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Panasonic's
Lumix L10



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Canon AE-1 Program

The Camera That
Helped Make
Canon Cool

Could You Buy The
Nikon ZR Or The
Canon EOS R6 V For
Shooting Stills?



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FUTURE
ISSUE 438
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03

NIKKOR Z



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* As of February 24, 2026, among 70-200mm f/2.8 interchangeable lenses for full-frame mirrorless cameras available.

^ As of August 22, 2025, among 24–70mm f/2.8 interchangeable lenses for full-frame/FX-format mirrorless cameras.

Statements based on Nikon research.



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WILL VIDEO SAVE PHOTOGRAPHY?

The old Chinese curse which states “May you live in interesting times” seems particularly apt right now. Apparently, the saying isn’t Chinese in origin at all, but that doesn’t really matter because the idea of a period of uncertainty, instability and chaos being a curse is still pretty spot-on. The global uncertainty is certainly making for interesting times in the camera world. For a few reasons supply chains are again disrupted, including the rapid increase in AI data centres creating a global shortage of memory chips. The result has been a distinct slowing in the number of new cameras that have been launched this year, at least as far as the mainstream categories are concerned.

Yes, there have been a few significant arrivals such as the Panasonic Lumix L10, Canon’s EOS R6 V and the Sony A7R VI, but you’d have to say it’s been very quiet otherwise... no new Nikon, Fujifilm or OM System mirrorless bodies (the specialised OM-3 ASTRO aside), and no new photo-orientated Canon RF mount bodies. Nikon’s last major new camera release was the ZR back in September 2025 and, like the EOS R6 V, it’s primarily aimed at video shooters, and this looks to be a shiny new category of hybrid mirrorless camera... with, of course, the potential for extra sales. Even better for the camera makers, there are various levels of video user from the content creator working solo on output mostly for social media, through to the more advanced operator producing for corporate presentations or perhaps a YouTube channel, and then the professional – or semi-professional – working at the standard of TV broadcasting or cinematic productions. There’s plenty of crossover between these various breeds of video-first cameras and even with the more purely hybrid models such as Canon’s EOS R6 Mark III and Nikon’s Z6III, but targeting a specific group of potential buyers is, of course, Marketing 101.

It’s a coincidence that we have both the EOS R6 V and the ZR on test in this issue. The Canon is, of course, new so we were expecting it, but for one reason or another, we’ve only been able to get our hands on the Nikon now. And what an informative and enlightening experience using these two cameras it turned out to be. Coming from a photography perspective, both were far more enjoyable to use than expected, but the Nikon ZR was a revelation with its RF-style body and yet a very contemporary, monitor-based user interface. Consequently, it’s quite similar in operation to Hasselblad’s X2D II 100C and it

also has a big, high-brightness, high-contrast monitor screen which makes everything work quite efficiently and effortlessly. Given Nikon’s tendency to stick with design conventions with its Z mount bodies so far, the ZR is out there, but it’s brilliant and – notwithstanding the absence of an EVF – has the potential to be a great stills camera. However, it’s as a compact cine camera that it really excels especially as Nikon has packed so much into it – including superior audio recording – that it does the job without needing to be connected to numerous accessories in a cumbersome rig. And, what’s more, it’s ridiculously affordable given what it can do. With its acquisition of US cine camera-maker RED, Nikon clearly sees this arena as an important part of its future business and, of course, Canon is already there with its Cinema EOS line which now includes the compact C50, although this is essentially a more specialised camera than the ZR. With its size, pricing and feature set the Nikon has the potential to work for many levels of video production.

So where does all this leave photographers? Is the video/cine business going to be more profitable in the future than building cameras that put photography first? Video is now everywhere because it’s a powerful means of communication, but it’s also a very different discipline to photography if you want what’s on screen to look good. Many professional photographers now shoot video too, but there are commercial returns which make any investment in additional equipment and the time taken to learn new skills worth doing (including editing). In reality, you can’t just ‘dabble’ in video, it must be a commitment and there’s a lot to learn if you’re going to do it well. Understandably, putting all this effort into bettering your photography will often look like a better plan.

Unless you have the luxury of affording a photo-only Leica or Hasselblad, today’s hybrid mirrorless cameras allow us to still have state-of-the-art cameras for photography. So even if you have absolutely no interest in video, be thankful that it’s driving a more diverse and constantly developing camera market that is actually good for all of us... and that clever video-first models like the Nikon ZR can inform future designs which will benefit both video-makers and photographers.

Paul Burrows

Paul Burrows, Editor.

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2026 WORLD FOOD PHOTOGRAPHY AWARDS WINNERS

We gave you a taster with a selection of finalists in the 2026 World Food Photography Awards, but here's the main course of all this year's winners... and Australian photographers did particularly well producing a total of 12 finalist images, including an impressive four category winners (the second highest number of category winners from a single country).

Image by by Albert Gonzalez © 2026



REGULARS

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Global issues are having impacts everywhere and so things have been a bit quiet in the camera industry over the last couple of months, but there were still a few significant new arrivals starting with **Leica's** SL3-P. It's the third full frame L mount mirrorless camera and combines 44.9 megapixels resolution with a top shooting speed of 40 fps, making it Leica's fastest SL series model ever. Leica is also bolstering its SL system line-up with its first

✓ **Page 6: Leica SL3-P**



macro model – the APO-Macro-Elmarit-SL 100mm f/2.8 – and a completely revised update of the Summilux-SL 50mm f/1.4 ASPH which has been significantly down-sized and will be available at the end of the year. Nine years after the previous model, **Sony** has launched the RX10 Mark V and its new 'bridge' camera incorporates a lot of the latest Alpha series tech, but still has the impressive 24-600mm equivalent superzoom. New photo printers don't happen so often these days so **Epson's** A3 format Expression Photo XP-980

makes a welcome debut as an affordable six-colour model for the hobbyist offering the convenience of wireless printing and features such as automatic print head alignment.

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These pictorial features are designed to help you better appreciate how successful photographers deal with



different subjects and situations to create a memorable photograph. In this issue, we find out about one of the dramatic drone shots which won Bangladeshi photographer Azim Khan Ronnie the 2026 International Aerial Photographer Of The Year award.

78 SIGMA SHOWCASE 2026

Our Showcase competition sponsor, Sigma lenses – via the Australian distributor, C.R. Kennedy Photo Imaging – is providing the grand prize of a lens – your choice of model and mount – valued at up to \$1000. It's easy to be in the running for the 2026 competition's grand prize, and there's still three rounds to go. Submit your entries online at camera@futurenet.com

Azim Khan Ronnie © 2026

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In the market for a new camera? Our buyer's checklists for all the current mirrorless cameras, DSLRs and the digital RF models allow you to directly compare all the key specifications and features at all the main price points.

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26 PREVIEW ZONER STUDIO SUMMER 2026 UPDATES

Only a small company compared to the mighty Adobe, Zoner has nevertheless designed a viable alternative to Photoshop and, what's more, continues to update its image editing software on a regular basis. The 2026 Summer Update – winter for us, of course – concentrates on improved workflows for handling image sequences such as focus stacking.

ON TRIAL

16 ON TRIAL PANASONIC LUMIX DC-L10

Is it as good as it looks on paper? You bet! With the Lumix L10, Panasonic delivers the higher-end compact camera that many enthusiasts have been dreaming about. It's not exactly pocket-sized, but then the L10 has a Micro Four Thirds sensor, a fast 24-75mm equivalent zoom and a lot of features from the Lumix mirrorless cameras, including hybrid AF with AI-based subject detection and 30 fps continuous shooting. What's not to like?



50 ON TRIAL CANON EOS R6V

It's Canon's first full frame V series camera that's primarily designed for video content creators, but the EOS R6V inherits a lot of features from the R6 Mark III so it's also pretty good at stills too. It's more compact and also cheaper than the R6 III, but doesn't have an EVF or a mechanical shutter so it is worth considering for photography? Turn to page 50 to find out.

62 ON TRIAL – NIKON ZR

Nikon dives into the cine camera market with the compact full frame ZR which is an all-new design with an all-new user interface that's largely based on the touch screen. There's a partially-stacked sensor for speed, superior sound recording and a vast choice of video recording modes, including three RAW codecs. It's a dynamite higher-end video camera – remarkably affordable too –

and, drawing from the Z6III, works well for photography too.

72 CLASSICS ON TRIAL CANON AE-1 PROGRAM

Canon was a bit of an also-ran before it launched the AE-1 50 years ago, but this model and its successor, the AE-1 Program, achieved combined sales of around 7.5 million units. The pair helped establish Canon's reputation as a leading camera maker and put it firmly at the top of the 35mm SLR market.



OUR FRONT COVER:

The main photograph on this issue's front cover features the Nikon ZR and Canon EOS R6 V as both these video-first mirrorless cameras are on test in this issue and both offer intriguing potential for photography. The inset photo is by Australian photographer by Claudia Anton, winner of the Cake Award, World Food Photography Awards 2026 sponsored by Broccolini®. Australians did exceptionally well in this year's awards so for more delicious photography turn to page 30.



LEICA'S SL3-P MIXES HIGH RES WITH HIGH SPEED

YOU CAN HAVE the 60.3 megapixels SL3 which shoots at up to 15 fps or the 24.6 megapixels SL3-S which shoots at up to 30 fps. Now there's the 44.9 megapixels SL3-P and it has a top continuous shooting speed of 40 fps. This makes it the fastest of the current SL3 series models – taking the crown from the SL3-S – and the 40 fps speed can be maintained with image quality settings up to 12-bit RAW (DNG format) and with continuous AF/AE adjustment. An 8.0 GB buffer memory allows for a burst length of around 70 frames when shooting at 40 fps. RAW files with 14-bit colour can be captured at up to 15 fps. As with the other SL3 models, the SL3-P has dual memory card slots for CFexpress Type B devices and for SD with UHS-II speed support.

The BSI-type CMOS sensor in the SL3-P is essentially the same as the one used in the Panasonic Lumix S1R II and a number of the new Leica's features are again the product of the L2Technology tie-up between the two companies. Leica quotes a dynamic range of up to 14 stops and a sensitivity range equivalent to ISO 100 to 200,000 (with a one-stop extension down to ISO 50). The sensor is matched with a 'Maestro IV' generation high-speed processor which drives, among other things, AI-based subject recognition AF and tracking with settings for humans – bodies, faces or eyes – animals which includes dogs and cats and, new on SL3-P, cars and parts of a car. The phase-detection autofocus now employs 819 measuring points which is a small increase over the previous SL3 models. The contrast-detection AF uses 315 points.

Sensor shifting provides five-axis in-body image stabilisation with correction for camera shake of up to 5.0 stops. Additionally,

pixel-level shifting drives a multi-shot high-res function which has both handheld and tripod models and gives 176 megapixels resolution with either JPEG or RAW capture.

The SL3-P's EVF is an OLED panel with a resolution of 5.76 megadots, a magnification of 0.76x and the choice of 60 or 120 fps refresh rates. The TFT LCD monitor screen has a resolution of 2.33 megadots, touch controls and is adjustable for up/down tilts. It has the same revised touch screen interface as previous SL3 models and, in terms of the external control layout, there's the same control arrangement which is based on a trio of input wheels or command dials. This allows for all the key exposure setting controls – apertures, shutter speeds and ISO – to have dedicated adjusters. The 'P' model also uses the same higher-capacity 2200 mAh BP-SCL6 which Leica estimates is for good for around 383 shots per charge. In-camera battery recharging via USB C is supported.

The SL3-P's video specs are impressive

and top 8K at 24/25/30 fps with either the 17:9 or 16:9 aspect framing, but also with 'open gate' recording in the 3:2 aspect ratio (at 8064x5376 pixels) for multi-format flexibility (for example, the 9:16 vertical aspect). There's also 7.2K at 25/30 fps, 6.4K at 24/25/30 fps, and 6.0K at 17:9 or 16:9 and up to 50/60 fps. These are all with 10-bit 4:2:0 colour, but 4:2:2 subsampling kicks in with the 4K UHD/DCI at up to 50/60 fps (with 4:2:0 at 100/120 fps). Full HD is also possible at the high-speed frame rates of 100/120 fps for slowmo effects. Depending on the resolution and frame rate, the codecs are H.265 with LongGOP compression or H.264 with All-Intra compression, but ProRes 422HQ recording is available internally for 6.0K DCI (24/25/30 fps), 4.7K (24/25/30 fps), 4K DCI (up to 50/60 fps) and Full HD (also up to 100/120 fps). For external recording via HDMI (there's a full-size Type A connector), the camera can output RAW video up to 8.0K res at 24/25/30 fps and with 10-bit 4:2:2 colour. There's a choice of the MOV and MP4 formats and the L-Log and HLG (HDR) gamma profiles, plus time coding support, proxy recording and LUT compatibility. Additionally, there are two new in-camera LUTs – called Leica Pure and Leica Cine – for application to the log recording.

Following the SL3-S, the SL3-P incorporate content credentials technology as per the Content Authenticity Initiative (CAI). This enables image files to be signed with tamper-proof metadata, such as the camera model and author information, as well as creation and editing data. In order to prove authenticity with verifiable image content and to make any edits transparent, the file's content credentials can be checked using freely-available verification tools.

The Leica SL3-P is priced at \$10,500 body only and is available in Australia now. For more information visit <https://au.leica-camera.com> To purchase online go to <https://leica-store.com.au>



VALE PAUL CURTIS 1943-2026

THIS IS A bit belated because Paul actually passed away in mid-March on the Gold Coast, but despite social media being everywhere apparently, we only found out recently. Paul was, of course, the founder of this magazine – originally called *Camera Craft* – and it was he who employed me all the way back in March 1982. Paul and his wife, Margaret, established Iris Publishing in Sydney in 1979, starting with *Camera Craft* and then launching a trade publication called *Photo Forum*. Next came *AudioVision* magazine (later *AudioVision & prosound*) and *Video & Audio Marketing* another trade publication as consumer video started to take off. In 1982, Iris Publishing then purchased *Professional Photography In Australia* from its Melbourne-based publisher. Today that magazine is *Australian ProPhoto & Video*, the longest-surviving photography magazine in Australia and possibly even the world.

An out-of-work English teacher – but mad keen amateur photographer – I applied for an editorial assistant's job at Iris Publishing and, after passing a multiple-choice test and an interview with Paul, got the job. Paul was a talented writer himself and an excellent photographer, having started working professionally in one capacity or another from the age of 15. But primarily he was a gregarious mover and shaker who understood how to have a close relationship with the industry that we were part of, but also how to stay independent of it to ensure the validity and authority of our journalism. He liked a bit

▼ As Paul stayed in the photo industry after selling Iris Publishing, we saw each other regularly at one event or another over the following three decades. I'm older and bigger here with more hair, but where and when isn't recorded. Something tells me it was in Sydney sometime in the 1990s after a new product launch event (which is why I'm wearing a tie).



▲ Paul Curtis and myself at the Photokina '88 launch of Kodak's Ektar 25 fine-grained colour negative film (hence the big print we're holding up).

of mischief – which was at the core of the cheeky *Photo Forum* – and was always keen on a photo industry scoop which was a lot harder to achieve in the days before the Internet, mobiles phones and social media. Paul put his heart and soul into the Iris Publishing titles and he loved both them and us dearly (although he would never admit the latter), but running a small independent publishing company profitably was hard work, even back in the 1980s, and it took its toll. After a major health scare while covering the 1984 Photokina (which I subsequently ended up doing by 'remote control'), Paul began to contemplate an easier life, urged on by Margaret. However, this didn't actually happen until 1989 when Iris Publishing was sold to Horwitz Grahame, a very successful operation which included among its titles the Australian edition of *Penthouse* magazine. Did Paul then settle for the easy life? Not likely. He established Rose Publishing, became a photo industry consultant and, later, for many years ran the Australian photo imaging shows for the Photographic Industry Council Of Australia (of which he was executive director) and later PMA Australia. Under

various names, especially after digital imaging arrived, these shows rotated between Melbourne, Sydney and Brisbane and were a major logistical undertaking which only somebody with such extensive industry contacts – and powers of persuasion – as Paul could pull off successfully year after year.

Paul Curtis's first full-time job. Aged 19, was as a ship's photographer for the Greek Line's *Lakonia*, but bigger and better things were to come and, a few years later, he was entertainments office on Cunard's original *Queen Mary*. Subsequently, Paul never lost his love for cruise liners – especially the classic ones – and most of Rose Publishing's output was books on this subject among them *High Tea On The Cunard Queens*, *Around The World In Eighty Years* and *Tales From The Great Passenger Ships – A Jaunt Through Time*. However, there have also been a couple of books on Australia's photo industry – *A History Of Professional Photography In Australia* published in 2013 and, more recently, *A History Of The Australian Photo Industry*.

Aged 81 in 2024, Paul conceded that ill health was getting the better of him and he'd better finally retire, although it was definitely reluctantly. However, his Facebook posts showed his ability to write witty and entertaining copy remained undiminished and his belief that photography should, above all else, be fun was the ethos on which this magazine was originally founded. I will be forever grateful for the chance that Paul Curtis gave me in 1982 and which has subsequently become a career, a passion and a journey of constant discovery and delight that's been going on for close to 45 years. So, thank-you Paul, and may you rest in peace. - Paul Burrows





AFFORDABLE A3 PHOTO PRINTER FROM EPSON OFFERS SPEED AND CONVENIENCE

NEW PHOTO PRINTER announcements are becoming something of a rarity these days, but Epson is aiming to make the idea of printing exciting again with its very affordable new Expression Photo XP-980 all-in-one model. It's aimed at creative households and hobbyists and is designed to deliver high-quality results with the minimum of effort. Consequently, it's a comparatively compact unit which won't take up a lot of space on the desktop and it can operate wirelessly from a computer, tablet or smartphone via Wi-Fi Direct. As an all-in-one model, it incorporates both a scanner and copier for up to A4 size originals.

The XP-980 uses Epson's Claria Photo HD dye-based inks with six colours – cyan, magenta, yellow, black, light cyan and light magenta – to give extended colour depth and saturation. Print sizes range from 3.5x5.0 inches up to borderless A3 at 11x17 inches.

The maximum print resolution is 5760x1440 dpi and the printer has dual front-loading trays (one for up to 100 sheets of plain paper and one for heavier photo papers that takes up to 20 sheets) and a rear specialty media feed. As the front photo paper tray only accepts up to 5x7 inch sheet sizes, the rear

feed is for the larger sheet sizes and can only be done one sheet at a time. The printer supports gloss, semi-gloss, matte and lustre photo paper surfaces.

A neat feature is that the output tray automatically extends from its closed position when a print job starts. Also convenient is automatic print head alignment and control is via a 10.9 cm colour touch screen panel. Alternatively, the Epson Smart Panel app enables the printer to be controlled from a mobile device for set up, monitoring, printing and scanning.

