-frame lenses	3:2 8368x5584[L] / 5952x3968[M] / 4272x2848[S] / 16736x11168[XL]* *High Resolution Mode, RAW file, 5184x3456[6K PHOTO] / 3504x2336[4K PHOTO] / 6464x4320[HLG PHOTO, 8K-Res.] / 3232x2160[HLG PHOTO, 4K-Res.]
		4:3 7440x5584[L] / 5296x3968[M] / 3792x2848[S] / 14880x11168[XL]* *High Resolution Mode, RAW file, 4992x3744[6K PHOTO] / 3328x2496[4K PHOTO] / 5760x4320[HLG PHOTO, 8K-Res.] / 2880x2160[HLG PHOTO, 4K-Res.]
		16:9 8368x4712[L] / 5952x3352[M] / 4272x2400[S] / 16736x9424[XL]* *High Resolution Mode, RAW file, 3840x2160[6K PHOTO] / 7680x4320[HLG PHOTO, 8K-Res.] / 3840x2160[HLG PHOTO, 4K-Res.]
		1:1 5584x5584[L] / 3968x3968[M] / 2848x2848[S] / 11168x11168[XL]* *High Resolution Mode, RAW file, 2880x2880[6K PHOTO] / 4320x4320[HLG PHOTO, 8K-Res.] / 2144x2144[HLG PHOTO, 4K-Res.]
		65:24 8368x3088[L]	
		2:1 8368x4184[L]	
		When using APS-C lenses 3:2 5504x3664[L] / 3920x2608[M] / 2784x1856[S]	
		4:3 4880x3664[L] / 3472x2608[M] / 2480x1856[S]	
		16:9 5504x3096[L] / 3840x2160[M] / 1920x1080[S]	
		1:1 3664x3664[L] / 2608x2608[M] / 1856x1856[S]	
	Image quality		RAW / RAW+Fine / RAW+Standard / Fine / Standard
	Color space		sRGB, AdobeRGB
MOTION PICTURE	Recording file format		MP4: H.264/MPEG-4 AVC (Audio format: LPCM (2ch 48kHz/16-bit), AAC (2ch)) AVCHD Progressive (Audio format: Dolby Audio (2ch)), AVCHD (Audio format: Dolby Audio (2ch))
	MP4**		[4K] 3840x2160: 59.94p, 150Mbps (4:2:0 8-bit LongGOP) (LPCM) 29.97p, 100Mbps (4:2:0 8-bit LongGOP) (AAC) 23.98p, 100Mbps (4:2:0 8-bit LongGOP) (AAC) [FHD] 1920x1080: 59.94p, 28Mbps (4:2:0 8-bit LongGOP) (AAC) 29.97p, 20Mbps (4:2:0 8-bit LongGOP) (AAC)
	AVCHD Progressive** AVCHD**		[FHD] 1920x1080: 59.94p, 28Mbps (4:2:0 8-bit LongGOP) (Dolby Audio) 59.94i, 24Mbps (4:2:0 8-bit LongGOP) (Dolby Audio) (Sensor output is 29.97fps) 59.94i, 17Mbps (4:2:0 8-bit LongGOP) (Dolby Audio) (Sensor output is 59.94fps) 23.98p, 24Mbps (4:2:0 8-bit LongGOP) (Dolby Audio)
	MP4**	High speed video (When Creative Video Mode is selected.)	[4K] 3840x2160: 29.97p (Sensor output is 60fps) 23.98p (Sensor output is 48fps) [FHD] 1920x1080: 29.97p (Sensor output is 180fps / 120fps)
	Continuous recordable time (Motion picture)**		Approx. 150 min (rear monitor), 140 min (LVF) in [AVCHD/FHD/60p] (When using S-R24105 and SD Memory Card.)
	Actual recordable time (Motion picture)**		Approx. 75 min (rear monitor), 70 min (LVF) in [AVCHD/FHD/60p] (When using S-R24105 and SD Memory Card.)
VIEWFINDER	Type		OLED Live View Finder
	Pixels		Approx. 5,760k dots
	Field of view / Magnification		Approx. 100% / Approx. 0.78x with 50 mm lens at infinity; -1.0 m^{-1}, when the aspect ratio is set to 3:2
	Eye point / Diopter adjustment		Approx. 21 mm at infinity; -1.0 m^{-1} / -4.0 - +2.0 (dpt)
	Eye sensor		Yes
	Display speed		120fps / 60fps
	Display time lag		Approx. 0.005sec
REAR MONITOR	Type		TFT LCD monitor with static touch control
	Monitor size		Triaxial tilt, 3.2-inch (8.0cm), 3:2 aspect
	Pixels		Approx. 2,100k dots
	Field of view		Approx. 100%
STATUS LCD			Yes
FOCUS	Focus mode		AFS [Single] / AFC [Continuous] / MF
	AF mode		Auto Detection [Face, Eye, Body, Animal] / Tracking / 225-Area / Zone [Vertical/ Horizontal] / Zone [Square] / Zone [Oval] / 1-Area+ / 1-Area / Pinpoint / Custom 1, 2, 3 (Full area touch is available) [Scalable AF frame size and flexible AF position]
	AF detective range		EV -6 - 18 (F1.4, ISO100 equivalent, AFS)
	AF custom setting		AF Sensitivity, AF Area Switching Sensitivity, Moving Object Prediction
	AF assist lamp		Yes
	AF lock		Set the Fn button in custom menu to AF lock
EXPOSURE CONTROL	ISO sensitivity (Standard output sensitivity)		Auto / 50* / 100 / 200 / 400 / 800 / 1600 / 3200 / 6400 / 12800 / 25600 / 51200* (Changeable to 1/3 EV step) *Extended ISO
IMAGE STABILIZATION SYSTEM			Image sensor shift type (5-axis / 5.5-step*) *Based on the CIPA standard [Yaw/Pitch direction: focusing distance f=50mm when S-X50 is used.] Dual I.S. (6.0-step* Dual I.S. 2 compatible) *Based on the CIPA standard [Yaw/Pitch direction: focusing distance f=200mm when S-R70200 is used.]
SHUTTER	Type		Focal-plane shutter
	Shutter speed		Still image: Bulb (Max. 30 minutes), 1/8,000 - 60 Electronic front curtain shutter: Bulb (Max. 30 minutes), 1/8,000 - 60 Electronic shutter: Bulb (Max. 60 sec), 1/16,000 - 60 Motion picture: 1/16,000 - 1/25
	Shutter life		Approx. 400,000 images
	Self timer		10sec, 3 images / 2sec / 10sec
	Remote control		Remote control by DMW-RS2 (sold separately)
	Silent mode / Shutter type		Yes / Yes (Auto / Mechanical / Electronic front curtain / Electronic / Electronic+NR)
BURST SHOOTING	Burst speed	Mechanical shutter / Electronic front curtain shutter	AFS/MF: H: 9 frames/sec, M: 5 frames/sec (with Live View), L: 2 frames/sec (with Live View) AFC: H: 6 frames/sec (with Live View), M: 5 frames/sec (with Live View), L: 2 frames/sec (with Live View)
		Electronic shutter	AFS/MF: H: 9 frames/sec, M: 5 frames/sec (with Live View), L: 2 frames/sec (with Live View) AFC: H: 5 frames/sec (with Live View), M: 5 frames/sec (with Live View), L: 2 frames/sec (with Live View)
	Number of recordable images		RAW: More than 40 images RAW+JPEG: More than 35 images JPEG: More than 50 images (Using a Sony Corporation XQD G Series Memory Card, Until the burst shooting speed slows, When recording is performed under the test conditions specified by Panasonic.)