The XP-980 has an SD memory card reader plus USB and Ethernet ports and wireless connectivity via Wi-Fi (2.4 and 5.0 GHz) and Wi-Fi Direct. The printer also supports wireless printing via Apple AirPrint and Mopria Print Service.

The Epson Expression Photo XP-980 photo printer is priced at \$399 and available locally now. For more information visit www.epson.com.au



LEICA'S PREMIUM 'FAST FIFTY' GETS SMALLER AND LIGHTER

LEICA HAS RELEASED an extensively redesigned version of its L mount 50mm f/1.4 fast standard prime for the SL mirrorless system. The new Summilux-SL 50mm f/1.4 ASPH is close to half the weight of the previous model – 584 grams compared to a hefty 1065 grams – and now measures 76 millimetres in length compared to 124 millimetres. The screwthread filter fitting is 67 millimetres compared to the earlier lens's 82 millimetres. As a result of its significant downsizing, the new Leica lens is now actually the most compact full frame 50mm f/1.4 prime on the market.

The optical construction now has 11 elements in six groups which includes two aspherical types. Minimum focusing is down to 50 centimetres and focusing is performed internally. The only control on the new 50mm f/1.4 is a manual focusing collar. The external construction employs aluminium barrel tubes with sealing to prevent the intrusion of dust and moisture.

The Leica Summilux-SL 50mm f/1.4 ASPH is priced \$7900 and will be available in December. For more information visit <https://au.leica-camera.com> To purchase online go to <https://leica-store.com.au>

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FUJIFILM UNVEILS SECOND GF POWER ZOOM

WE'RE PRETTY CERTAIN most of you won't be rushing out to buy this lens, but it's interesting to see Fujifilm's growing emphasis on the cinematography side of its GFX digital medium format system. It's a newcomer to this sector and up against some very well-established names to it needs to demonstrate a commitment to building a system around the GFX Eterna 55 large sensor cine camera.

The new Fujinon GF19-35mm T3.5 PZ

OIS WR isn't exclusively a cine lens, but it's been designed with this application primarily in mind and, of course, it's a power zoom. The focal range is equivalent to 15-28mm and the optical construction employs 23 elements in 15 groups which includes a total of seven special types. These comprise four elements made from optical glass with extra-low dispersion (ED) characteristics and three that are aspherical. Fujifilm describes the GF19-35mm T3.5 as being "a compact and lightweight design" which it is in terms of high-performance cine lenses, but it weighs in at 2.1 kilograms and is 22.2 centimetres in length so it's quite a handful. Of course, handheld shooting isn't really how it's intended to be used, least of all

when attached to the GFX Eterna 55. There are manual control rings for focus, zoom and iris (i.e. aperture) and each is geared with the standard 0.8M gear pitch ensuring compatibility with industry-standard accessories such as follow focus systems and

lens motors. The manual focus ring has a wide 200-degree rotation angle to enable precise focusing even in shallow depth-of-field scenarios. In this regard, the diaphragm has 13 blades to give uniformly circular and smooth out-of-focus effects. Both zooming and focusing are performed internally so there's no change in the lens's overall length during either operation.

The on-barrel controls include selectors for power and manual zooming, and auto or manual focus operation plus an aperture lock switch and an on/off switch for the lens's optical image stabilisation. The zoom's external construction is weather-sealed.

Importantly for higher-end video and cinematography applications, the 19-35mm has the same physical dimensions, gear wheel locations and operating characteristics as the earlier GF 32-90mm T3.5 PZ OIS WR zoom so they can be quickly and easily swapped over without needing to rebalance a gimbal or reconfigure a camera cage.

The Fujinon GF19-35mm T3.5 PZ OIS WR zoom lens is priced at \$8499 and available now. Fujifilm Australia provides a three-year warranty when GFX system products are purchased from an authorised reseller. For more information visit www.fujifilm.com.au

LEICA ADDS FIRST MACRO LENS TO SL MIRRORLESS SYSTEM

ANNOUNCED ALONG WITH the SL3-P, the Leica APO-Macro-Elmarit-SL 100mm f/2.8 is the first true macro lens for the SL system and, of course, another addition to the steadily growing ecosystem of L mount lenses (although Panasonic also introduced a Lumix S 100mm f/2.8 Macro recently). The optical construction comprises 17 elements in 14 groups with internal focusing – a 'floating' group arrangement – so the overall length of the lens doesn't change. Leica says the design has a high level of apochromatic correction – via the glass formulations – to almost entirely eliminate chromatic aberrations. The minimum focusing distance is 29 centimetres which gives a maximum reproduction ratio of 1:1 or life size. A focus limiter switch on the barrel can be adjusted to one of three settings – the full focusing range, 50 centimetres to infinity or 30 to 50 centimetres (the close-up focusing range). There's a nine-blade diaphragm to give smoother out-of-focus effects which is important for

both close-up photography and portraiture (another key application of this focal length). The minimum aperture is f/22.

The external construction employs metal alloy barrel tubes with sealing against the intrusion of dust and moisture. An 'Aqua-Dura' hydrophobic coating is applied to the exposed surfaces of both the front and rear elements to help repel moisture and grease while also making them easier to clean. The new Leica 100mm f/2.8 macro prime weighs in at 801 grams and measures just under 137 millimetres in length. The lens's maximum diameter is 77 millimetres with a screwthread filter fitting of 67 millimetres.

The new macro lens is compatible with Leica's 1.4x and 2.0 teleconverters which give a focal length of 140mm and 200mm respectively while maintaining the minimum focusing distance of 30 centimetres. Consequently, these give a maximum magnification ratio of 1.4:1 and 2:1 or double life size.

The Leica APO-Macro-Elmarit-SL 100mm



f/2.8 is priced at \$4400 and will be available in September. For more information visit <https://au.leica-camera.com> To purchase online go to <https://leica-store.com.au>



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World Press Photo of the Year *Separated by ICE* © 2026 Carol Guzy

PHOTOGRAPHY EXHIBITIONS & EVENTS

Current to 30 August: Exhibition. *Max Dupain And Ansel Adams: In Search Of Perfection*. A total of 63 works which place Dupain's architectural photographs and Adams's iconic landscapes of the American West in conversation for the first time. At the Bayside Gallery, Brighton Town Hall, corner Wilson and Carpenter Streets, Brighton, Victoria 3186. Entry is free. Gallery hours are 11.00am to 5.00pm Wednesday to Friday, 1.00pm to 5.00pm on weekends. For more information visit <https://www.bayside.vic.gov.au/gallery>

Current to 6 September: Exhibition. *Trent Parke: The Christmas Tree Bucket*. A tender and darkly humorous portrayal of the photographer's extended family coming together to celebrate Christmas. At Gallery 14, Level 1, National Gallery Of Australia, Parkes Place, Parkes, Canberra, ACT 2600. Entry is free. Gallery hours are 10.00am to 5.00pm daily. For more information visit <https://nga.gov.au>

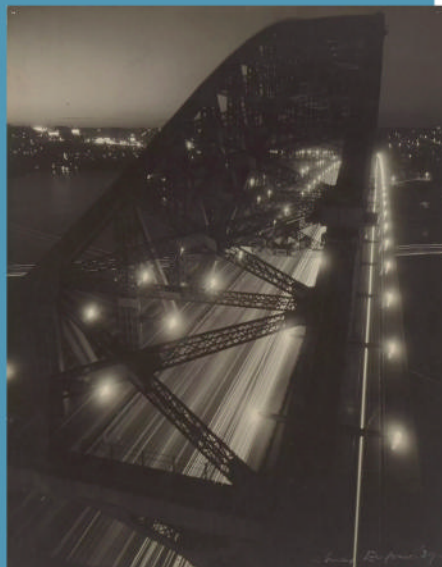
Current to 12 September: Exhibition. *2026 World Press Photo Contest*. Finalists and category winners showcasing outstanding work from photojournalists and documentary photographers around the world. At the Art Gallery Of Ballarat, 40 Lydiard Street North, Ballarat, Victoria 3350. Note that the gallery is closed for upgrades during 2026 and 2027 and exhibitions during this time are being held at Backspace, 43 Mair Street, Ballarat Central. Check on the Website – <https://www.artgalleryofballarat.com.au> – for opening hours.

Current to 7 February 2027: Exhibition. *Mervyn Bishop: Close Up*. Mervyn Bishop is one of Australia's most important photographers and this exhibition is drawn for the archive of over 200,000 images held in the State Library Of NSW's

collection. At the Exhibition Galleries, State Library Of NSW, Macquarie Street, Sydney, NSW 2000. Entry is free. Exhibition hours are 9.00am to 8.00pm Monday to Thursday, 9.00am to 5.00pm on Friday and 10.00am to 5.00pm on weekends. For more information visit <https://www.sl.nsw.gov.au/exhibitions>

30 January to 3 April 2027: Exhibition. *Max Dupain And Ansel Adams: In Search Of Perfection*. A total of 63 works which place Dupain's architectural photographs and Adams' iconic landscapes of the American West in conversation for the first time.

At the Logan Art Gallery, Wembley Road and Jacaranda Avenue, Logan Central, Queensland 4114. Entry is free. Gallery hours are 10.00am to 4.00pm Tuesday to Saturday. For more information visit <https://www.loganarts.com.au>



Max Dupain, *City lights*, 1939, National Gallery of Australia, Kamberri/Canberra

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SONY PACKS NEW TECH INTO MARK V RX10 SUPERZOOM CAMERA

ARRIVING A WHOLE nine years after the Mark IV model, the RX10 Mark V isn't exactly a compact camera, but it does offer the convenience of a fixed zoom lens and a lot of features from the current Alpha series mirrorless cameras. And it's quite a lens with a zooming range equivalent to 24-600mm thanks to the sensor's '1.0 Type' size – which represents a 2.7x crop factor – while the maximum aperture range is f/2.4-4.0 so it's not really all that slow. The lens is officially the Zeiss Vario-Sonnar T* 9.1-210mm f/2.4-4.0 and the sensor is an 'Exmor RS' CMOS which has a stacked design and an effective pixel count of 20.1 megapixels. It's matched with Sony's high-speed 'Bionz XR' processor and an 'AI Processing Unit' which is largely devoted to driving the AI-based subject recognition for autofocus. Even the basic control layout is similar to that of an Alpha body with a main mode dial, a pair of input wheels, a joystick-type multi-controller and a good-sized handgrip that has

the same shaping. With its battery and a memory card, the RX10 Mark V weighs in at 1.1 kilograms so it's a hefty beast. The EVF is 1.3 cm OLED panel with a resolution of 3.68 megadots and a magnification of 0.78x (35mm equivalent). The refresh rate can be switched between 60 or 120 fps. The monitor is a 7.5 cm TFT LCD screen with a resolution of 1.62 megadots, extensive touch controls and adjustable for up/down tilts. The camera is powered by Sony's NP-FZ100 battery – as used in the A7 mirrorless bodies – and it's good for around 630 shots per charge. The RX10 V's bodyshell is GRP with some magnesium alloy components and weather sealing.

The sensor delivers a maximum image size of 5472x3648 pixels with the choice of JPEG, HEIF and lossless compressed RAW files with 14-bit RGB colour. The sensitivity range is equivalent to ISO 100 to 12,800. Continuous shooting is possible at up to 30 fps which comes with blackout-free viewing and AF/AE adjustment performed at 60 fps. The hybrid phase/contrast-detection AF employs a total of 575 PDAF measuring points and has subject detection for humans, animals, birds, insects, cars, trains and aircraft. The AI-analysed subject recognition now includes skeletal-based human pose estimation for the more reliable tracking of people using their entire bodies,

if the eyes or head can't be detected.

The sensor's faster read-out means that the RX10 V also boasts some impressive video capabilities too, starting with 4K UHD recording at up to 100/120 fps (albeit with a 1.38x crop), but the full width of the sensor is used at up to 50/60 fps, with oversampling and 10-bit 4:2:2 colour. With Sony's XAVC S-I codec, bit rates are in the order of 600 Mbps. Full HD recording is at up to 100/120 fps without a crop. The camera's video toolbox includes S-Log3 recording, the S-Cinetone profile, time coding, LUT

uploading (up to 16), auto framing, proxy recording, 'Dynamic Active' electronic image stabilisation (although this involves a small crop) and USB streaming. The camera also has the 'Multi Interface Shoe' hotshoe for powering dedicated accessories such as an external microphone.

The zoom lens's optical construction comprises 18 elements in 13 groups

and these include eight with extra-low dispersion (ED) characteristics to correct for chromatic aberrations. Two of these ED elements are aspherical types to help minimise distortion. The minimum focusing distance at 24mm is just three centimetres and 72 centimetres at 600mm which gives a maximum magnification ratio of very close to 1:2 which is half life size. What's more, the close-up focusing distances are continuous so you don't need to switch to a macro mode first. The screwthread filter fitting is 72 millimetres.

The Sony RX10 V is priced at \$3499 and is available in Australia now. For more information visit www.sony.com.au



BRIEF EXPOSURE

Independent lens maker **Tamron** has confirmed that Sony has made a bid to buy all the shares in the company that it doesn't already own which would make it a wholly-owned subsidiary of Sony Group Corporation. Sony already has a 15.3 percent share in Tamron and the take-over bid is estimated to be worth around US\$1.2 billion. The bid happens to come just as Tamron announces that it

now has substantial 60 percent of the third-party interchangeable lens market while also noting that 41 percent of its photography division's annual production is OEM lenses for other brands such as Nikon as well as Sony (representing 29 percent of revenue). Tamron's success comes despite the proliferation of Chinese lens makers in the third-party space, but it remains to be seen what Sony will do with the company if the acquisition actually happens. Sigma will no doubt be watching with interest.

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Mount



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SG1 Exclusive Features



FEAST FOR THE EYES

The Story

Titled *Fasting Festival*, this dramatic and graphic image was part of a winning portfolio of four images by Bangladeshi photographer Azim Khan Ronnie, and helped win him the 2026 International Aerial Photographer Of The Year award. The second running of the

International Aerial Photographer Of The Year competition attracted total of 1587 entries from all around the world as was open to both amateur and professional photographers.

The Photograph

Hindu devotees gather in Dhaka for Rakher Upobash, fasting and praying with



Photograph by Azim Khan Ronnie, 2026
International Aerial Photographer Of The Year.
Copyright 2026.

action cameras, drones and professional lighting equipment that gives me the flexibility to work across photojournalism, documentary, sports, wildlife and aerial photography.

"For aerial photography, I use the DJI Mavic 4 Pro and DJI Mavic 3 Classic, allowing me to create images that reveal scale, patterns and perspectives impossible to capture from the ground. I always shoot exclusively in RAW to capture the maximum amount of image data, giving me greater flexibility during post-processing while preserving image quality.

To see more of Azim Khan Ronnie's photography go to www.azimronnie.com

To see all the winning and finalist pictures in the 2026 International Aerial Photographer Of The Year competition visit internationalaerialphotographer.com

incense and oil lamps to honour Baba Lokenath. Thousands seek blessings for health and protection, recalling the 18th century saint's life of asceticism and spiritual devotion.

The Photographer

Azim Khan Ronnie is currently living in France and has been working in

photography for 11 years; covering travel, aerial, news, culture, sports, humanitarian issues and everyday life with a strong emphasis on visual storytelling. His work has taken him from major sporting events to remote communities, capturing moments that reflect both resilience and the human condition. "I use a combination of mirrorless cameras,

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PANASONIC

LUMIX DC-L10

The Lumix L10 looks good in any of its colours, but the limited edition 'Gold Titanium' finish adds a touch of real class.



THANK GOD YOU'RE HERE!

Panasonic has read the room and launched an all-new – rather than merely updated – enthusiast-level fixed lens compact camera so it has the latest tech and features seen in its mirrorless cameras. Classic styling adds to the appeal as does the Micro Four Thirds sensor size.

W

hile there's no doubt fixed-lens compact cameras are 'in' again, mostly what we've seen so far is the continuation of models

that are getting a bit long in the tooth or mild refreshes. While Panasonic's Lumix L10 does have some DNA that can be traced back to the old LX100 models, it's

essentially a new design which means it benefits from the many developments in camera technology that have arrived over recent years. Most notably, these include AI-based subject detection for more accurate autofocus, faster continuous shooting speeds, higher res video recorder at faster frame rates, and more scope for creating specific looks

via downloadable LUT profiles which can be applied to both stills and video. The L10 has them all and, in fact, in terms of its key features and capabilities, is pretty much a fixed-lens version of Panasonic's latest Lumix G and Lumix S mirrorless bodies. Consequently, it's very much aimed at enthusiast-level shooters who want something more compact and unobtrusive – for the occasions when such a camera is the more advisable or desirable option – without compromising either flexibility or performance. Of course, it goes without saying that the L10 makes a great 'everyday' camera and will certainly work very well if you want to travel light and be able to respond quickly to any photo opportunities.

The body may look a bit similar to the LX100 models, but it's actually also all-new and, probably deliberately, noticeably larger. Consequently, here's been some grumbling online that L10

isn't compact enough, but in our book, having a bit more substance is a good thing, both in terms of more comfortable handling and decent-sized controls. For reference, it's close in size overall to the Fujifilm X100VI.

Panasonic has gone for a quasi-retro styling – so there's a conventional main mode dial, for example – and a classically styled all-metal bodyshell. And, most commendably, there's an EVF which isn't titchy either. Clearly, the main design objective has been to create an extremely capable camera that's as compact as it can be without creating problematic issues with functionality or performance. For the record, it might not fit in the pockets of your jeans but will easily go into a jacket pocket or the small bag that you use to carry around other bits and pieces.

Officially, it's the Lumix DC-L10 (not to be confused with the short-lived Lumix DMC-L10 DSLR from nearly 20 years ago) and you can have it in either black or silver along with a limited-edition version finished in 'Gold Titanium' which is what we're reviewing here. All models are identical under the skin and mostly the same externally except that the L10Ti has no markings on its front panel and, instead, there's a discreet "Lumix L10" etched in small type on the rear. Panasonic is following Leica here – not surprisingly given the close tie-up between the two brands – and it's a plus if you like your cameras to look classically anonymous. The Ti model also has a threaded socket set into the shutter release, but this is for adding a soft release button for a bit more bling and it won't, disappointingly, take an old-school cable release.

Whether you want to spend the extra money is obviously up to you, but the pale gold finish certainly looks very stylish indeed and you also get a quality leather camera strap, a bespoke cleaning cloth and an automatic lens cap which replaces the standard clip-on cover. As it opens as the camera is switched on, it stays fitted to the lens all the time and so, in practice, proves to be a convenient addition, but you can



▲ Back panel control layout is a bit dated by today's standards. Four-way keypad and controller is more 2016 than 2026 and nowhere near as convenient to use as the more contemporary joystick type controller.

buy it as an accessory for the silver or black cameras.

Incidentally, Panasonic is emphasising the premium aspect of the L10 with the slogan "Crafted in Osaka" which echoes Sigma's geographical specifying of "Made In Aizu" for its products. It's a nice touch, but the L10 is actually manufactured in China.

UP TO SPEED

At the heart of the camera is a version of the same Micro Four Thirds BSI-type CMOS sensor that's at work in the GH7 and also the G9 II mirrorless bodies so it has a total pixel count of 26.5 million and, at the 4:3 aspect ratio, the effective resolution is 20.4 megapixels. However, the sensor is slightly larger in area than the lens's imaging circle so the same angle-of-view is maintained at 4:3, 3:2 and 16:9 with only the 1:1 frame cropping in at the sides. The sensor also incorporates phase-difference detection AF pixels to enable Panasonic's 'Phase Hybrid AF' and it also has 'Dynamic Range Boost' processing for stills. This operates 'behind the scenes' across the sensor's native sensitivity range so it doesn't appear in any menu and operates automatically for both stills and video. The outputs from two

circuits – one optimised for dynamic range and colour saturation (i.e. low gain) and the other for sensitivity (i.e. low noise) – are processed together and combined to give an image that maintains detailing in both the highlights – resulting in an extended dynamic range – and the shadows as well as enhanced colour saturation. The camera's native ISO range is ISO 100 to 25,600 with a one stop 'pull' to ISO 50.

The sensor is mated with an 'L² Technology' processor – developed along with Leica – which enables the AI-driven subject recognition and tracking along with 10-bit HEIF capture, faster continuous shooting speeds and higher bit rates with

THE L10 VERY MUCH AIMED AT ENTHUSIAST-LEVEL SHOOTERS WHO WANT SOMETHING MORE COMPACT AND UNOBTRUSIVE WITHOUT COMPROMISING EITHER FLEXIBILITY OR PERFORMANCE."



▲ 'Fn Switch' selects the aspect ratios, but can be assigned other functions, each with three settings at the '1', '2' and '3' positions.



▲ Main mode dial has five positions for storing customised camera set-ups.



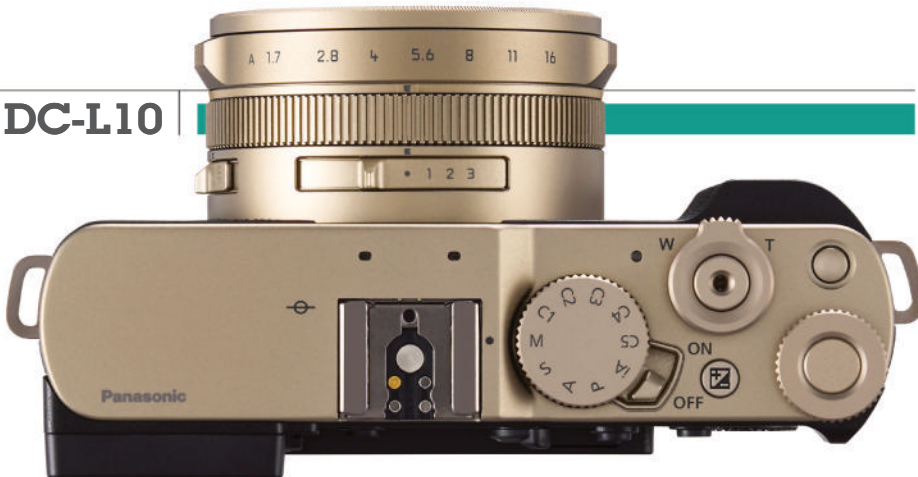
▲ 'Gold Titanium' version has a screwthread fitting in the shutter button, but it's for a blingy soft release and not an old school cable-release.

PANASONIC LUMIX DC-L10

video recording. Using its sensor-based shutter, the Lumix L10 can shoot at 30 fps with full AF/AE adjustment although the burst lengths are pretty short at around 45 frames for both RAWs and JPEGs. There's 'Pre-Burst' buffering at 0.5, 1.0 or 1.5 seconds prior to shutter release, and a bunch of slower shooting speeds all the way down to 2.0 fps. The physical shutter is a between-the-lens leaf mechanism which allows for continuous shooting at up to 11 fps with the AF/AE locked to the first frame or 9.0 fps with between-the-frames adjustment.

The burst lengths are much more generous here, exceeding 100 frames for best-quality JPEGs and around 55 frames for RAWs. The maximum image size is 5200x3904 pixels with the 4:3 aspect ratio, but JPEGs can be recorded at three smaller sizes and with, as mentioned previously, the choice of the 3:2, 16:9 and 1:1 aspect ratios. This is the same for HEIFs. RAW files are captured with 14-bit colour and lossless compression in the maximum image size, but again with the same choice of aspect ratios. There's a single memory card slot in the camera base, but it has its own compartment rather than sharing with the battery. Nevertheless, it's still going to be inaccessible if the camera is on a tripod or has a quick-release mounting plate fitted.

The lens is a Leica-endorsed power zoom with the same basic specifications as the LX100 optics, but with some updates. The focal range is 10.9-34mm which is the equivalent of 24-75mm in full frame format terms. The maximum aperture range is f/1.7-2.8 and the optical construction comprises 11 elements in eight groups which includes five aspherical types giving eight aspherical surfaces in total... i.e. two are double-sided (which also use extra-low dispersion optical glass). The aperture diaphragm has nine blades. 'Power OIS' optical image stabilisation gives roughly around four stops of correction for camera shake (Panasonic doesn't quote a CIPA rating), but the L10 doesn't have the sensor shifting option which would allow for correction over more axes other than just pitch and yaw.



▲ Panasonic approach to the control layout is more conventional than classical.

LIKE YOUR STYLE

The in-camera processing options start with a selection of 21 'Photo Style' presets which includes a total for seven for video, including three Cinelike profiles – labelled A2, D2 and V2. New additions to the photo profiles are L. Classic and L. Classic Gold which join the existing L. Classic Neo. These are essentially film simulation settings with L. Classic having a reduced colour saturation to replicate a vintage film look and L. Classic Gold doing what it says on the label and adding a warmish glow to your pictures. L. Classic Neo is similar to Fujifilm's Classic Neg. There are four B&W modes which vary in contrast from the softer tones of L. Monochrome S to the extra punch of Leica Monochrome. You can create up to ten customised 'My Photo Style' presets with adjustable parameters for contrast, highlights and shadows, saturation, hue, sharpness and noise reduction. The B&W profiles have specific adjustments for colour tone, contrast filters and grain effect.

Also included in the 'Photo Style' menu is a 'Real Time LUT' setting which gives access to three sample LUTs so you can give them a try. LUTs (look-up tables) are used to create a particular 'look' in cinematography, but they're now finding their way into photography as an expansion of the more traditional film-based profiles which tend to be more pictorial than cinematic. Via the Lumix Lab app – which is a free download – you can load LUTs to the camera wirelessly from a smartphone or they can be uploaded to the camera from a memory card

The L10 allows for a total of 39 LUTs to be loaded and these are also adjustable in-camera for parameters such as sharpness and noise reduction. The app also has a 'Magic LUT' feature which uses AI-based colour analysis to create a custom LUT from a reference image.

With video, a LUT is applied during V-Log recording so the grading for colour and contrast is performed in-camera rather than being applied in post-production which can represent big savings in both time and money with pro-level projects.

The camera's corrective measures include long exposure noise reduction and 'i.Dynamic Range' processing with the choice of auto or three manual settings while the lens corrections are for vignetting, diffraction and colour shading.

There's an intervalometer for shooting time-lapse sequences of up to 9999 frames and with exposure levelling. It can also be used to create stop-motion video clips. A multiple exposure facility allows for up to four images to be overlayed with an 'Auto Gain' function to adjust the overall exposure. Auto bracketing modes are available for exposure, aperture, focus, white balance and colour temperature settings. The exposure bracketing sequences can be set to three, five or seven frames, while aperture bracketing is performed over three or five frames or you can select 'All' which then captures a shot at every one of the attached lens's full-stop settings. The focus bracketing is adjustable for the amount of shift (from one to ten steps) over sequences of up to 999 frames which, of course, is



▲ Memory card has its own compartment in the camera's base.



▲ Control ring on the lens is multi-functional, but defaults to manual focusing when autofocus is switched off.



▲ Leica-endorsed DC Vario-Summilux 10.9-34mm f/1.7-2.8 zoom is equivalent to 24-75mm.

MAKING MOVIES

For a camera that's apparently not a video camera, the Lumix L10 boasts some serious video capabilities which is perhaps not surprising when it shares a sensor with Panasonic's pro-level GH7 hybrid mirrorless camera. You don't get the latter's ProRes and RAW modes, but there's still a vast choice of recording options starting in the MOV format at 5.6K and 17:9 (5632x2976 pixels) using the H.265 codec with 10-bit 4:2:0 colour and LongGOP compression. The frame rates here are 24, 25, 30, 50 or 60 fps. The full 4:3 aspect sensor area is available for 'open gate' recording at 5.2K (5184x3888 pixels) – down-scaled from the full resolution – for format flexibility, including vertical framing. This is possible at up to 30 fps.

With 4K DCI 17:9 and 4K UHD16:9 recording you can choose between the H.264 codec and 10-bit 4:2:2 colour or H.265 and 10-bit 4:2:0... in fact, all the MOV format recording modes have 10-bit colour. With the H.264 codec, there's choice of either the LongGOP interframe or All-Intra intraframe compression regimes

With H.265, the 4K frame rates extend up to 100/120 fps for slowmo effects and without a crop. The Full HD high frame rates extend up to 200/240 fps... with the output at 24 fps obviously giving a 10x slowmo effect.

Bit rates are 300 Mbps for 5.6K, 200 Mbps at 5.2 K, up to 600 Mbps for 4K with All-I compression at 50 or 60 fps and for Full HD at 200 or 240 fps, and between 100 and 600 Mbps for all the slower 4K and 2K frame rates (depending on the selected codec and compression). There are also the MP4 and MP4 Lite formats, the latter already seen on the Lumix S9 and designed to generate smaller files for social media sharing.

The L10 records 24-bit 48 kHz audio via built-in stereo microphones with auto or manual levels control and proper multi-coloured level meter displays. However, it can record at 96 kHz with an external microphone. There's a wind-cut filter, an automatic level limiter, standard or low gain settings and, usefully, a lens noise filter. The camera can be used with the DMW-XLR2 adapter module which provides a pair of balanced XLR terminals to give the

option of four channel audio recording and has 32-bit 'float' levels control to avoid clipping. It also supports the compact DMW-DMS1 digital microphone which also has the 32-bit 'float' technology.

The video assists comprise zebra patterns (with selectable thresholds), a waveform monitor display, a luminance spot meter, frame aspect markers (a total of 18, and with a choice of colours), electronic image stabilisation (i.e. image shifting on the sensor), synchro scan (for eliminating flicker), focus peaking and a red recording frame indicator. However, there's no time code support and no HDMI port either (although there are plenty of USB C accessory options these days). Many of the camera's photo features are, of course, available with video, including the 'Photo Style' profiles, the filter effects and the subject-detection AF.

Compact and light enough to work on a small gimbal, the L10 undoubtedly has potential as a 'run-and-gun' video camera for applications such as shooting POV action or movement... and the image quality is excellent. And, what's more, you get a power zoom into the bargain.

likely beyond what you'll ever want. Focus stacking is performed in-camera.

Like the latest Lumix S bodies, the L10 has a 'Live View Composite' function which is designed for low-light photography and has been a feature of Olympus/OM System cameras for a very long time (where it's called 'Live Composite'). It combines a reference background exposure with subsequent multiple exposures that only add any bright light sources (such as stars) thereby avoiding any overexposure. It can run for up to three hours, and the 'Live' bit means it can be monitored in real-time in the monitor or the EVF. You can also use this procedure as a noise reduction measure when shooting with slow shutter speeds in very low light situations, and the multiple frames are subsequently merged in-camera.

Additionally, the L10 has 'Crop Zoom' function which is a means of obtaining an

effective increase in focal length – with both stills and video – by cropping the image progressively down to the medium, small and extra-small sizes at 1.4x, 2.0x and 2.7x respectively. It uses only the centre of the frame so, while the image size becomes, progressively smaller, the image quality is better preserved than is the case with the conventional digital zoom feature.

STAYING ON TRACK

The Lumix L10 employs Panasonic's latest 'Phase Hybrid AF' autofocus and, as per the current mirrorless bodies, there are 779 measuring points for phase-detection complemented by 315 points for contrast-detection. The latter uses Panasonic's 'Depth-From-Defocus' (DFD) methodology, which is quite fast, but not as fast as PDAF which is what's needed for reliable subject tracking. The points coverage is virtually

across the entire frame.

AI-based subject recognition is for humans, animals, cars, motorcycles and bicycles, aircraft, and trains. The detection for humans can recognise eyes, faces and bodies – or it can be fine-tuned to look for only eyes and faces – plus there's the 'Urban Sports' setting which was introduced on the S1 II and employs pose recognition for activities such as skateboarding, breaking dancing or BMX bikes. The animal detection works with dogs, cats and birds; with the options of either eye detection or eye/body detection.

The low-light sensitivity extends down to EV -5.0 at ISO 100 and f/1.7. There's a choice of area modes ranging in size from Pinpoint to Zone, the latter with the choice of vertical, horizontal, or oval-shaped clusters of points which can be moved around the frame as desired. The size and shape of the vertical



▲ Viewfinder is 1.0 cm OLED with 2.36 megadots resolution and 0.74x magnification (35mm equivalent).



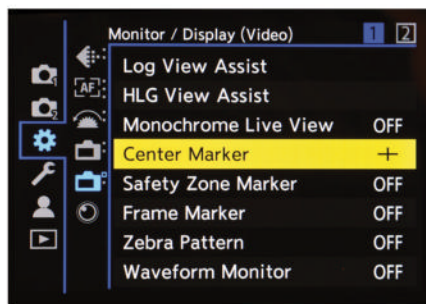
▲ Focus mode selector is on the lens barrel. Macro mode focuses down to just three centimetres.



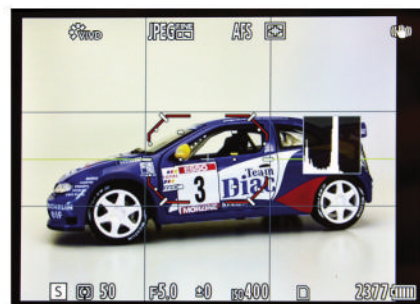
▲ Rear control wheel is a navigational tool while the 'Fn' button in its centre is extensively customisable.



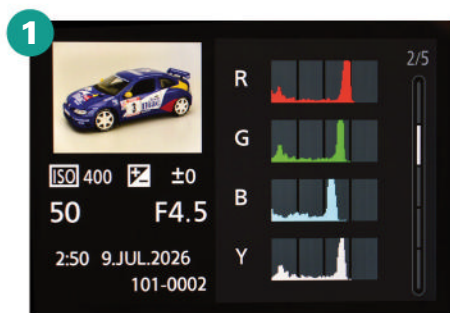
▲ Monitor-based control panel is extensive and has the convenience of touch control. There's a dedicated set of read-outs and function icons for the video mode.



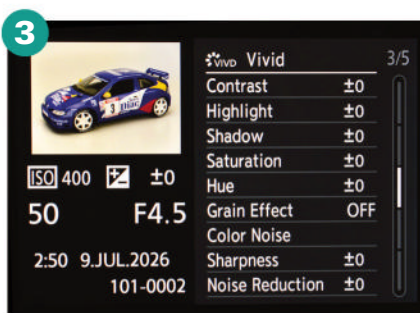
▲ The L10 offers an extensive range of video-centric displays to complement a long list of resolutions, frame rates, codecs and colour subsampling... and it's not really a video camera!



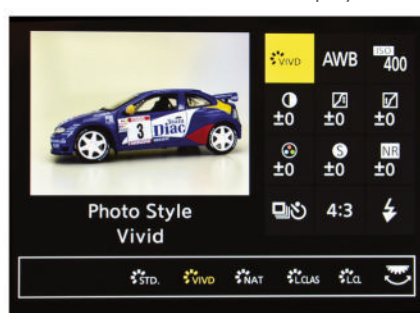
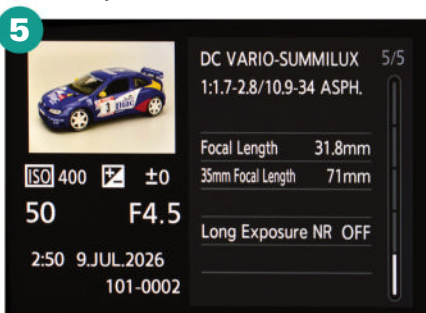
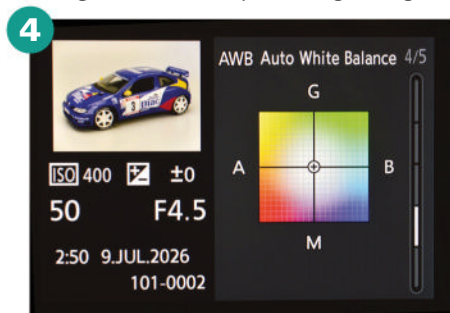
▲ Live view display is extensively customisable with elements such as a guide grid, dual-axis level indicator and real-time histogram.



1-5 Review/replay screen cycles through various sets of info, including a full set of histograms, the JPEG processing settings, white balance adjustments and lens data.



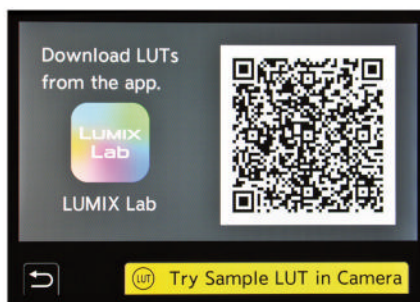
▼ Quick Menu' is fully customisable in terms of the 12 function tiles displayed.



▲ Video assists include a waveform monitor display which shows luminance values.



▲ Menu layout is the same as that on the Lumix G and Lumix S mirrorless bodies which means it's well organised and easy to navigate.



▲ Lumix Lab app allows for remote camera control and wireless data transfers as well as allowing custom-made LUTs to be uploaded to the camera.



▲ Three sample LUTs are built-in to the L10. The LUTs are applied to V-Log footage as it's being recorded in-camera as an alternative to post-production colour grading.

and horizontal zones is fixed, but the oval option can be adjusted as can the 1-Area and 1-Area+ modes, the latter enabling automatic point switching if the subject moves. Unlike on the mirrorless bodies, there's isn't a provision for creating custom AF areas. Usefully, though, the position of the AF frame can be preserved when the camera is held vertically, either left or right orientation.

When not using the subject-based tracking, an 'AF Custom Setting' menu enables fine-tuning of the tracking to suit the nature of the subject movement (i.e. speed, direction, etc.). It offers four scenarios (Set 1 to Set 4) with three adjustable parameters – AF Sensitivity, AF Area Switching Sensitivity and Moving Subject Prediction.