6K PHOTO** / 4K PHOTO**	Burst speed		6K PHOTO: 30 frames/sec 4K PHOTO: 60 frames/sec, 30 frames/sec
	Exif information		Yes (Each JPEG image cropped out of the 6K/4K burst file complies with EXIF.)
INTERFACE	USB		SuperSpeed USB 3.1 Gen1 Type-C
	HDMI***	Monitor-through	4:2:2 8bit (Except for [4K/60p]) / 4:2:0 8bit
		Playback	HDMI Type4 / VIERA Link Video: Auto / 4K/60p / 4K/30p / 1080p / 1080i / 720p / 480p Audio: Stereo
	Audio video output		No
	Remote input		φ2.5mm
	External microphone / external audio device input		φ3.5mm for external microphone / external audio device MIC [Plug-in Power] / MIC / LINE is selectable. Stereo/Less Auto/Shotgun/Super Shotgun/Manual is selectable when attaching DMW-MS2 (sold separately).
	Headphone output		φ3.5mm
	Microphone		Stereo, Wind Noise Canceller: OFF / Low* / Standard / High *When attaching DMW-MS2 (sold separately).
	Speaker		Monaural
	Card slot		Slot 1: XQD Memory Card Slot 2: SD Memory Card, SDHC Memory Card*, SDXC Memory Card* *Compatible with UHS-I/UHS-II UHS Speed Class 3 standard SDHC/SDXC Memory Cards and UHS-II Video Speed Class 90 standard SDXC Memory Cards.
WIRELESS	Wi-Fi		2.4GHz ISTA/AP1 (IEEE802.11b/g/n) 5GHz ISTA1 (IEEE 802.11a/n/ac) •5GHz is not available in some countries.
	Bluetooth		Bluetooth® v4.2 (Bluetooth Low Energy (BLE))
DUST AND SPLASH RESISTANT			Yes. (Dust and Splash Resistant does not guarantee that damage will not occur if this camera is subjected to direct contact with dust and water.)
POWER	Battery		Li-ion Battery Pack (7.2V, 3050mAh, 22Wh) (bundled) USB power supply, USB power charging
	Battery life (CIPA standard)	When using XQD memory card	Approx. 360 images (rear monitor), 340 images (LVF), 1,100 images (Power Save LVF mode*) with S-R24105 *Under the test conditions specified by Panasonic based on CIPA standard, When the time to get in the sleep mode is set to 1 sec.
		When using SD memory card	Approx. 380 images (rear monitor), 360 images (LVF), 1,150 images (Power Save LVF mode*) with S-R24105 *Under the test conditions specified by Panasonic based on CIPA standard, When the time to get in the sleep mode is set to 1 sec.
	Battery grip		DMW-BGS1 (sold separately)
DIMENSIONS / WEIGHT	Dimensions (W x H x D)		Approx. 148.9 x 110.0 x 96.7 mm / 5.86 x 4.33 x 3.81 inch (excluding protrusions)
	Weight		Approx. 1,020g / 2.25 lb (XQD Memory Card x 1, Battery, Body) Approx. 1,016g / 2.24 lb (SD Memory Card x 1, Battery, Body) Approx. 898g / 1.98 lb (Body only)
OPERATING ENVIRONMENT	Operating temperature****		-10°C to 40°C (14°F to 104°F)
	Operating humidity		10%RH to 80%RH

** About motion picture recording / 6K PHOTO/4K PHOTO recording
• 6K PHOTO is a high speed burst shooting function that cuts a still image out of a 4-3 or 3:2 video footage with approx. 18-megapixel (approx. 6000 x 3000 effective pixel count) that the 6K image manages.
• Use an SD memory card with SD Speed Class with "Class 4" or higher when recording motion pictures in [AVCHD].
• Use an XQD or SD memory card with SD Speed Class with "Class 4" or higher when recording motion pictures in [MP4(Under 28Mbps)].