Manual focusing is assisted by a magnified image, a simple distance scale or a focus peaking display which offers a choice of ten colours and five levels of intensity. The magnified image is shown either full-screen (at up to 20x) or as a picture-in-picture inset panel (at up to 6.0x) and it's also available for focus confirmation when using the autofocus. Finally, 'AF+MF' operation provides a full-time manual override of the autofocus along with whatever means of assistance you've selected.

As is the case with several of Panasonic's interchangeable lens, the operation of the manual focusing collar on the L10's lens can be switched between linear or non-linear. With non-linear adjustment, the amount of focus shift is governed by the rotation speed of the focus collar... in other words, if you turn it quickly, you'll make big adjustments, but turning it slowly allows for more precise control thanks to smaller degrees of adjustment. With the linear setting, the focus is shifted at a constant speed according to the rotational angle of the focus ring. In this mode, the sensitivity (i.e. the amount of focus shift per the rotational angle of the focusing collar) can be adjusted from 120 to 1080 degrees (in 30-degree increments up to 360 degrees) or set to 'Maximum'. Consequently, this allows for more uniformity of adjustment which is

something video makers often require when using focusing creatively.

LIGHT AND COLOUR

As across the entire current Lumix camera range, exposure control is driven by sensor-based metering which employs 1728 measuring points with the choice of multi-zone, centre-weighted average, highlight-weighted average and spot measurements. The standard set of 'PASM' exposure control modes is supplemented by a fully automatic 'Intelligent Auto' mode which performs automatic scene detection for portraits, landscapes, close-ups, night portraits, night scenery, food, sunsets and low-light situations. The portrait modes engage when the subject detection is set to Humans.

The leaf shutter has a speed range of 60-1/2000 second with, of course, flash sync up to 1/2000 second and a 'T' setting although this only appears to have a maximum timed duration of 60 seconds as well. The sensor-based shutter shortens the fastest speed to 1/32,000 second and enables totally silent and vibration-free operation.

The white balance correction options start with a choice three auto settings called AWB, AWBc and AWBw. The latter two either, respectively, reduce or maintain the warmer tones when shooting under incandescent lighting. Alternatively, there are five lighting presets, provisions for creating up to four custom WB measurements and for storing up to four colour temperature settings, selected from an adjustment range of 2500 to 10,000 degrees Kelvin. Fine-tuning is available for all WB settings and, as noted earlier, there are auto bracketing modes for both white balance and colour temperature.

IN THE HAND

Overall, the handling and balance is very similar to that of Fujifilm's X100 series cameras, especially as the L10 is pretty close in size and weight to the current X100VI. Both also have what's little more than a bump for a handgrip, but it does the job. The two differ quite a lot in terms of

their control layouts, though, with the L10 having a main mode dial and the older-style four-way navigator keypad on its rear panel rather than the now more common joystick-type controller which is more convenient to use. This incorporates an outer control ring which works alongside the top-mounted rear dial (so there's no front input wheel as such). The four quadrants of the keypad provide direct access to the ISO settings, drive modes (which includes the self-timer), white balance settings and the AF area modes while there's a dedicated button for accessing exposure compensation so everything of importance is pretty much at your fingertips. Interestingly, there's also a dedicated button for the LUTs which obviously becomes more useful when you have a bunch of them loaded into the camera.

As well as the manual aperture collar – adjustable in one-third stops and with an 'A' setting for auto control – the lens barrel also carries the focus mode selector (which includes the macro mode) and a four-position selector which, by default, selects the aspect ratios, but can be switched to a number of other functions. Assign the main position to something – the 'Photo Styles', for example – and the other three can then be set whichever of the profiles you'd like to have immediately to hand. You can do the same thing for whatever LUTs you've got stored in the camera, and for three zoom focal lengths which are then available at a flick of the switch. The multi-function control ring on the lens is, by default, the manual focusing control, but when autofocus is engaged, there's a bunch of alternative operations including zooming (including a step zoom option), exposure compensation, white balance, colour temperature setting, the 'Photo Style' profile and the LUTs library.

The customisation options for the body controls are very extensive with separate set-ups for both capture and playback as well as for stills and video. A total of eight buttons are customisable plus the four quadrants of the Control Dial, and, in many cases, the list of assignable functions is



▲ Monitor screen is fully articulated.



▲ Photo/Video mode switch also has a position for the 'Slow & Quick' video framing rates for recording time-lapse or slow-motion sequences.



▲ LUT button provides direct access to the 'baked-in' LUTs and any that you might have loaded into the camera (which can be up to 39).



The L10's sensitivity range spans ISO 100 to 25,600 with a one-stop extension down to ISO 50. Panasonic's 'Dynamic Range Boost' processing functions continually 'behind the scenes' and operates across the entire native ISO range. Consequently, there's an improvement in dynamic range everywhere while the noise levels are lower at the higher sensitivity settings.

These test images were captured as JPEG/fine files with the aperture set to f/5.6 – to optimise the lens resolution at this sensor size – and the exposure time varied to compensate for the adjustments to the ISO. Long Exposure noise reduction is switched off.

more than 50. Additionally, there's a set of five customisable 'Touch Tabs' located down the right-hand edge of the monitor screen, again with a huge choice of assignable functions. As we've noted on many occasions with the Lumix mirrorless cameras, the scope for customisation can look daunting initially, but it's likely that it's an exercise that you'll do once and that'll be that.

The monitor-based 'Quick Menu' is also extensively customisable with the 12 assignable function tiles again selected from a very long list of options. Once more, there are dedicated 'Quick Menus' for photo and video, plus the display style can either be full screen or combined with the live view image. The customisable 'My Menu' can be up to three pages (giving a total of 24 items), and five custom camera set-ups can be assigned to the C1-C5 positions on the main mode dial.

Furthermore, both the viewfinder and monitor displays can be customised with a number of elements, including a dual-axis level indicator, a real-time histogram, a grid guide (selected from a choice of three) and a blinking highlight warning or, if you prefer, zebra patterns which do the same thing but are adjustable for threshold so they can be fine-tuned.

A 'Night Mode' setting dims both the EVF and monitor displays by applying a red filter over everything so that your night vision isn't compromised. To achieve exactly the opposite, a 'Live View Boost' function brightens the monitor display so it's easier to see when shooting in very low light situations.

The touch screen implementation includes the 'Quick Menu' tiles, the main menu, the replay/review functions, and various autofocus operations, including

Test images captured as JPEG/large/fine files in the shutter-priority auto mode with either the Vivid or Leica Monochrome 'Picture Styles'. Not surprisingly, the imaging performance is on a par with Panasonic's current Lumix G mirrorless cameras with well-defined detailing, pleasing colour renditions, smooth tonality and low noise levels across the sensitivity range.



ISO 50



ISO 100



ISO 200



ISO 400



ISO 800



ISO 1600



ISO 3200



ISO 6400



ISO 12800



ISO 25600

direct point/zone selection and 'Touch Pad AF' to enable the same when using the EVF. This can be set to either Exact or Offset; the latter with a choice of seven settings enabling the AF point/zone to be moved via a dragging action within a prescribed area on the touch screen.

The monitor itself is a 7.62 cm TFT LCD panel with a resolution of 1.84 megadots and it's adjustable for both tilt and swing when flipped out from the camera back but can also be tilted up and down on the camera back. The display is adjustable for Brightness, Contrast, Saturation, Red Tint and Blue Tint. You can also manually adjust the backlighting or set it to Auto so it will adjust itself according to the ambient light levels.

The EVF is a 1.0 cm OLED panel with 2.36 megadots resolution and 0.74x magnification (35mm equivalent). The refresh rate is set at 60 fps and black-out free viewing is only available at shooting speeds up to 11 fps.

The review/replay displays include a split screen showing a thumbnail along with basic capture info on one side, and a set of five scrollable info panels on the other. These cycle through additional capture data (such as the white balance, image format and 'Photo Style' preset), a set of RGB and brightness histograms, the 'Photo Style' parameters, the white balance mode with any fine-tuning settings, and the lens details including any manually applied in-camera corrections.

Power comes from the 2200 mAh DMW-BLK22 battery pack (that's also used in full frame Lumix S bodies) and which here is good for around 420 shots per charge. It's a big battery for a compact camera, but the benefit is obviously the extended 400+ shots that it can power along with generous video recording durations. In-camera battery charging via USB C is available, but the L10 is otherwise a bit short on any other connections so there's no HDMI port and only a stereo audio input which isn't going to be an issue for photographers but could be restrictive for video shooters.

However, both many miss the absence of weather sealing which is presumably mainly to do with the telescoping zoom, although Panasonic says that its construction has been redesigned to keep dust out. Overall, though, the L10 feels solidly built and the

construction is mostly magnesium alloy – chassis and body covers – with the key external controls in metal too. It's actually a very easy camera to get to know even if you aren't familiar with the way Panasonic does things. Everything is organised quite logically – the menu layout, as per the Lumix S bodies, is exemplary – and so you'll be driving the L10 quite comfortably and efficiently almost straightaway.

SPEED AND PERFORMANCE

Loaded with a SanDisk Extreme Pro 32 GB SDXC UHS-II V90 memory card and using the sensor shutter, the L10 captured a burst of 45 JPEG/large/fine frames – it's a fixed buffer limit with the sensor shutter – in 1.485 seconds, representing a shooting speed of 30.3 fps. Switching to the leaf shutter and the 'H' shooting speed – again at the JPEG/large/fine image quality setting – a burst of 128 frames was captured in 11.471 seconds which works out at 11.1 fps. The camera would have gone on shooting at this speed, but we simply chose to stop clock at that time. The test image files averaged 11 MB in size.

The autofocus is rapid and reliable thanks to the PDAF measurements and the AI-driven subject detection which covers a lot of options and handy fine-tuning when shooting portraits or people. While the Fujifilm X100VI has pretty advanced autofocus too, the Lumix L10 offers even more versatility, many more focusing points and it's faster plus, of course, it has a zoom lens rather than a prime. AI subject recognition has revolutionised autofocus accuracy in mirrorless cameras and you get the same benefits here. Subject acquisition is near instantaneous and then the focus stays solidly locked on even with quite small targets or erratic movement. Of course, 75mm in the longest optical focal length which is a bit limiting as far as subjects such as wildlife are concerned, but the 'Crop Zoom' function is a workable compromise in some situations. The lens has a 43 millimetres diameter filter thread so a screw-on teleconverter could be a solution in the future. The Tracking area mode – for anything that's not covered by subject recognition – works reliably too. The AF operation in low-light situations or with low-contrast subjects is still pretty good overall, but not quite as

reliable – or as quick – as when shooting in brighter conditions.

The best-quality JPEGs straight out of the camera exhibit plenty crisp detailing and nicely smooth tonal gradations while the onboard colour palette options are numerous, especially if you start uploading a few additional LUTs. As noted earlier, 'Dynamic Range Boost' is working across the full sensitivity range to give an image that has detailing in both the highlights and the shadows as well as enhanced colour saturation. It especially enhances both the sharpness and saturation at the higher ISO settings because, among other things, less noise reduction processing is required. Consequently, the JPEG image quality holds together exceptionally well even at the highest ISO settings so there's still good definition and saturation at ISO 12,800 and even 25,600.

With RAW capture there's plenty of exposure latitude – at least three stops – for brightening deep shadows or pulling down the brightest highlights without creating noticeable noise. In all, it's a very commendable IQ performance which delivers on the potential of the camera's higher-end feature set.

THE VERDICT

Panasonic has built the camera that a lot of photographers have been asking for, more so as fixed-lens compacts make a return. Inevitably, the L10 isn't perfect, but it ticks a whole lot of boxes and important ones such as styling, size, ergonomics, usability – with a big thumbs up for the EVF – the extensive feature set and the image quality for both stills and video. Weather sealing would have been nice as would IBIS, and a joystick control – which Fujifilm has on the later X100 series models – would make for an even slicker operation, but what Panasonic has given us still works and works exceedingly well. The sensor size and resolution ensure a 'big camera' performance, and the L10 certainly feels like a premium product in the hand. It looks great in any colour, but the 'Gold Titanium' finish adds a real touch of class along with Leica-esque exclusivity. But this is a camera that's definitely designed to be carried with you always and used whenever you're motivated to take a picture or two. 📸

VITAL STATISTICS



PANASONIC LUMIX DC-L10 \$2599*

Type: Enthusiast-level fixed lens digital compact camera.

Lens: Leica DC Vario-Summilux 10.9-34mm f/1.7-2.8 (equivalent to 24-75mm). 6.2x digital zoom with 'Power OIS' optical image stabilisation. 11 elements in eight

groups, including five aspherical types (eight aspherical surfaces in total). 43 mm screwthread filter fitting.

Viewfinder: 1.0 cm OLED-type EVF with 2.36 megadots resolution, 100 percent scene coverage and 0.74x magnification (35mm equivalent). Built-in eyepiece

strength correction. Auto/manual switching between EVF and external LCD monitor screen.

Monitor: 7.62 cm TFT LCD panel with 1.84 megadots resolution and touch screen control. Fully articulating for tilt and swing. Adjustable for Brightness, Contrast, ▶

* Maximum recommended retail price for the standard model in black or silver

VITAL STATISTICS



Saturation, Red Tint and Blue Tint.

Focusing: Automatic hybrid phase/contrast-detection system ('Phase Hybrid AF') with 779 PDAF points and 315 CDAF points. Contrast detection AF via Depth-From-Defocus (DFD) calculations. Distance range is 50 centimetres to infinity, 3.0 centimetres to infinity in macro mode. Manual/auto switching between one-shot and continuous AF modes, the latter with auto tracking. AI subject detection for Humans (Eye/Face, Eye/Face/Body, Urban Sports), Animals (Birds, Dogs or Cats – Eye or Eye/Body), Cars, Motorcycles/Bicycles, Trains and Aircraft. Area modes for Tracking, Full Area, Zone (Vertical/Horizontal), Zone (horizontal/vertical/central), 1-Area, 1-Area+Supplementary and Pinpoint. Adjustable 1-Area point switching speed. 'AF Point Scope' for active point/zone enlargement (up to 6.0x). AF assist via magnified image (up to 6.0x), either full image or picture-in-picture. Sensitivity range is EV -5.0 - 18 (ISO 100 and f/1.7). AF assist provided by built-in illuminator. Manual focus assistance via magnification (either full image or picture-in-picture, up to 6.0x), distance scale and focus peaking displays (Light Blue, Dark Blue, Yellow, Orange, Light Green, Dark Green, Pink, Red, Violet, White; and five levels of intensity). Non-linear or linear manual focus adjustment. 'Touchpad AF' via the touch screen for AF point/zone selection when using the EVF. Focus stacking function.

Shutter Type & Speeds: Electronically controlled leaf, 60-1/2000 second plus 'T'. Flash sync up to 1/2000 second. Sensor-based shutter has a speed range of 60-1/32,000 second. Silent shutter mode and shutter delay timer (one, two, four or eight seconds).

Metering: Multi-zone (1728 measuring points), centre-weighted average, highlight-weighted average, and spot.

Exposure System: Continuously-variable program with shift, shutter-priority auto, aperture-priority auto, metered manual, 'Intelligent Auto' (with automatic scene detection – nine modes), TTL auto flash and TTL flash. Up to +/-3.0 EV compensation, an AE lock and auto exposure bracketing over three, five or seven frames.

Sensor: 20.4 million (effective) pixels BSI CMOS with 17.3x13.0 mm imaging area. Sensitivity equivalent to ISO 100-25,600 (extendable to ISO 50). Aspect ratio settings – 4:3, 3:2, 16:9 and 1:1 – crop into the sensor to maintain the same diagonal angle-of-view. No optical low-pass filter.

Formats/Resolution: Two JPEG and HEIF (HLG) compression settings, RAW output (lossless compression) and RAW+JPEG capture. Four resolution settings at 4:3 aspect ratio; 5200x3904, 3744x2808, 2624x1968 and 1920x1440 pixels. Four resolution settings at 3:2 aspect ratio; 5408x3608, 3888x2592, 2736x1824 and 1920x1280 pixels. Four resolution settings at 16:9 aspect ratio; 5664x3192, 4096x2304, 2832x1592 and 1920x1080 pixels. Four resolution settings at 1:1 aspect ratio; 3904x3904, 2816x2816, 1968x1968 and 1440x1440 pixels. 24-bit RGB colour for JPEGs, 30-bit colour for HEIFs, 42-bit RGB colour for RAW files.

Video Recording: MOV format with 10-bit 4:2:0 colour (HEVC/H.265 codec and LongGOP compression) at 5632x2976 pixels (5.6K); 60, 50, 48, 30, 25 or 24 fps (300 Mbps) and 17:9 aspect ratio. At 5184x3888 pixels (5.2K); 30, 25 or 24 fps (200 Mbps) and 4:3 aspect ratio (i.e. 'open gate'). At 4352x3264 pixels (4.4K); 60, 50 or 48 fps (300 Mbps) and 4:3 aspect ratio. At 4096x2160

pixels (4K DCI); 120, 100, 60, 50, 48, 30, 25 or 24 fps (300 Mbps) and 17:9 aspect ratio. At 3840x2160 pixels (4K UHD); 120, 100, 60, 50, 48, 30, 25 or 24 fps (300 Mbps) and 16:9 aspect ratio. At 1920x1080 pixels (Full HD) at 240, 200, 120 or 100, 60, 50, 48, 30, 25 or 24 fps (up to 200 Mbps) and 16:9 aspect ratio.

- MOV format with 10-bit 4:2:2 colour (MPEG 4 AVC/H.264 codec and ALL-Intra or LongGOP compression) at 4096x2160 pixels (4K DCI); 60, 50, 48, 30, 25 or 24 fps (up to 600 Mbps ALL-Intra, up to 200 Mbps LongGOP) and 17:9 aspect ratio. At 3840x2160 pixels (4K UHD); 120, 100, 60, 50, 48, 30, 25 or 24 fps (up to 600 Mbps ALL-Intra, up to 200 Mbps LongGOP) and 16:9 aspect ratio. At 1920x1080 pixels (Full HD) at 240, 200, 120, 100, 60, 50, 48, 30, 25 or 24 fps (up to 400 Mbps ALL-Intra, up to 200 Mbps LongGOP) and 16:9 aspect ratio.
- MOV format with 8-bit 4:2:0 colour (MPEG 4 AVC/H.264 codec LongGOP compression) at 4096x2160 pixels (4K DCI); 60, 50, 48, 30, 25 or 24 fps (up to 150 Mbps) and 17:9 aspect ratio. At 3840x2160 pixels (4K UHD); 60, 50, 30, 25 or 24 fps (up to 150 Mbps) and 16:9 aspect ratio. At 1920x1080 pixels (Full HD) at 60, 50, 48, 30, 25 or 24 fps (up to 50 Mbps) and 16:9 aspect ratio.
- MP4 format with 10-bit 4:2:0 colour (HEVC/H.265 codec and LongGOP compression) at 3840x2160 pixels (4K UHD); 60, 50, 30, 25 or 24 fps (up to 100 Mbps) and 16:9 aspect ratio.
- MP4 format with 8-bit 4:2:0 colour (MPEG 4 AVC/H.264 codec and LongGOP compression) at 3840x2160 pixels (4K UHD); 60, 50, 30, 25 or 24 fps (up to 24 fps (up to 100 Mbps) and 16:9 aspect ratio. At 1920x1080 pixels (Full HD) at 60, 50, 30, 25 or 24 fps (up to 28 Mbps) and 16:9 aspect ratio.
- MP4 Lite format with 10-bit 4:2:0 colour (HEVC/H.265 codec and LongGOP compression) at 3840x2880 pixels (3.8K); 30, 25 or 24 fps (50 Mbps) and 4:3 aspect ratio. At 3840x2160 pixels (4K UHD); 120, 100, 60, 50, 48, 30, 25 or 24 fps (70 Mbps) and 16:9 aspect ratio. At 1920x1080 pixels (Full HD) at 120 or 100, 60, 50, 48, 30, 25 or 24 fps (up to 24 Mbps) and 16:9 aspect ratio.
- Built-in stereo microphones with adjustable sound levels, level limiter, gain level adjustment, wind noise canceller, lens noise limiter. Stereo audio input (for mic-level and line-level) and output. 48 or 96 kHz 24-bit, sound recorded both in the MOV format. Optional DMW-XLR2 microphone adapter provides two XLR microphone inputs (giving four channel audio) with 32-bit 'float' level adjustment with 48/96 kHz for two channel stereo and 48 kHz for four channel monoaural.
- Video Features: V-Log profile, HLG HDR profile; 'Cinelike' A2, D2 and V2 gamma profiles; 'Slow & Quick' frame rates (1.0 fps to 240 fps), synchro scan, waveform monitor display, Log/HLG view assists, 'Real Time LUT', centre marker, zebra patterns (two types with adjustable thresholds), luminance spot meter, red frame recording indicator, front tally lamp, electronic image stabilisation.

Continuous Shooting: Over 100 JPEG/large/fine frames, over 35 HEIFs or over 55 RAW files at 10 fps with the sensor shutter with continuous AF/AE adjustment. Up to 45 JPEGs or 35 HEIFs at 20 or 30 fps with the sensor shutter. Maximum shooting speed with the leaf shutter is 11 fps with AF/AE locked to the first frame, and up to 9.0 fps with continuous AF and AE.

Flash: No built-in flash. Flash hotshoe provided for connecting external units.

White Balance: TTL measurement. Three auto modes (neutral, maintain warmer tones or reduce warmer tones), five lighting presets and four custom WB set-

tings. White balance compensation (amber-to-blue and/or green-to-magenta) in all presets, and white balance bracketing over three frames. Manual colour temperature setting from 2500 to 10,000 degrees Kelvin with four custom settings.

Storage: Single slot for SD/SDHC/SDXC memory cards with UHS-II Video Speed Class 90 support.

Interfaces: USB Type C (10 Gbps speed USB 3.2 Gen.2), 3.5mm stereo audio input (for mic-level or line-level).

Additional Features: 'Power OIS' optical image stabilisation, sRGB and Adobe RGB colour spaces, dual-axis level display, grid guides (choice of three), digital zoom (up to 4.0x), 21 'Photo Style' presets (Standard, Vivid, Natural, L. Classic, L. Classic Neo, L. Classic Gold, Flat, Landscape, Portrait, Monochrome, L. Monochrome, L. Monochrome D, L. Monochrome S, Leica Monochrome, Cinelike A2, Cinelike D2, Cinelike V2, Like709, V-Log, Hybrid Log Gamma, 'Real Time LUT' facility [up to 39 can be uploaded], up to ten user-defined 'My Photo Style' presets, adjustable 'Photo Style' parameters (Contrast, Highlight, Shadow, Colour Saturation, Colour Tone, Hue, Filter Effect, Grain Effect, Colour Noise, Sharpness, Noise Reduction, Dual Native ISO, Sensitivity, White Balance and LUT, LUT 1, LUT 2), LUT Opacity, LUT Opacity 1, LUT Opacity 2), eight filter effects (Expressive, Retro, Old Days, High Key, Low Key, Sepia and Bleach Bypass), simultaneous recording with and without the filter effect, 'Soft Skin Effect' processing, auto bracketing functions (exposure, aperture, focus – up to 999 frames – and white balance), focus stacking, 'Intelligent Dynamic' processing (Off, Low, Standard, High, Auto), 'Live View Composite' capture mode, intervalometer (up to 9999 frames), stop motion recording for animation, flicker detection/correction, 'Crop Zoom' function, 'Quick Menu' control screen with customisation, multiple exposure facility (with overlay and auto exposure adjustment), Diffraction Compensation, long exposure noise reduction (On/Off), customisable 'My Menu' (24 items), luminance/RGB histogram displays, night display mode, highlight alert, adjustable image display time, auto image rotation, slide show (with variable display times and background music), playback zoom (up to 16x), zoom from AF point/zone, 12 or 30 thumbnail displays, thumbnail calendar display, in-camera editing/processing (RAW-to-JPEG and RAW-to-HEIF conversion), resize, rotate, rating, protect, video divide, video repair, copyright information, picture sort modes (file name or date/time), WiFi (2.4 and 5.0 GHz bands) and Bluetooth 5.0 (LE) wireless connectivity, magnesium alloy bodyshell, customisable control ring on lens barrel, multi-mode self-timer (2 and 10 second delays, one or three shots, or custom set delay time).

Power: One 7.2 volt/2200 mAh rechargeable lithium-ion battery pack (DMW-BLK22 type). In-camera recharging and powering is via USB C.

Dimensions (WxHxD): 127.1x73.9x66.9 mm.

Weight: 425 grams (without battery or memory card).

Price: \$2599. Available in black or silver. Limited edition model with a 'Titanium Gold' finish is only available for online purchase at \$2999 which includes a leather strap and lens cap. Panasonic Australia offers an extended five-year warranty (two year standard warranty plus an additional three years) on Lumix L10 sold by an authorised Panasonic Australia reseller.

Distributor: Panasonic Australia Pty Ltd, telephone 132 600 or visit www.panasonic.com.au

The image shows the Zoner Photo Studio Summer 2026 Update interface. The main window features a large, vibrant green leaf pattern. Overlaid on this is the text "ZONER PHOTO STUDIO SOFTWARE" in a large, white, sans-serif font, with "SUMMER 2026 UPDATE" in a slightly smaller font below it. On the right side, there is a vertical sidebar with various adjustment sliders and checkboxes, including "White Balance", "Exposure", "Contrast", "White point", "Black point", "Dynamic range", "Lights", "Shadows", "Whites", "Blacks", "Details", "Texture", "Clarity", "Dehaze", "Color", "Tone Curve", "Color Shift", "Split Toning", "Shift Primary Colors", "Noise Reduction", "Sharpness", and "Effects". At the bottom of the interface, there is a horizontal strip showing a series of small thumbnail images, likely representing a photo library or a sequence of images being processed. The overall aesthetic is clean and professional, with a focus on natural imagery.

ZONER PHOTO STUDIO SOFTWARE

SUMMER 2026 UPDATE

Of course, this is a winter update in our part of the world. Zoner now regularly refreshes its Photo Studio image editing software, and the latest additions include more efficient ways of processing multi-frame captures, faster searching with large photo collections and simpler retouching via a smart healing tool.

The original Photo Studio image editing software was introduced back in 2004 and the much-upgraded X version in 2016, but since then there has been a regular program of updates, additions and refinements, culminating in the latest version which offers new focus stacking capabilities, improved workflows, faster searching with large image collections and a new 'Clever Retouching' tool.

The Summer 2026 update, Zoner says, is built around a simple idea – "Photographers don't need more flashy features. They need tools that genuinely improve the way they work with photos every day."

Most photo editing workflows still split stacking, sorting, retouching, and editing across multiple apps or plug-ins. Zoner Studio now brings those editing workflows much closer together in one environment from import to final output. So, in a nutshell, the photo stacking tools are now an integral part of the workflow. The biggest part of the update is a completely redesigned set of Photo Stacking Tools. Previously, these workflows often required specialised tools, plug-ins, or complicated manual processing.

The new Photo Stacking Tools include Focus Stacking, Exposure Bracketing, Panorama, Long Exposure & Animation and Remove Moving Objects.

For many photographers, Focus Stacking will likely be the most significant new feature given it is now a quite common

function on mirrorless cameras. However, both Panorama and Exposure Bracketing have been given major upgrades, including more advanced processing methods to create much more natural-looking results.

One of the strongest aspects of the entire update is that these tools are now fully connected to the workflow itself. As a result, Zoner Studio can now automatically recognise a photo series using 'Autostack' and 'Detect' Stack, making stacking workflows dramatically faster right after import.

Consequently, what used to seem like a specialised technical process now feels much more accessible and practical for everyday photography.

However, Zoner notes, these tools will work best with well-prepared photo series. The more consistent and complete the image set is, the better and more precise the result will be.

To this end Zoner recommends locking the white balance and exposure settings while shooting, keeping the image series as consistent as possible, and capturing larger image sequences whenever practical.

Stacked outputs are generated as TIFF files that are optimised for further editing which means they are significantly more flexible than a standard JPEG workflow.

Smarter Workflows For Larger Photo Libraries

Another key component of the Summer

2026 update focuses on the organisation, grouping and search. Zoner says that this is the kind of "no gimmicks" improvement photographers will notice after only a few minutes of real work.

The new search system is faster, clearer, and much more flexible when working with larger RAW file libraries. Searching now works practically across all metadata, offers better filtering, and makes for easier navigating of large collections. Combined with the new 'Autostack' and 'Detect Stack' workflows, the entire process becomes noticeably smoother and requires less manual sorting. It also allows for easier culling, quicker orientation with large shoots and also reduces the amount of time needed to manage folders... which means there's more time available for editing photos.

Clever Retouching

The new 'Clever Retouching' tool is designed to dramatically simplify the more common retouching tasks. Instead of manually cloning and selecting source areas, photographers simply paint over any unwanted elements and so clean up their images much more quickly.

This tool works especially well with skin imperfections, the removal dust and sensor spots, the cleaning up product photographs, and dealing with the smaller distracting objects inside a scene.

The new update also brings several other smaller improvements across the workflow, including an upgraded Music Library for video projects, AI Assistants now directly available inside Zoner Studio, and updated colour processing that's designed to improve consistency across editing workflows.

For more information or to buy a subscription visit <https://www.zoner.com>
A free seven-day trial period is available for you to try before you buy.

CLEVER RETOUCHING

Zoner's new Clever Retouching tool allows you to simply paint over any unwanted elements to remove them making the cleaning up of image much quicker.

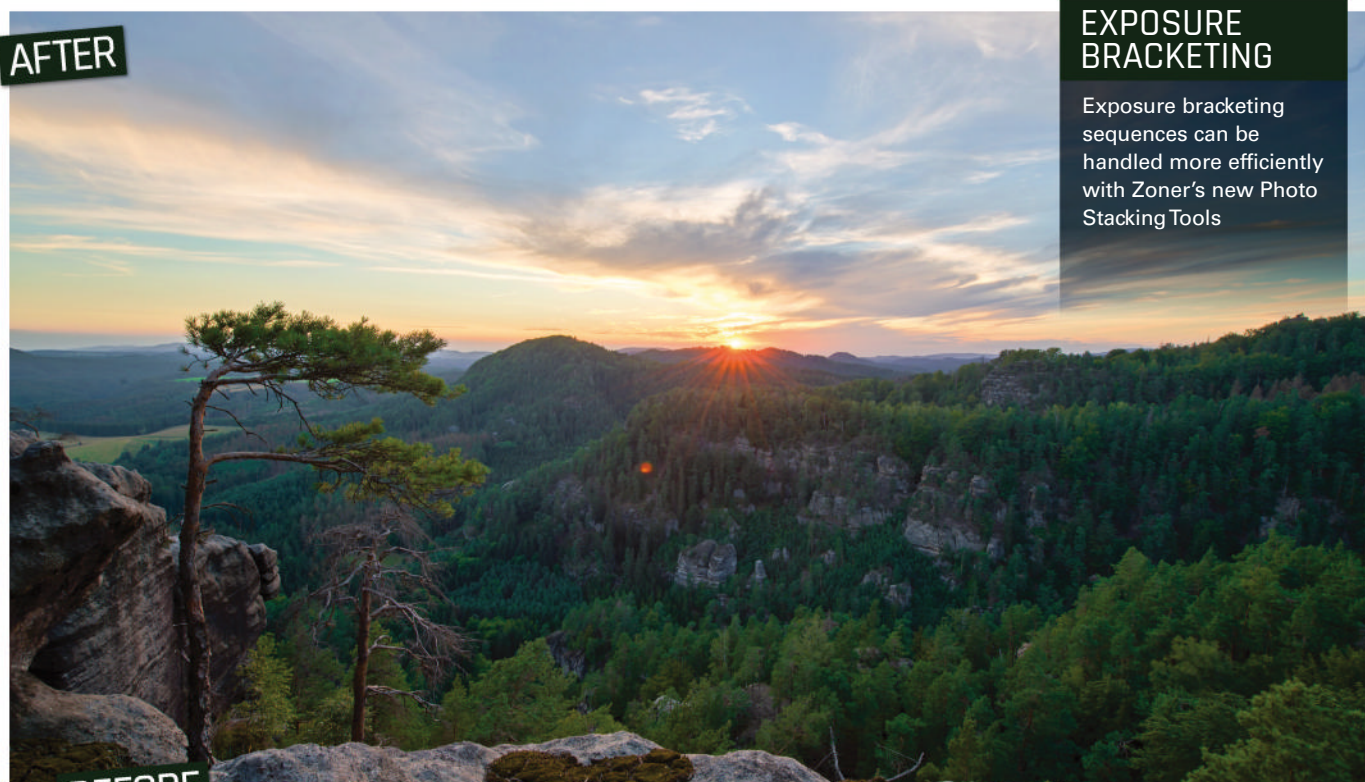
AFTER



AFTER

EXPOSURE BRACKETING

Exposure bracketing sequences can be handled more efficiently with Zoner's new Photo Stacking Tools



BEFORE



▲ Five-frame exposure bracketing sequence before processing.

FOCUS STACKING

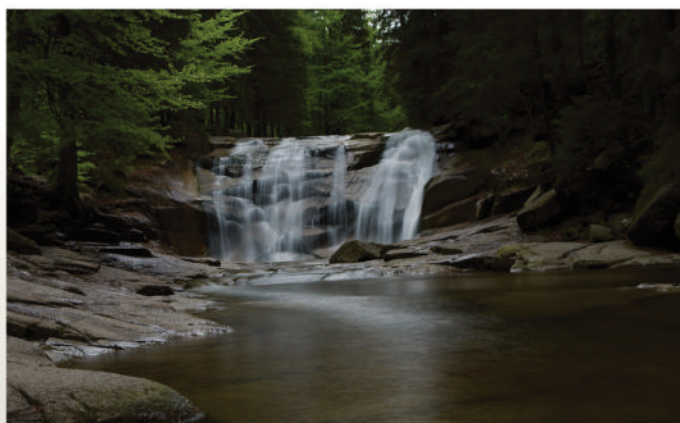
Focus Stacking is perhaps the most useful of Zoner's new Photo Stacking Tools and is fully integrated into the workflow, making it much easier to combine sequences of frames to create a single image that's sharp from foreground to background.

AFTER

BEFORE



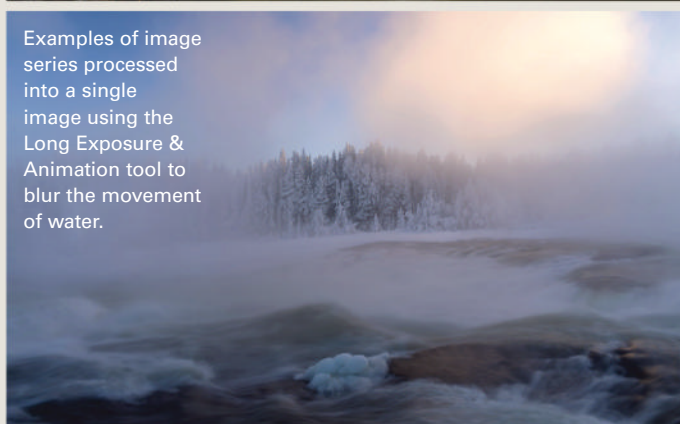
▲ Five frames in a focus stacking sequence before processing.



LONG EXPOSURE
& ANIMATION



Examples of image series processed into a single image using the Long Exposure & Animation tool to blur the movement of water.



PANORAMA STACKING

The processed panorama frame.

AFTER



BEFORE



▲ Individual panorama frames prior to stitching in the Panorama Photo Stacking Tools.

REMOVING OBJECTS

AFTER



BEFORE



WORLD FOOD PHOTOGRAPHY AWARDS 2026

Australian photographers won a record four categories in this year's running of the world's biggest photo competition dedicated to the many and varied aspects of food and achieved a further eight finalist images (including four category second or third places). Overall, the winning images once again highlighted the sheer diversity of the subject and the ability of photography to both celebrate and challenge.

The annual World Food Photography Awards was launched back in 2011 and has steadily grown to attract many thousands of entries from all over the world. It is open to both amateur and professional photographers as well as students and children (in two age categories, sponsored by celebrity chef Jamie Oliver).

An essential part of life, food is a huge subject with a great many diverse aspects from production to presentation to consumption. This is reflected in the competition's many categories – 27 in all plus the new-for-2026 Bimi® Prize – which currently include Bring Home The Harvest, Food Portrait, Cream Of The Crop, Street Food, Politics Of Food, Food For The Family, World Of Drinks, Food Stylist Award and the Cake Award. There are also dedicated categories for winemaking which cover the people, places and products involved in this industry, along with a category for wedding food photography.

The Claire Aho Award For Women Photographers category is named after a trail-blazing Finnish photographer. Claire Aho (1925-2015) was given her first camera at the age of ten, and she then worked as a commercial photographer from the late 1940s and at a time when almost no other women were practicing in this field.

The overall winner of the 2026 competition is British photographer Jo Kearney with a tender image she titled *A Woman Eats In The Canteen Of The Soviet-Era Sanatorium*. This photograph first won the Fortnum & Mason Food At The Table category (the overall winner is selected

from all the category winners) and was taken at the Khoja Obi Garm sanatorium in the mountains of Tajikistan. The colossal concrete complex is built on radon-rich hot springs and dates back to the Soviet era. It remains one of the few such sanatoria still in operation, where guests follow prescribed treatments such as thermal bathing and steam therapy, and are served meals of nourishing food – soups, fruit, tea and traditional Tajik fare – in keeping with the sanatorium's restorative ethos. With a cost of about £25 per day for board, lodging and treatments, the sanatorium is immensely popular.