• Use an XQD or SD memory card with SD Speed Class with "UHS-I / UHS-II UHS Speed Class 3 (U3)" when recording motion pictures with [MP4] in [4K] [High Speed Video] or [6K PHOTO/4K PHOTO].
ISO speed class is the speed standard regarding continuous writing.)
• Recording stops when the continuous recording time exceeds 10 minutes with [MP4] in [High Speed Video] [6K PHOTO].
• Recording stops when the continuous recording time exceeds 15 minutes with [MP4] in [4K] [6K PHOTO].
• MP4 motion pictures with [MP4] in [4K]
- When using an XQD memory card of 32 GB or less, or an SDHC memory card:
You can continue recording without interruption even if the file size exceeds 4 GB, but the motion picture file will be divided and recorded/played back separately.
- When using an XQD memory card over 32 GB, or an SDXC memory card:
You can continue recording without interruption even if the file size exceeds 96 GB or 3 hours 4 minutes in length, but the motion picture file will be divided and recorded/played back separately.
• MP4 motion pictures with [MP4] in [FHD]:
- You can continue recording without interruption even if the file size exceeds 4 GB or 30 minutes in length, but the motion picture file will be divided and recorded/played back separately.
• When the ambient temperature is high or continuous recording is performed, the camera may stop the recording to protect itself. Wait until the camera cools down.
• XQD is a registered trademark of Sony Corporation.
*** For [4K/60p] video output, use an HDMI2.0 cable that has the HDMI logo on it, and that is described as"4K compatible".
**** The camera may stop recording when used in lower or higher than recommended operating temperature: -10 to 40 degrees.

S1 Specifications

TYPE	Type		Digital Single Lens Mirrorless camera
	Recording media		XQD Memory Card, SD Memory Card / SDHC Memory Card* / SDXC Memory Card* *Compatible with UHS-I/UHS-II UHS Speed Class 3 standard SDHC/SDXC Memory Cards and UHS-II Video Speed Class 90 standard SDXC Memory Cards.
	Lens mount		L-Mount
IMAGE SENSOR	Type		35mm full-frame (35.6mm x 23.8mm) CMOS sensor
	Camera effective pixels / Total pixels		24.20 megapixels / 25.28 megapixels
	Aspect ratio / Color filter		3:2 / Primary color filter
	Dust reduction system		Supersonic wave filter
STILL IMAGE	Recording file format	Still image	JPEG (DCF, Exif 2.31), RAW, HLG Photo (CTA-2072)
		6K PHOTO** / 4K PHOTO**	4K PHOTO: MP4 (H.265/HEVC, Audio format: AAC (2ch)) 4K PHOTO: MP4 (H.264/MPEG-4 AVC, Audio format: AAC (2ch)) Extracted still images: JPEG (DCF, Exif 2.31)
	Aspect ratio		4:3 / 3:2 / 16:9 / 1:1 / 65:24 / 2:1
	File size (Pixels)	When using full-frame lenses	3:2 6000x4000[L] / 3724x2484[M] / 3024x2016[S] / 12000x8000[XL]* *High Resolution Mode, RAW file, 5184x3456[6K PHOTO] / 3504x2336[4K PHOTO] / 5984x4000[HLG PHOTO, Full-Res.] / 3232x2160[HLG PHOTO, 4K-Res.]
		4:3 5328x4000[L] / 3792x2848[M] / 2688x2016[S] / 10656x8000[XL]* *High Resolution Mode, RAW file, 4992x3744[6K PHOTO] / 3328x2496[4K PHOTO] / 5312x3984[HLG PHOTO, Full-Res.] / 2880x2160[HLG PHOTO, 4K-Res.]
		16:9 6000x3368[L] / 4272x2400[M] / 3024x1704[S] / 12000x6736[XL]* *High Resolution Mode, RAW file, 3840x2160[6K PHOTO] / 5888x3312[HLG PHOTO, Full-Res.] / 3840x2160[HLG PHOTO, 4K-Res.]