"There is so much to see and so much to feel in this image," comments Caroline Kenyon who is the founder of the World Food Photography Awards sponsored by Broccolini®. "An old woman pours herself tea, but it's so much more than just that. The expression on her crevassed face is beautiful... it moved me to tears. She is alone, her simple breakfast on the table before her echoes the fruit in the painting on the wall behind. Against the parched colours of the scene through the window, the rich crimson chairs give a regal quality to the setting, and though humbly dressed, her dignified bearing is queenly too. She has seen much in life, we are sure, but holds her head high."

Record Australian Success

Photographers from Australia achieved record success in the 2026 competition. Of the nearly 9000 entries submitted from over 50 countries around the world, Australians produced a total of 12 finalist images, including an impressive four category



▲ *A Woman Eats In The Canteen Of The Soviet-Era Sanatorium* by Jo Kearney (United Kingdom), overall winner of the World Food Photography Awards 2026 sponsored by Broccolini®. This image first won the Fortnum & Mason Food At The Table category.

winners (the second highest number of category winners from a single country).

Chris Elfes won the Louis Jadot Wine Photographer Of The Year – Places category with his sun-kissed capture of a vineyard in Pokolbin, NSW, as well as being awarded second place in the Wine Photographer Of The Year – Produce category. Danielle Marie won the Food Portraiture category with her stylish image called *Jelly With A Cherry*. Claudia Anton won the Cake Award with a



mid-century-inspired image and scooped third place in this category with a second image titled *Buttercream Rose Adorned Cake On An Old Tapestry Chair*. Kara Baird won the Street Food category with a photo from the Nishiki Market in Kyoto, Japan.

"With barely any space to stop, I raised the camera and captured a brief, unfiltered moment of the energy and intensity of the market at its busiest," says Kara.

Other successful Australian photographers this year were Therese Bourne (second in the Cream Of The Crop category), Kristyn Taylor (second in the World Food Programme Food For Life category and Highly Commended in the Politics Of Food category), Marie-Helene Clauzon (third in the MPB Award For Innovation category), Chee Kong Wong (Highly Commended in the Bring

Home The Harvest category) and Sammy Jones (Highly Commended in the Fortnum & Mason Food At The Table category).

"These Awards highlight the power of photography to tell food stories from around the world," says Dave Samuels, brand director of Tenderstem® Bimi® Broccolini® and the headline sponsor of the Awards. "The remarkable images remind us of the essential role food plays in communities across the globe – through growing, harvesting, cooking, eating, celebrating and surviving. Whatever changes the world goes

through, food remains central to our lives."

This year's global judging panel was again chaired by legendary food photographer, David Loftus and included Kerrie McCallum (editorial director and editor-in-chief, *Delicious*), Chef Ian Kittichai (restaurateur, author and television host), Tom Athron (CEO of Fortnum & Mason, London), Jamie Oliver (chef, restaurateur and food campaigner), Rein Skullerud, senior photographer and photo editor, World Food Programme) and Australian chef and restaurateurs Josh and Julie Niland.

To see all the finalists in the 2026 competition go to worldfoodphotographyawards.com

Entries for the 2027 edition of the World Food Photography Awards will open later this year in September.

COMPETITION



▲ *Early Morning Catch, Hooghly River* by Marco Rutten (Netherlands), winner of the Bring Home The Harvest Category

▼ *Ine Fishing Village, Kyoto, Japan* by Albert Gonzalez (Spain), winner of the Cream Of The Crop category



In the Eye Of The Kvevri by Luke Carver (France/ United Kingdom), winner of the Louis Jadot Wine Photographer of the Year – Produce

COMPETITION



▼ *A Mid-Century Man And His Cake* by Claudia Anton (Australia), winner of the Cake Award



▼ *Noodles* by Maja Lewicz (Netherlands), winner of the Food Influencer category





▲ *Irebero Miller* by Glenn Vanderbeke (Belgium), winner of the Politics Of Food category

▼ *Chip 'n' Ladies Day Out* by Maggie Jary (United Kingdom), winner of the On The Phone category





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COMPETITION



▼ *In the Depths Of The Deposit* by Juan Miguel Ortuño Martínez (Spain), overall winner of the Louis Jadot Wine Photographer Of The Year award. This image first won the Louis Jadot Wine Photographer of the Year –People category

▲ *The Festival Of Food Enthusiasts* by Pingyao Song (China), winner of the Champagne Taittinger Food For Celebration category

▼ *Jelly With A Cherry* by Danielle Marie Schriever (Australia), winner of the Food Portraiture category





▲ *Kyoto Street Vendor* by Kara Baird (Australia), winner of the Street Food category

▼ *Chhath Puja Offerings* by Indigo Larmour (Ireland), winner of the Jamie Oliver Youth Prize 13-17 Years category



COMPETITION



Dust Journey by Serkan Dogus
(United Kingdom), winner of
the Food In The Field category

▼ *Constructed Lunch* styling by Sarah Ghijselincx (Belgium), photography by Sandra Declercq (Belgium), winners of the Hotel Art Group Food Stylist Award



▼ *Raw Pairing No.2* styling by Sarah Ghijselincx (Belgium), photography by Sandra Declercq (Belgium), winners of the Hotel Art Group Food Stylist Award.





▲ *Proven Recipe* by Lehóczki Balázs (Hungary), winner of the The Philip Harben Award For Food In Action category.

▼ *The Hidden Vineyard* by Chris Elfes (Australia), winner of the Louis Jadot Wine Photographer of the Year – Places.



COMPETITION



▲ *Candied Pear* by Anne Mason-Hoerter (Canada), winner of the Bimi® Prize.



▲ *Family Portrait* by Hussam Sleiby (Jordan), winner of the MPB Award For Innovation category.

Twin Bridesmaids Enjoy Canapes, Devon, UK by Emma Stoner (United Kingdom), winner of the Champagne Taittinger Wedding Food Photographer category.



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▲ *The Final Touch* by Michela Balboni and Federico Borella (Italy), winners of the Food For The Family (supported by the Felix Project) category.

▼ *The Open Air Hotel* by Mithail Afrige Chowdhury (Bangladesh), winner of World Food Programme Food For Life category.





▲ *Poaching* by Erik Lafontaine (Belgium), winner of the Production Paradise Previously Published World category.



COMPETITION

▲ *Romanesco At Panzer's* by Ariel Owliaei (United Kingdom), winner of the Jamie Oliver Youth Prize 12 Years And Under category.

▼ *Cabbage Market, Mohastangor, Bogura, Bangladesh* by Kazi Mohammad Golam Quddus (Bangladesh), winner of the unearthed® Food For Sale category.





▲ *At The Register* by Daniel Kwak (USA), winner of the The James Beard Foundation Photography Award.

▼ *A Moment In The Kitchen* by Sadia Sikander (Pakistan), winner of UK For UNHCR Food As Home category.



Dipping Bread Into Stew by Sarah-Vanessa Schneider (Switzerland), winner of the M&S Food Rising Star category.



The Making of Granola Bars



Preparing Porridge – Slow Morning



Ladling Lentil Stew



COMPETITION

Granny's Welcoming Gift Of Love
by Kellie Carter (USA), winner of
the Claire Aho Award For Women
Photographers category



▼ *Campari Barmen* by Marie-Louise Moutafchieva (Canada/
Bulgaria), winner of the World Of Drinks category

▼ *Red Cocktail* by Lara Zeh (Germany), RPS
Student Food Photographer Of The Year





▲ *Edible Jewels* by Therese Bourne (Australia), second in the Cream Of The Crop category



▲ *Served* by Sammy Jones (Australia), Highly Commended in the Fortnum & Mason Food At The Table category



▲ *Miss Pirouette* by Marie-Helene Clauzon (Australia), third in the MPB Award For Innovation category

▼ *Early Morning Coffee* by Kristyn Taylor (Australia), second in the World Food Programme Food For Life category





◀ *Buttercream Rose Adorned Cake On An Old Tapestry Chair* by Claudia Anton (Australia), third in the Cake Award category

▼ *Movement To Rhythm – Drying Parboiled Rice In Bangladesh* by Chee Kong Wong (Australia), Highly Commended in the Bring Home The Harvest category



▲ *The Crush* by Chris Elfes (Australia), second in the Louis Jadot Wine Photographer of the Year – Produce category

◀ *A Girl's Life* by Kristyn Taylor (Australia), Highly Commended in the Politics Of Food category

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CANON EOS R6 V



PEDIGREE BREED

Meet the R6 Mark III's more video-orientated cousin. While the two models are very similar on the inside, the R6 V's external design is more tailored to applications such as solo video productions or creating high-quality video content for social media usage. However, it's still also a hugely capable stills camera, but would you choose it over the R6 III?



Canon's trio of the R6 Mark III, R6 V and Cinema EOS C50 provide a snapshot of how the mirrorless camera market is evolving. All three share essentially the same 32.5 megapixel full frame CMOS sensor and versions of the latest generation 'DIGIC' processor. However, each has a specific target audience – the EOS R6 Mark III is intended primarily for photographers, the EOS C50

for videographers and the new EOS R6 V for the so-called content creators who are mostly also video shooters but also have a need to shoot stills on occasions.

There's a lot of commonality between these three cameras – essentially all can be said to be hybrid mirrorless cameras of one flavour or another – but there are key differences in features which make each more suited to specific applications. In case you're wondering, the "content creator"

▲ New RF 20-50mm f/4.0L IS USM PZ power zoom is offered as a package with the R6 V body.

label essentially refers to people who are making videos primarily for online sharing and are often working solo. Consequently, they don't need the more production-orientated capabilities of a higher-end video camera such as the C50. Thus, the R6 V gets pretty well all the photography features of the R6 III, but most notably doesn't have an EVF or a mechanical shutter. It essentially arrives in the Canon R mount line-up as the full frame alternative to the 'APS-C' format R50 V.

Minus the EVF, it's a little more compact and lighter than the R6 III and it's also cheaper by up to \$800 depending on what special deals are being offered on either model. Here, then, is why you might consider the R6 V over the R6 III even if you're primarily a stills photographer. Of course, you have to be happy with having only a monitor screen for viewfinding and, in some situations, a control arrangement that's more suited to the camera being mounted on a tripod or gimbal, but if so, the price difference is worth considering. Overall, as you'll read in our 'In The Hand' section, the R6 V handles comfortably

and the control layout is still as logical and efficient as that of the R6 III (plus you get all the same menus and displays).

SENSITIVITY, SPEED AND STABILITY

Unlike in the rival Nikon ZR and also Sony's A7 V which both have 'partially stacked' sensors, the R6 V's CMOS imager is a conventional design (i.e. neither BSI nor stacked) but still boasts a reasonably fast read-out which is why it's in the EOS C50 compact cinema camera and allows for 40 fps continuous shooting here as with the R6 III. There's dual-gain circuitry with the dual base levels set at ISO 800 and 6400 (for a high dynamic range and lower noise respectively) when shooting video in C-Log or RAW. Compared to the C50 though, the base ISO settings can't be manually selected and are set automatically according to the ISO that you select. In the standard profiles, the bases are at ISO 100 and 800. Notably, this is not the more advanced 'Dual Gain Output' (DGO) processing used in the higher-end Cinema EOS cameras, but it will still improve the video imaging performance at the very high ISOs. However, it should be noted that the dynamic range enhancements at low ISO settings apply to video and won't be as noticeable for stills unlike, for example, in Panasonic's latest Lumix S cameras.

The R6 V's native sensitivity range spans ISO 100 to 64,000 with extensions either side to ISO 50 and 102,400. The maximum image size is 6960x4640 pixels for all the still file formats. These comprise 8-bit JPEG, 10-bit HEIF and 12-bit lossless-compressed RAW with a cRAW option, but which employs lossy compression to give a file size that's roughly 40 percent smaller. Both the JPEG and HEIF capture comes with a choice of ten compression levels – as with the higher-end EOS R models – along with four image sizes and four aspect ratios – 3.2, 4.3, 16:9 and 1:1. Note that the RAW capture is with 12-bit colour rather than the R6 III's 14-bit as the result of the R6 V only

MINUS AN EVF, THE R6 V IS A LITTLE MORE COMPACT AND LIGHTER THAN THE R6 III AND IT'S ALSO CHEAPER BY UP TO \$800 DEPENDING ON WHAT SPECIAL DEALS ARE BEING OFFERED ON EITHER MODEL."

having a sensor shutter.

The top continuous shooting speed for stills 40 fps in all formats and with full AF/AE adjustment between the frames too. The burst lengths are decent too, at up to 330 best-quality JPEGs or HEIFs and around 140 RAW files or 280 with the cRAW compression. As with the R6 III, there are two memory card slots – one for the faster CFexpress Type B memory cards and one for SD UHS-II speed devices. You'll get a slight increase in the full-fat RAW burst length – up to around 150 frames – with a CFexpress card, but they're essentially needed if you want to utilise the R6 V's ability to record 12-bit RAW video internally or to use its 'open gate' (i.e. full frame) video recording facility at the best possible image quality (see the Making Movies panel for all these details). There's a pre-capture buffering function – which Canon calls it 'Pre-Continuous' shooting – but it's only available at the fastest speed of 40 fps. Up to half a second's worth of frames (so that's obviously 20 at 40 fps) are continuously buffered prior to full shutter release, and this is also available when shooting video with the choice of three or five seconds of recording.

Of course, you aren't always going to need 40 fps continuous shooting, so there's the choice of either 20 fps or 5.0 fps slower speeds which will also extend the burst

lengths. As noted earlier, the R6 V doesn't have a mechanical focal plane shutter so there are no shooting speed options between 5.0 fps and 20 fps and you can't user-define these 'Low Speed Continuous' and 'High Speed Continuous' modes which is a bit restrictive.

Sensor shift provides in-body image stabilisation (IBIS) with five-axis movement, driven by a gyro sensor and an acceleration sensor to give up to 8.5 stops of correction for camera shake at the centre of the frame and 7.5 stops at the edges. This is when combined with lens-based OIS – which Canon calls "Co-ordinated Control IS" – and is a marginal increase over the R6 II's stabilisation specs. However, even without the assistance of OIS, the amount of correction can still be up to eight stops depending on the attached lens.

Like the R6 III, the R6 V has 'Dual Pixel RAW' capture which uses the photodiode pairs of the sensor's 'Dual Pixel CMOS AF' architecture to capture images with a very slight variation in perspective which can then be used to make small adjustments. In-camera processing is provided for two adjustments – called Portrait Relighting and Background Clarity – but post-camera, the DPRAW files can also be fine-tuned for resolution, reducing ghosting or applying a small shift to the camera viewpoint.

STYLES AND EFFECTS

For processing JPEGs (and also HEIFs) in-camera, there's Canon standard set of eight 'Picture Style' presets – which include an Auto option – each with six adjustable parameters. Three modified 'Picture Styles' can be stored as 'User Defined 1-3' and there's a set of 14 'Colour Filter' effects. Perhaps more appropriately for this camera, these are more cinematic in look and, for example, include Teal & Orange, Retro Green, Accent Red, Tasty Warm, Tasty Cool, Bright Amber, Clear Light Blue, Clear Purple, and Clear Amber. Not surprisingly, they can also be applied to video. The pictorial settings also include a Clarity adjustment



▲ Control of the R6 V still centres around a main mode dial along with a set of three input wheels (the rear control is seen here to the right). 'S&F' position on the mode dial is for selecting slower or faster video frame rates from 1.0 to 180 fps.



▲ The 'Color' capture function for the 'Rate' button gives direct access to the 'Picture Style' and 'Colour Filter' menus, by-passing the main menus.



▲ Shutter release incorporates a rocker-type power zoom control.

over plus/minus four steps) and focus bracketing which can be set for sequences of up to 999 frames with up to ten steps of adjustment and exposure smoothing.

Multi-shot HDR capture on the R6 V differs a little from the R6 III in that the former lacks the Moving Subjects modes so there's only the Dynamic Range option. Three frames are captured and merged in-camera with the choice of manual exposure adjustment – at +/-1.0, +/-2.0 or +/-3.0 stops – or automatic adjustment based on the brightness range of the scene. An auto image align function is available along with the option of saving the files individual files or just the final merged HDR image. With HDR PQ enabled – a.k.a. HEIF capture – there's an additional option of limiting brightness to 1000 nits if you're using a screen for viewing that isn't any brighter.

The in-camera corrections comprise high ISO noise reduction, Canon's 'Auto Lighting Optimiser' and 'Highlight Tone Priority' processing functions for contrast control and dynamic range expansion respectively, lens corrections for vignetting and distortion, and the 'Digital Lens Optimiser' which collectively processes for chromatic aberrations, diffraction and the effects of the sensor's low-pass filter on sharpness. The

DLO processing is specific to the attached lens and there's the option of Standard or High settings. It isn't available when shooting video, but the lens correction list expands to include chromatic aberrations and diffraction (all are either on or off, there are no variables). Correction for focus breathing is available when shooting video but requires a supporting lens. It employs digital correction (i.e. digital zooming) to maintain the image size (i.e. the angle-of-view) if should change as the lens is focused.

The R6 V also has an intervalometer (now programmable for up to 9999 frames or set to unlimited frames), a multiple exposure facility (for up to nine frames with either average or additive exposure regulation) and flicker detection/correction. The anti-flicker correction includes an 'HF' mode for high-frequency LED light sources (and displays), and the shutter speed can be fine-tuned – in one-tenth stop increments – using the flickering seen in the live view feed as the guide.

SHARPER SHOOTING

The R6 V's autofocus system is largely carried over from the R6 III so it has the more advanced control algorithms from the R5 II and pro R1, but not the more advanced AI-based subject recognition capabilities of these higher-end models. However, you do get the 'Register People Priority' facility which takes face recognition a step further. Specific individuals can have their faces stored in a database, so they'll subsequently be given priority whenever they appear in the frame. You can select up to ten people to register who will be ranked one to ten to prioritise the tracking, but you can also have another nine groups of ten registered faces that are stored on a memory card.

The autofocus uses Canon's well-proven 'Dual Pixel CMOS AF II' technology which enables phase-detection distance



▲ Control layout has plenty of similarities with that of the R6 V, but also some video-centric differences. Usefully, the multifunction buttons are numbered.

measurements across the entire frame by having a pair of photodiodes – side-by-side – at each pixel point. There's a total of 6097 user-selectable points and 1053 of these are available for automatic selection. The subject recognition has three broad categories for people, animals and vehicles plus there's an Auto option which will look for anything in the frame that matches. The vehicles category encompasses racing cars (and so, of course, also normal road cars), motorcycles, aircraft (including helicopters) and trains. The animal category includes dogs, cats, horses and birds. There's eye-, face-, head- and body-detection for humans; and eye-detection for animals and birds. The eye-detection for humans can be fine-tuned to either the left or right eye or set to auto which selects the eye that's closest to the camera. Furthermore, the face detection will still work with somebody wearing a helmet or goggles (such as the driver of an open-wheeler racing car). Subject tracking can commence even when the selected focusing point or zone is only near to the



THE SUBJECT RECOGNITION HAS THREE BROAD CATEGORIES FOR PEOPLE, ANIMALS AND VEHICLES PLUS THERE'S AN AUTO OPTION WHICH WILL LOOK FOR ANYTHING IN THE FRAME THAT MATCHES."