		1:1 4000x4000[L] / 2848x2848[M] / 2016x2016[S] / 8000x8000[XL]* *High Resolution Mode, RAW file, 2880x2880[6K PHOTO] / 4000x4000[HLG PHOTO, Full-Res.] / 2144x2144[HLG PHOTO, 4K-Res.]	
		65:24 6000x2308[L]	
		2:1 6000x3000[L]	
		When using APS-C lenses 3:2 3984x2656[L] / 2880x1920[M] / 2064x1376[S]	
		4:3 3536x2656[L] / 2560x1920[M] / 1840x1376[S]	
		16:9 3984x2240[L] / 2880x1624[M] / 1920x1080[S]	
		1:1 2656x2656[L] / 1920x1920[M] / 1376x1376[S]	
	Image quality		RAW / RAW+Fine / RAW+Standard / Fine / Standard
	Color space		sRGB, AdobeRGB
MOTION PICTURE	Recording file format		MP4: H.264/MPEG-4 AVC (Audio format: LPCM (2ch 48kHz/16-bit), AAC (2ch)), MP4 HEVC: H.265/HEVC (Audio format: AAC (2ch)) AVCHD Progressive (Audio format: Dolby Audio (2ch)), AVCHD (Audio format: Dolby Audio (2ch))
	MP4**		[4K] 3840x2160: 59.94p, 150Mbps (4:2:0 8-bit LongGOP) (LPCM) 29.97p, 100Mbps (4:2:0 8-bit LongGOP) (AAC) 23.98p, 100Mbps (4:2:0 8-bit LongGOP) (AAC) [FHD] 1920x1080: 59.94p, 28Mbps (4:2:0 8-bit LongGOP) (AAC) 29.97p, 20Mbps (4:2:0 8-bit LongGOP) (AAC)
	MP4 HEVC**		[4K] 3840x2160: 29.97p, 72Mbps (4:2:0 10-bit LongGOP) (AAC) (HEVC, HLG recording) 23.98p, 72Mbps (4:2:0 10-bit LongGOP) (AAC) (HEVC, HLG recording)
	AVCHD Progressive** AVCHD**		[FHD] 1920x1080: 59.94p, 28Mbps (4:2:0 8-bit LongGOP) (Dolby Audio) 59.94i, 24Mbps (4:2:0 8-bit LongGOP) (Dolby Audio) (Sensor output is 29.97fps) 59.94i, 17Mbps (4:2:0 8-bit LongGOP) (Dolby Audio) (Sensor output is 59.94fps) 23.98p, 24Mbps (4:2:0 8-bit LongGOP) (Dolby Audio)
	MP4**	High speed video (When Creative Video Mode is selected.)	[4K] 3840x2160: 29.97p (Sensor output is 60fps) 23.98p (Sensor output is 48fps) [FHD] 1920x1080: 29.97p (Sensor output is 180fps / 150fps)
	Continuous recordable time (Motion picture)**		Approx. 150 min (rear monitor), 140 min (LVF) in [AVCHD/FHD/60p] (When using S-R24105 and SD Memory Card.)
	Actual recordable time (Motion picture)**		Approx. 75 min (rear monitor), 70 min (LVF) in [AVCHD/FHD/60p] (When using S-R24105 and SD Memory Card.)