▲ Rear panel control layout is very similar to that of the R6 III so, operationally, the R6 V is easy to learn.



▲ Front panel has a dedicated video start/stop button.



▲ Hotshoe is Canon's 'Multi Function Shoe' interface which incorporates a set of connections along the front to provide both power and data communications for dedicated accessories.

subject and is also available in any of the AF area modes.

A variation on the R6 V is that the 'Case' scenarios provided to better match the tracking parameters to the type of subject movement are distilled down to just 'Case Auto' and 'Case Manual' rather than the four manual choices provide on the R6 III. 'Case Manual' allows you to tweak two parameters – Tracking Sensitivity and Acceleration/Deceleration Tracking – while

'Case Auto' does it automatically, but you can adjust the sensitivity to either 'Locked On' or 'Responsive' or an in between setting. The manual adjustment provides more control – plus/minus two steps of adjustment for Tracking Sensitivity between 'Locked On' and 'Responsive' and also plus/minus two steps for Acceleration/Deceleration Tracking.

The low light focusing sensitivity extends down to -6.5 EV at ISO 100 and f/1.2. The

selection of area modes starts with 'Spot AF' and then progresses in size through to '1-Point AF' and 'Expand AF' which has two options – five points in a cross pattern or nine points in a 3x3 pattern. There are three customisable 'Flexible Zone AF' modes which are square, or either vertically- or horizontally-orientated rectangles as their default shapes, but can be changed in terms of both shape and size to better match the subject type. Finally, there's 'Whole Area

MAKING MOVIES

The EOS R6 Mark III is a very capable

video camera in its own right and the R6 V inherits all the same features and functionality with the addition of a built-in cooling fan which extends clip durations especially when shooting in warmer conditions. What's more, unlike the EOS C50 it has in-body image stabilisation to extend its hand-held shooting capabilities, supplemented by electronic (a.k.a. digital) IS for increased stability when on the move. The fan is adjustable for speed – High, Medium or Low – with clip lengths at up to two hours with the most demanding usage (i.e. the highest resolution and bit rates which exceed 2500 Mbps).

The video specs are topped by 12-bit RAW recording internally – in the proprietary Canon Cinema format – at 7K DCI (i.e. 17:9 aspect) and 24, 25 or 30 fps, with an 'open gate' (i.e. using the full frame area to give 6960x4640 pixels resolution) option at the 3:2 aspect for enhanced format flexibility such as vertical framing in 4K. There's a Canon Cinema Light alternative which delivers smaller file sizes – and allows up to 50/60 fps with 7K DCI – but with bit rates in the order of 2400 Mbps, you'll still need the faster CFexpress Type B memory card to handle the data transfer.

Using the MP4 format, there's 'open gate' (at 6912x4608 pixels resolution) at up to 30 fps and which again requires the CFexpress memory card, 4K DCI/UHD at up to 100/120 fps and 2K DCI/FHD at up to 180/150 fps. There are 'Fine' modes for 4K which record oversampled video (i.e. from 7K) for enhanced sharpness and better detailing. The codec options are Canon's XF-HEVC S and XF-AVC S which are extensions of H.265 and H.264 respectively. XF-HEVC S available with 10-bit 4:2:2 or 8/10-bit 4:2:0 colour subsampling and, with the XF-AVC S, there's the choice of 10-bit 4:2:2 or 8-bit 4:2:0 colour. XF-HEVC S is with LongGOP compression, but the XF-AVC S codec in 4K DCI/UHD also has ALL-Intra options – HQ, Standard and Light – available in both the Fine and Normal quality modes. With 10-bit 4:2:2 colour, the bit rates with the ALL-I HQ and Standard compression require the

CFexpress Type B memory card as they top 1200 Mbps.

The 'APS-C' or Super35 crop is available for 4K DCI/UHD up to 50/60 fps again and at 2K DCU/UHD up 100/120 fps. Proxy recording between the two memory cards is available, with the main recording at up to 7K RAW and the proxy at either 2K DCI or Full HD depending on the aspect ratio set for the former (but open gate proxies are recorded at the 16:9 aspect).

The camera's video tools include a waveform monitor display (either line or RGB), a false colour display and downloadable 'Custom Picture' gamma profiles. The false colour display assists with exposure adjustments, and uses six colours (plus neutral) based on the brightness levels present from the brightest highlights to the darkest shadows (for example, red shows white clipping, green shows 18 percent grey and purple shows black clipping). The 'Custom Picture' profiles comprise six pre-assigned (namely Canon 709, C-Log2 and C-Log3, HDR HLG, HDR PQ and BT.709 Standard) along with 14 custom slots for applying downloadable LUTs. Alternatively, there's the customisable in-camera 'Picture Style' profiles and the 14 'Colour Filter' effects which include more cinematic looks such as Teal & Orange, Retro Green, Accent Red, Tasty Warm, Tasty Cool, Bright Amber, Clear Light Blue, Clear Purple, and Clear Amber. Additionally, the R6 V has time code support (rec run and free run with drop-frame correction), zebra patterns, focus peaking displays and HDR/C-Log view assist. The pre-capture buffering for stills is available for video too, selectable

between either three or five seconds of recording when the camera is in the stand-by mode. Also new is a front tally lamp.

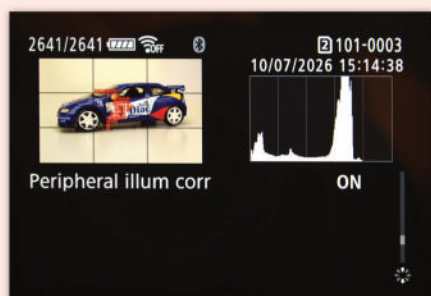
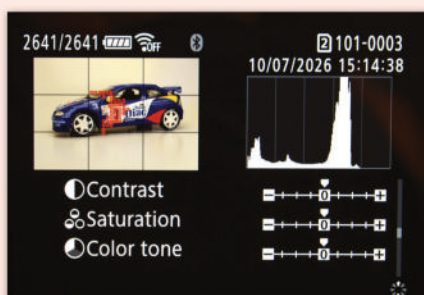
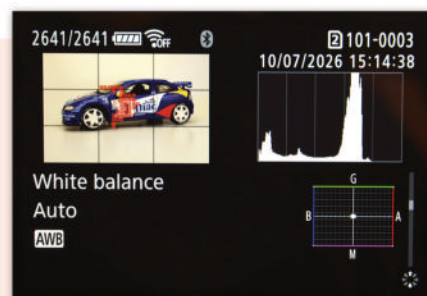
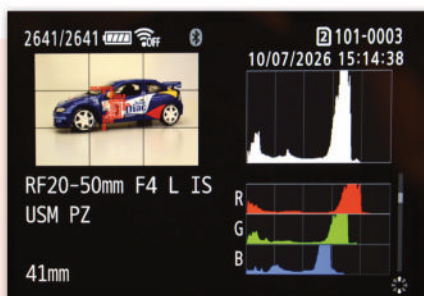
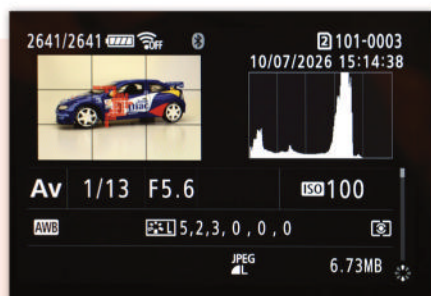
On the audio side, the camera has built-in stereo microphone with both an audio input and output (the latter with adjustable volume). Alternatively, the multi-function hotshoe supports dedicated external stereo microphones such as the DM-E1D model. These units are powered from the camera via the shoe and also relay data this way, so no cables or batteries are involved. Four-channel audio is supported via various combinations of the internal and external microphone. The in-camera audio controls comprise auto/manual levels adjustment, a wind-cut filter and an attenuator.

The autofocus capabilities carry over to video, including the more reliable subject tracking that came with the R6 III. The 'Register People Priority' function is also available and will be potentially very useful if you need to concentrate on selected individuals in crowd scenes (such as a bride and groom at a wedding).

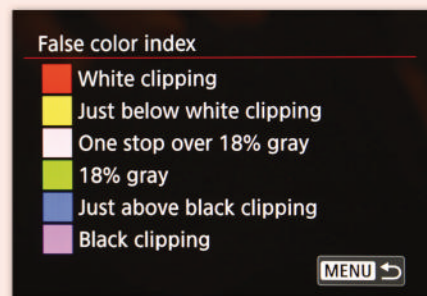
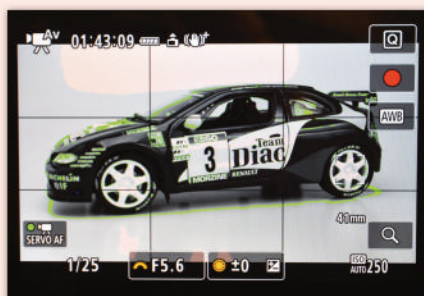
The video feature set is verging on pro-level if you use it judiciously in RAW or high-speed 4K with the All-I HQ compression, and the pricing is definitely also appealing given the extensive capabilities. Arguably, the R6 V has more than you'd generally need for vlogging applications, so it is a much more versatile camera than Canon's lower-end V series models and a very good option if you don't need all the higher-end capabilities of the C50 which is definitely more of a compact cinema-level camera and, consequently, less of an all-rounder.



▲ Waveform monitor displays are available in luminance-only line (left) or RGB types. Waveform displays assist with determining the overall brightness of a video picture similar to the brightness/RGB histograms for stills.

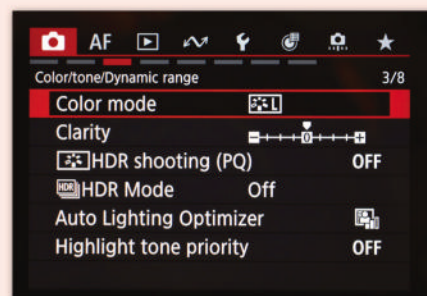


▲ Replay thumbnail screen can be cycled through a total of ten info subpanels, but you can pick and choose which ones to include in the sequence. The options include RGB histograms, lens data (including the actual focal length used), the lens correction and 'Digital Lens Optimiser' settings and the 'Picture Style' parameter settings.



▲ The active focus point display is very useful for determining what the autofocus system is actually doing.

▲ A false colour display uses colours to represent the luminance levels in a scene and is a method of determining the best exposures. It can be used with both stills and video. False Colour Index shows what the colours represent.



▲ There's virtually endless scope for configuring the live view info displays to suit your preferences, including showing selected read-outs and elements such as a real-time histogram (either brightness or RGB), a dual-axis level display and a focus distance scale (not shown here).

▲ The monitor-based 'Quick Control' screen is a very quick and convenient way of accessing and adjusting a lot of functions. You can have a standalone display or a set of function tiles superimposed over the live view image.

▲ The R6 V's main menu system is the same as on the other current R series bodies so it's well organised with various means of navigating by chapter, page or settings... including via touch control.

THE AUTOFOCUSING SYSTEM USES CANON'S WELL-PROVEN 'DUAL PIXEL CMOS AF II' TECHNOLOGY WHICH ENABLES PHASE-DETECTION DISTANCE MEASUREMENTS ACROSS THE ENTIRE FRAME."

AF' which, as you'd expect, uses the full set of automatically selectable focusing points. Spot AF, 1-Point AF and the two Expand AF zones have the options of a fixed AF point or the facility for activating tracking.

Focus bracketing for up to 999 frames and with ten adjustment steps plus exposure smoothing and a 'Depth Composite' function.

A magnified image – at either 5x or 10x – is available to assist with both autofocus and manual focusing, but the latter can also be guided by a distance scale and a focus peaking display with the choice of red, yellow or blue colours at two levels of intensity. There's also the 'Focus Guide' display which was introduced with the original EOS R model and provides an added manual assist by indicating the degree of back- or front-focus – via a trio of little pointers. When the subject is in focus, they merge into one and turn green. It's surprisingly precise and, consequently, in practice, actually works pretty well.

LIGHT AND COLOUR

Exposure control continues to be based on the 384-zone metering of the previous model (while the higher-end cameras now have a great many more measuring zones) with the choice of evaluative (i.e. multi-zone), partial area (representing 6.2 percent of the frame area), spot (2.9 percent) and centre-weighted average measurements. The meter's sensitivity range is EV -3.0 to 20 at ISO 100. The auto exposure overrides are an AE lock, exposure compensation up to +/-3.0 EV and auto bracketing over two, three, five or seven frames with up to +/-3.0 EV variation per frame. Additionally, the AEB and exposure compensation can be combined so the bracketing can be shifted anywhere along the latter's range up to either +6.0 or -6.0 EV.

Compared to R6 III's 14, the R6 V only has four manually-selectable point-and-shoot subject/scene modes for stills (and three for video). However, the 'Scene Intelligent Auto' mode (marked a 'A+' on the main dial) which

automatically selects a subject program based on the analysis of the scene via the AF, AE and white balance systems. While it's still essentially all fully automatic, some basic manual control is provided via a set of 'Creative Assist' adjustments for background blur, brightness, contrast, saturation, blue-to-amber colour tone, magenta-to-green colour tone and monochrome. There's also a choice of 11 preset filter effects – such as Soft, Warm, Cool, Shine, Lime, Green, Peach, Blue, Purple, Soft and B&W.

The standard 'PASM' exposure control modes are accompanied by the 'Flexible Priority Auto' mode – marked 'Fv' on the main mode dial – that was introduced on the original EOS R. This is another automatic mode, but with full-time manual overrides applied by adjusting the aperture, shutter speed or ISO setting.

The sensor shutter has a top speed of 1/16,000 second although this is only selectable manually (i.e. in the shutter-priority auto and manual exposure modes). There isn't a bulb mode for exposures longer than 30 seconds and electronic flash can't be used, but Canon says support is coming via a future firmware upgrade. The R6 V has the 'Multi Function Shoe' hotshoe – introduced with the R3 – which incorporates a set of connections along its front edge to provide both power and data communications for dedicated accessories, but obviously the application here is for video and audio at the moment and not photography. The absence of a physical shutter also means that the R6 V doesn't have the sensor cover option (when the camera is switched off) that's available on the R6 III.

The white balance controls offer a choice of either 'Ambience Priority' or 'White Priority' modes for automatic correction. The latter aims for neutrality while the former is a development of the old 'keep warm colours' correction but works with whatever colour cast predominates in a scene.

Alternatively, there are six lighting presets,

one custom preset (with the convenience of direct measurement from the live view image), fine-tuning, auto bracketing (again over two, three, five or seven frames) and manual colour temperature setting over a range of 2500 to 10,000 degrees Kelvin. And you can store up to four specific colour temperature settings.

IN THE HAND

While it's marginally lighter than the R6 III, the R6 V is much chunkier due to the inclusion of its cooling fan which vents to the side and below the monitor screen. This makes it look bigger than it actually is. The handgrip is a bit deeper as a result, but this is no bad thing and affords a more secure hold especially with heavier lenses. The front of the grip is sculpted for comfort so the R6 V handles just as nicely as the R6 III, but the biggest difference, of course, is the absence of an EVF, so you're always holding the camera at some distance from your face.

The control layout is still based around a main mode dial and a trio of input wheels located at the front, top and rear of the camera body. The front control is vertically orientated and located behind the shutter release. The top control – which Canon calls the 'Quick Control Dial 2' – is a conventional dial and combined with the camera's on/off switch. The third – and bigger – control wheel – a.k.a. 'Quick Control Dial 1' – is positioned on the rear panel and has been a Canon staple for a long time on both its DSLRs and mirrorless bodies.

These three controls are all used for menu navigation, enabling you to quickly jump between chapters, pages or settings. The rear panel layout also includes joystick-type 'multi-controller' plus various function buttons related to the displays and playback functions. The R6 V also has the 'Color/Rate' button from the R6 III which allows you to apply a star rating to an image on the spot and provides direct access to the 'Picture Style' and 'Colour Filter' menus (i.e. by-passing the main menus). When shooting video, this also accesses the 'Custom



► The EOS R6 V's styling is boxy due to the absence of an EVF which also makes it a little more compact and lighter weight than the R6 III.





Picture' settings.

Rather than using dedicated buttons for directly accessing on-the-fly shooting adjustments such as ISO and exposure compensation, the 'Quick Control' dials do this job. Functions such as white balance and the metering modes – plus more – are grouped under the 'M-Fn' button, also situated at the top of the handgrip. It works in conjunction with the control dials so there's a total of eight functions available as the defaults, including the three previously mentioned plus the metering

◀ Test images captured as JPEG/large/ fine files with the Canon RF 20-50mm f4.0L IS USM PZ power zoom lens and using shutter-priority auto exposure control with multi-zone metering, and the Landscape 'Picture Style' preset. The out-of-the-camera JPEGs look pleasingly crisp and punchy with bags of detailing and silky-smooth tonal gradations. Obviously, video is the R6 V's main game, but it works very well as a stills camera.

modes, AF modes and area settings, drive modes (which includes the self-timer settings) and 'Picture Style' presets. These are the defaults, but you can customise the 'M-Fn' offerings from a list of close to 60 functions. A total of seven buttons are customisable (and, usefully, marked 1 to 7) plus the four press-in quadrants of the rear quick control wheel (again marked as such), the 'Set' button at its centre, and the four directional actions of the joystick controller. Additionally, customisable is the 'L-Fn' button that's available on several RF mount lenses. Incidentally, the 'Fn. 6' button provides direct access to the R6 V's live streaming set-up which is very handy bypass of the main menus.

The operation of the front and rear input wheels can switch between setting aperture or shutter speeds, and there's also the multi-function control ring on the RF lenses which has an expanded selection of functions beyond manual apertures or shutter speed adjustment, exposure compensation and

The EOS R6 V's standard sensitivity range is from ISO 100 to 64,000 with extensions down to ISO 50 and up to 102,400. It has dual-base ISO circuitry for video which is set at ISO 800 and 6400 when shooting video in C-Log or RAW. As with the R6 III, but this doesn't have any influence when shooting stills. However, noise reduction for JPEGs is very well managed up to ISO 25,600, but there's some softening evident at ISO 51,200 and more again at ISO 64,000... but it's not dreadful and these settings are still usable for smaller-sized reproductions.