VIEWFINDER	Type		OLED Live View Finder
	Pixels		Approx. 5,760k dots
	Field of view / Magnification		Approx. 100% / Approx. 0.78x with 50 mm lens at infinity; -1.0 m^{-1}, when the aspect ratio is set to 3:2
	Eye point / Diopter adjustment		Approx. 21 mm at infinity; -1.0 m^{-1} / -4.0 - +2.0 (dpt)
	Eye sensor		Yes
	Display speed		120fps / 60fps
	Display time lag		Approx. 0.005sec
REAR MONITOR	Type		TFT LCD monitor with static touch control
	Monitor size		Triaxial tilt, 3.2-inch (8.0cm), 3:2 aspect
	Pixels		Approx. 2,100k dots
	Field of view		Approx. 100%
STATUS LCD			Yes
FOCUS	Focus mode		AFS [Single] / AFC [Continuous] / MF
	AF mode		Auto Detection [Face, Eye, Body, Animal] / Tracking / 225-Area / Zone [Vertical/ Horizontal] / Zone [Square] / Zone [Oval] / 1-Area+ / 1-Area / Pinpoint / Custom 1, 2, 3 [Full area touch is available] [Scalable AF frame size and flexible AF position]
	AF detective range		EV -6 - 18 (F1.4, ISO100 equivalent, AFS)
	AF custom setting		AF Sensitivity, AF Area Switching Sensitivity, Moving Object Prediction
	AF assist lamp		Yes
	AF lock		Set the Fn button in custom menu to AF lock
EXPOSURE CONTROL	ISO sensitivity (Standard output sensitivity)		Auto / 50* / 100 / 200 / 400 / 800 / 1600 / 3200 / 6400 / 12800 / 25600 / 51200 / 102400* / 204800* (Changeable to 1/3 EV step) *Extended ISO
IMAGE STABILIZATION SYSTEM			Image sensor shift type (5-axis / 5.5-step*) *Based on the CIPA standard [Yaw/Pitch direction: focusing distance f=50mm when S-X50 is used.] Dual I.S. (6.0-step* Dual I.S. 2 compatible) *Based on the CIPA standard [Yaw/Pitch direction: focusing distance f=200mm when S-R70200 is used.]
SHUTTER	Type		Focal-plane shutter
	Shutter speed		Still image: Bulb (Max. 30 minutes), 1/8,000 - 60 Electronic front curtain shutter: Bulb (Max. 30 minutes), 1/2,000 - 60 Electronic shutter: Bulb (Max. 60 sec), 1/8,000 - 60 Motion picture: 1/16,000 - 1/25
	Shutter life		Approx. 400,000 images
	Self timer		10sec, 3 images / 2sec / 10sec
	Remote control		Remote control by DMW-RS2 (sold separately)
	Silent mode / Shutter type		Yes / Yes (Auto / Mechanical / Electronic front curtain / Electronic / Electronic+NR)
BURST SHOOTING	Burst speed	Mechanical shutter / Electronic front curtain shutter	AFS/MF: H: 9 frames/sec, M: 5 frames/sec (with Live View), L: 2 frames/sec (with Live View) AFC: H: 6 frames/sec (with Live View), M: 5 frames/sec (with Live View), L: 2 frames/sec (with Live View)
		Electronic shutter	AFS/MF: H: 9 frames/sec, M: 5 frames/sec (with Live View), L: 2 frames/sec (with Live View) AFC: H: 5 frames/sec (with Live View), M: 5 frames/sec (with Live View), L: 2 frames/sec (with Live View)
	Number of recordable images		RAW: More than 90 images RAW+JPEG: More than 70 images JPEG: More than 999 images (Using a Sony Corporation XQD G Series Memory Card, Until the burst shooting speed slows, When recording is performed under the test conditions specified by Panasonic.)
6K PHOTO** / 4K PHOTO**	Burst speed		6K PHOTO: 30 frames/sec 4K PHOTO: 60 frames/sec, 30 frames/sec
	Exif information		Yes (Each JPEG image cropped out of the 6K/4K burst file complies with EXIF.)
INTERFACE	USB		SuperSpeed USB 3.1 Gen1 Type-C
	HDMI***	Monitor-through	4:2:2 8bit (Except for [4K/60p]) / 4:2:0 8bit
		Playback	HDMI Type4 / VIERA Link Video: Auto / 4K/60p / 4K/30p / 1080p / 1080i / 720p / 480p Audio: Stereo
	Audio video output		No
	Remote input		φ2.5mm
	External microphone / external audio device input		φ3.5mm for external microphone / external audio device MIC [Plug-in Power] / MIC / LINE is selectable. Stereo/Less Auto/Shotgun/Super Shotgun/Manual is selectable when attaching DMW-MS2 (sold separately).
	Headphone output		φ3.5mm
	Microphone		Stereo, Wind Noise Canceller: OFF / Low* / Standard / High *When attaching DMW-MS2 (sold separately).
	Speaker		Monaural
	Card slot		Slot 1: XQD Memory Card Slot 2: SD Memory Card, SDHC Memory Card*, SDXC Memory Card* *Compatible with UHS-I/UHS-II UHS Speed Class 3 standard SDHC/SDXC Memory Cards and UHS-II Video Speed Class 90 standard SDXC Memory Cards.
WIRELESS	Wi-Fi		2.4GHz ISTA/AP1 (IEEE802.11b/g/n) 5GHz ISTA1 (IEEE 802.11a/n/ac) •5GHz Wi-Fi is not available in some countries.
	Bluetooth		Bluetooth® v4.2 (Bluetooth Low Energy (BLE))
DUST AND SPLASH RESISTANT			Yes. (Dust and Splash Resistant does not guarantee that damage will not occur if this camera is subjected to direct contact with dust and water.)
POWER	Battery		Li-ion Battery Pack (7.2V, 3050mAh, 22Wh) (bundled) USB power supply, USB power charging
	Battery life (CIPA standard)	When using XQD memory card	Approx. 380 images (rear monitor), 360 images (LVF), 1,100 images (Power Save LVF mode*) with S-R24105 *Under the test conditions specified by Panasonic based on CIPA standard, When the time to get in the sleep mode is set to 1 sec.
		When using SD memory card	Approx. 400 images (rear monitor), 380 images (LVF), 1,150 images (Power Save LVF mode*) with S-R24105 *Under the test conditions specified by Panasonic based on CIPA standard, When the time to get in the sleep mode is set to 1 sec.
	Battery grip		DMW-BGS1 (sold separately)
DIMENSIONS / WEIGHT	Dimensions (W x H x D)		Approx. 148.9 x 110.0 x 96.7 mm / 5.86 x 4.33 x 3.81 inch (excluding protrusions)
	Weight		Approx. 1,021g / 2.25 lb (XQD Memory Card x 1, Battery, Body) Approx. 1,017g / 2.24 lb (SD Memory Card x 1, Battery, Body) Approx. 899g / 1.98 lb (Body only)
OPERATING ENVIRONMENT	Operating temperature****		-10°C to 40°C (14°F to 104°F)
	Operating humidity		10%RH to 80%RH

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• 6K PHOTO is a high speed burst shooting function that cuts a still image out of a 4-3 or 3:2 video footage with approx. 18-megapixel (approx. 6000 x 3000 effective pixel count) that the 6K image manages.
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• Use an XQD or SD memory card with SD Speed Class with "Class 4" or higher when recording motion pictures in [MP4(Under 28Mbps)].
• Use an XQD or SD memory card with SD Speed Class with "UHS-I / UHS-II UHS Speed Class 3 (U3)" when recording motion pictures with [MP4] in [4K] [High Speed Video] or [6K PHOTO/4K PHOTO].
ISO speed class is the speed standard regarding continuous writing.)
• Recording stops when the continuous recording time exceeds 10 minutes with [MP4] in [6K PHOTO].
• Recording stops when the continuous recording time exceeds 15 minutes with [MP4] in [High Speed Video] [4K PHOTO].
• Recording stops when the continuous recording time exceeds 29 minutes and 59 seconds with [MP4] in [4K/60p].
• MP4 motion pictures with [MP4] in [4K]
- When using an XQD memory card of 32 GB or less, or an SDHC memory card:
You can continue recording without interruption even if the file size exceeds 4 GB, but the motion picture file will be divided and recorded/played back separately.
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