These test images are JPEG/large/ fine files taken in the aperture-priority auto exposure mode with the aperture set to f/11 – for optimum lens performance – so the exposure time varies to compensate for the ISO adjustments. High ISO Speed noise reduction is switched off. Canon RF 20-50mm f4.0L IS USM PZ zoom.

ISO. These include the AF area options, the 'Picture Style' presets and white balance settings with the option of direct adjustment or only making it available when the shutter release is at its half-way position.



▲ Dual memory card slots are for CFexpress Type B and SD with speed support up to UHS-II Video Class 90. Dual card recording is supported.

Not surprisingly, the stills/video switch is a pretty substantial affair so you can't miss it, and the shutter release button is surrounded by a tele/wide rocker which works in conjunction with a power zoom lens such as the RF 20-50mm f/4.0L IS USM PZ which was released with the R6 V and can be purchased as a package with the camera body. There's also a record start/stop button on the front panel.

As on the R6 III, the touch screen implementation is extensive and includes the main menu pages, the monitor displays and touch AF – with or without automatic shutter release. Touch controls are also available in replay, including for browsing, zooming and accessing the thumbnail pages.

A monitor-based 'Quick Control' screen provides a very quick and convenient way of accessing and adjusting a lot of functions, either via physical control wheels or using the touch screen which is even speedier. There's the option of monitor-only display or a set of function tiles superimposed along three sides of the live view image. Additionally, it switches to a dedicated video display in the movie mode.

In addition to the 'Quick Control' panel, the monitor's display can be cycled through five screens with progressively more read-outs and indicators. The latter can include a real-time histogram, a dual-axis level display, a focus distance scale and a guide grid (selected from a choice of three). Furthermore, you can choose between either brightness or RGB channel histograms and in either large or small sizes.

The monitor screen is a 7.62 cm TFT LCD panel with 1.62 megadots resolution and 'Vari-Angle' adjustments which allow it to face forwards... a key requirement for vlogging.

The display itself is adjustable for colour balance with four settings – Warm Tone, Standard, Cool Tone 1 and Cool Tone 2 – and for brightness over seven levels.

Alternatively, you can select an 'Exposure Simulation' view which does exactly what it says on the label with the option of depth-of-field preview. For video shooting, there are C.Log and HDR view assists.

The live view screen can be configured with a real-time histogram, a dual-axis level display, a focusing distance scale and a guide grid (selected from a choice of three). Furthermore, you can choose between either brightness or RGB channel histograms and in either large or small sizes.

The image review screens can be either via a full image – with or without basic capture data – or a thumbnail display accompanied by a brightness histogram. The lower section of this screen can subsequently be cycled through a total of ten sets of info; including RGB histograms, lens data (including the actual focal length used), the main capture-related info, the lens correction and 'Digital Lens Optimiser' settings, the 'Picture Style' parameter settings (over two pages), the white balance settings (including any fine-tuning) and the noise reduction settings (plus the selected colour space). You can, however, select only the panels you want.

Additionally, the AF point (or, more likely, multiple points) used at capture can be shown superimposed over the image (on either the full screen display or the thumbnail), and there are the options of a grid guide and highlight warning for both too.

The thumbnail pages progress through four, nine, 36 and 100 images while, in the opposite direction, zooming is available at up to 10x and centred on the AF point/zone used to achieve focus. The in-camera editing functions include all the basics (such as cropping or resizing) plus RAW-to-JPEG/HEIF and HEIF-to-JPEG conversion and the same set of 'Creative Assist' filter effects and adjustments that are available at capture in the 'Intelligent Scene Auto' mode (minus Background Blur). These are available for

editing RAW files and subsequently create a new JPEG file (as per your JPEG quality settings), and you can do it as many times as you like from the original RAW.

A 'Quick Control' menu is again available in image review/replay and with the convenience of function selection via the touch screen.

The R6 III's body construction comprises GRP covers over a magnesium alloy chassis with sealing against the intrusion of moisture or dust. The camera is powered by the higher-efficiency 'P' version of Canon's long-serving LP-E6 lithium-ion battery pack – introduced with the R5 II – and which carries on from the previous LP-E6NH. Both the earlier 'N' and 'NH' versions are still compatible (but not the original E6), although they impose a number of restrictions including using the multi-function hotshoe, outputting RAW video over HDMI and, perhaps more critically for many users, the pre-continuous buffering. The LP-E6P delivers around 640 shots which is significantly more than the R6 III even in its most economical configuration. In camera recharging is available via its USB C port. This is the faster, 10 Gbps 3.2 Gen.2 connection which allows for video live streaming via UVC and UAC support, plus there's a 3.5 mm stereo audio in, a 3.5 mm stereo audio out (with adjustable volume) and a remote trigger (for RS60-E3). As per the R6 III, the HDMI connection is a full-size Type A port.

The USB Type C Wireless connectivity is via WiFi (in both the 2.4 and 5.0 GHz bandwidths) and Bluetooth LE Version 5.1. The multi-function hotshoe mentioned earlier supports the AD-P1 Smartphone Link Adapter which allows for a wired connection to an iOS or Android smartphone using the 5G network for more stable file transfers. This will also enable firmware upgrades to be made via

▶ Built-in cooling fan adds a bit of bulk to the body, but greatly extends the video clip lengths even at the highest data processing rates.

▼ Connections include a full size HDMI port – as you'd expect on a camera primarily intended for shooting video – plus both stereo audio in and out.



your smartphone using the Canon Camera Connect app.

SPEED AND PERFORMANCE

Using a SanDisk Extreme Pro 128 GB CFexpress Type B memory card and the sensor shutter, the EOS R6 V captured a burst of 236 JPEG/large/fine frames in 5.769 seconds which represents a shooting speed of 40.9 fps. The test files averaged 13.9 MB in size.

As we noted with the R6 III, the performance of the 'Dual Pixel CMOS AF II' autofocus is close to infallible in just about every and any situation. The active AF points display is very educational as it shows you exactly how it's working and the accuracy is exemplary as is the lightning-fast responsiveness. With over 6000 measuring point at work for stills and over 4000 for video – with full frame coverage – there is rarely any subject or situation that's going to trip it up. The camera simply snaps into focus without any hesitation and then, with the subject recognition active, stays doggedly locked-on even with quite small targets and erratic movements. Consequently, even at the rapid-fire 40 fps shooting speed, you can expect every frame

to be pin sharp. With sensitivity down to -6.5 EV (at f/1.2 and ISO 100), the low-light performance is also excellent.

The resolution delivers plenty of well-defined detailing along with very smooth tonal gradations. The noise reduction for JPEGs (and HEIFs) is well managed across the entire native sensitivity range so definition, saturation and contrast all hold up well all the way to ISO 25,600.

The stills remain pretty good at ISO 51,200 too. It's worth noting here that the R6 V's only doesn't support the Adobe RGB colour space for stills and, the sensor's dual-gain circuitry is optimised for video recording so doesn't play much of a role with still capture.

The sensor's dynamic range tops 15 stops at the lower ISOs with the result that there's plenty of exposure latitude when shooting RAW and subsequently recovering tonality in blown-out highlights and/or blocked-up shadows post-camera. As you'd expect, the out-of-the-camera JPEGs look as good as those from the R6 III so they're pleasingly crisp and colourful.

THE VERDICT

If you're making videos more than you take photographs, the EOS R6 V has much

to commend it, including packaging a full frame sensor in a compact and lightweight body that's also comparatively affordable. It's an easy camera to use handheld and equally comfortable on a gimbal or a tripod. The video feature set and capabilities are pretty much pro level – the most notable exceptions being more specialised items such as anamorphic desqueeze – and the added versatility of active cooling, weather sealing and in-body image stabilisation make the R6 V much more of an all-rounder capable of performing well in wider variety of shooting situations.

Given its close relationship with the R6 Mark III, it's also a very capable stills camera albeit with the limitation of not having an EVF and the absences of features such as support for electronic flash (for now anyway) and the Adobe RGB colour space. Clearly, if photography is your priority Canon really wants you behind the R6 III, but like Fujifilm's E-M5, the R6 V works surprisingly well as a stills camera, both ergonomically and in terms of its IQ. We ended up liking it a whole lot more than we had expected to and while, ultimately, it's less of a true photo/video hybrid than the R6 III, it's still very good at everything it does. Your call. 

VITAL STATISTICS



CANON EOS R6 V \$3599

body only, recommended retail price

Type: Enthusiast-level digital full frame hybrid mirrorless camera with Canon RF bayonet lens mount.

Focusing: Automatic via 6097-points wide-area system (4641 points for video) using phase-difference detection measurements via 'Dual Pixel CMOS AF II' giving 100 percent vertical and horizontal coverage. 1053 focus points available for automatic selection. Area modes are Spot AF, 1-Point AF, Expand AF (vertically/horizontally), Expand AF (around), Flexible Zone AF 1 (square), Flexible Zone AF 2 (vertical rectangular), Flexible Zone AF 3 (horizontal rectangular), Whole Area AF. Body, head/face/eye detection for tracking people and animals is available with each area mode. Eye detection is switchable for right or left eye priority or auto selection. Adjustable AF point size (small or large). AI-based subject tracking for People, Animals (dogs, cats, birds and horses) and Vehicles (cars/motorsport, motorcycles, aircraft and trains). Auto subject recognition mode. 'Register People' priority (for up to ten stored faces). One-shot and continuous (AI Servo) modes with manual switching. Continuous AF with predictive function and acceleration/deceleration tracking and adjustable tracking sensitivity. 'Servo AF Character' configuration tool ('Case A' for automatic adjustment of Tracking Sensitivity and Acceleration/Deceleration Tracking. 'Case M' for manual adjustments). 'Touch & Drag AF' operation via touchscreen monitor when using EVF. Low light AF assist via built-in LED illuminator. Sensitivity range is EV -6.5 – 21 (f/1.2, ISO 100). Manual focus assist via magnified image (6x or 15x), focusing peaking display (red, yellow or blue; high or low level) and 'Focus Guide' display.

Metering: Via 384-zones evaluative (linked to all AF points) via imaging sensor, selective area (6.2 % of

image area), spot (2.9 %), centre-weighted average and E-TTL II auto flash. Metering range is EV -3.0 to 20 (ISO 100).

Exposure Modes: Continuously-variable program with shift, shutter-priority auto, aperture-priority auto, 'Scene Intelligent Auto', 'Flexible Priority' auto, metered manual. Five subject/scene modes for stills (Portrait, Smooth Skin, Panoramic Shot, Food, Handheld Night Scene). Three subject/scene modes for movies (Smooth Skin movie, Movie IS Mode, HDR). Adjustable 'Creative Assist' filters and adjustments are available with 'Scene Intelligent Auto' shooting (11 Preset filters, Background Blur, Brightness, Contrast, Saturation, Colour Tone 1 – blue-to-amber, Colour Tone 2 – magenta-to-green, Monochrome).

Shutter: Sensor-based shutter only, 30-1/16,000 second (up to 1/8000 second in the M and Tv exposure modes). Exposure compensation up to +/-3.0 EV in either 1/2 or 1/3 stop increments.

Flash: Use of electronic flash is not supported. 'Multi Function Shoe' provides both power and communications for dedicated audio and video accessories.

Viewfinder: No eye-level viewfinder. 7.5 cm TFT LCD monitor with 1.62 megadots resolution, 'Vari-Angle' tilt/swing adjustments and touchscreen controls. Adjustable for brightness (seven levels) and colour tone (Warm Tone, Standard, Cool Tone 1, Cool Tone 2), Exposure Simulation, Depth-Of-Field Simulation and OVF Simulation modes. HDR and C-Log View Assist.

Additional Features: Magnesium alloy chassis with GRP body covers, weather and dust sealing, auto exposure bracketing (over two, three, five or seven

frames, up to +/-3.0 EV adjustment), depth-of-field preview, AE lock, bulb timer (up to 99 hours, 59 minutes and 59 seconds), dual-mode self-timer (two or ten second delays), audible signals, wireless (IR) remote control, wired remote control, side and bottom tripod screw mounts, 16 custom functions.

DIGITAL SECTION

Sensor: 32.5 million pixels (effective) 'dual pixel' CMOS with 35.9x23.9 mm area and 3:2 aspect ratio. Sensitivity equivalent to ISO 100-64,000 (expandable to ISO 50 and 102,400). An optical low-pass filter is fitted.

Focal Length Increase: None.

Formats/Resolution: Ten JPEG compression settings, ten HEIF compression settings (HDR-PQ shooting mode), RAW lossless compression and cRAW lossy compression. JPEGs captured with 8-bit RGB colour, HEIFs (HDR PQ) with 10-bit RGB colour and RAWs with 12-bit RGB colour. Four resolution settings at 3:2; 6960x4640, 4800x3200, 3472x 2320 and 2400x1600 pixels. Four resolution settings at 4:3; 6160x4640, 4256x3200, 3072x2320 and 2112x 1600 pixels. Four resolution settings at 16:9; 6960x3904, 4800x2688, 3472x1952 and 2400x1344 pixels. Four resolution settings at 1:1; 4640x4640, 3200x3200, 2320x2320 and 1600x1600 pixels. 1.6x crop capture with EF-S lenses in L and S2 image sizes. RAW and cRAW images captured at 6960x4620 pixels. RAW+JPEG and RAW+HEIF capture is available.

Video Recording: Canon Cinema RAW 12-bit (CRM) – at 6960x3672 pixels (7K DCI); 30, 25 and 24 fps at 17:9 aspect ratio (up to 2600 Mbps, requires CFexpress Type B card). Cinema RAW Light 12-bit (CRM) – at ▶

VITAL STATISTICS



6960x3672 pixels (7K DCI); 60, 50, 30, 25 and 24 fps at 17:9 aspect ratio (up to 2410 Mbps, requires CFexpress Type B card). Canon Cinema RAW 12-bit – at 6960x4640 pixels (open gate); 30, 25 and 24 fps at 3:2 aspect ratio (up to 2600 Mbps, requires CFexpress Type B card). Cinema RAW Light 12-bit – at 6960x4640 pixels (open gate); 30, 25 and 24 fps at 3:2 aspect ratio (up to 2410 Mbps, requires CFexpress Type B card).

- MP4 format with 10-bit 4:2:2 colour (XF-HEVC S/H.265 codec) – at 6960x4640 pixels (open gate); 25 and 24 fps at 3:2 aspect ratio (ALL-I HQ compression = up to 1730 Mbps, requires CFexpress Type B card). At 6960x4640 pixels (open gate); 30, 25 and 24 fps at 3:2 aspect ratio (ALL-I compression = up to 1620 Mbps requires CFexpress Type B card, ALL-I Light = 1080 Mbps requires CFexpress Type B card, LongGOP = 486 Mbps).

- MP4 format with 10-bit 4:2:0 colour (XF-HEVC S/H.265 codec) – at 6960x4640 pixels (open gate); 30, 25 and 24 fps at 3:2 aspect ratio (LongGOP = 360 Mbps).

- MP4 format with 10-bit 4:2:2 colour (XF-HEVC S/H.265 codec) – at 4096x2160 pixels (4K DCI Fine); 60, 50, 30, 25 and 24 fps at 17:9 aspect ratio (LongGOP compression = up to 225 Mbps).

- At 3840x2160 pixels (4K UHD Fine); 60, 50, 30, 25 and 24 fps at 16:9 aspect ratio (LongGOP compression = up to 225 Mbps). At 4096x2160 pixels (4K DCI); 120, 100, 60, 50, 30, 25 and 24 fps at 17:9 aspect ratio (LongGOP compression = up to 450 Mbps). At 3840x2160 pixels (4K UHD); 120, 100, 60, 50, 30, 25 and 24 fps at 16:9 aspect ratio (LongGOP = up to 450 Mbps). At 2048x1080 pixels (2K DCI); 180, 150, 120, 100, 60, 50, 30, 25 and 24 fps at 17:9 aspect ratio (LongGOP compression = up to 150 Mbps). At 1920x1080 pixels (Full HD); 180, 150, 120, 60, 50 and 30 fps and 16:9 aspect ratio (LongGOP compression = up to 150 Mbps).

- MP4 format with 10-bit 4:2:0 colour (XF-HEVC S/H.265 codec) – at 4096x2160 pixels (4K DCI Fine); 60, 50, 30, 25 and 24 fps at 17:9 aspect ratio (LongGOP compression = up to 150 Mbps). At 3840x2160 pixels (4K UHD Fine); 60, 50, 30, 25 and 24 fps at 16:9 aspect ratio (LongGOP compression = up to 150 Mbps). At 4096x2160 pixels (4K DCI); 120, 100, 60, 50, 30, 25 and 24 fps at 17:9 aspect ratio (LongGOP compression = up to 300 Mbps). At 3840x2160 pixels (4K UHD); 120, 100, 60, 50, 30, 25 and 24 fps at 16:9 aspect ratio (LongGOP = up to 300 Mbps). At 2048x1080 pixels (2K DCI); 180, 150, 120, 100, 60, 50, 30, 25 and 24 fps at 17:9 aspect ratio (LongGOP compression = up to 105 Mbps). At 1920x1080 pixels (Full HD); 180, 150, 120, 60, 50 and 30 fps and 16:9 aspect ratio (LongGOP compression = up to 105 Mbps).

- MP4 format with 10-bit 4:2:2 colour (XF-AVC S/H.264 codec) – at 4096x2160 pixels (4K DCI Fine); 60, 50, 30, 25 and 24 fps at 17:9 aspect ratio (ALL-I HQ compression = up to 1200 Mbps – requires CFexpress Type B card at 50/60 fps, ALL-I = up to 900 Mbps – requires CFexpress Type B card at 50/60 fps, ALL-I Light = up to 600 Mbps, LongGOP = up to 250 Mbps). At 3840x2160 pixels (4K UHD Fine); 60, 50, 30, 25 and 24 fps at 17:9 aspect ratio (ALL-I HQ compression = up to 1200 Mbps, ALL-I = up to 900 Mbps, ALL-I Light = up to 600 Mbps, LongGOP = up to 250 Mbps). At 4096x2160 pixels (4K DCI); 60, 50, 30, 25 and 24 fps at 17:9 aspect ratio (ALL-I HQ compression = up to 1200 Mbps, ALL-I = up to 900 Mbps, ALL-I Light = up to 600 Mbps, LongGOP = up to 150 Mbps). At 4096x2160 pixels (4K DCI); 120 and 100 fps at 17:9 aspect ratio (ALL-I compression = up to 1800 Mbps, ALL-I Light = up to 1200 Mbps, LongGOP = up to 500 Mbps). At 3840x2160 pixels

(4K UHD); 60, 50, 30, 25 and 24 fps at 16:9 aspect ratio (ALL-I HQ compression = up to 1200 Mbps, ALL-I = up to 900 Mbps, ALL-I Light = up to 600 Mbps, LongGOP = up to 150 Mbps). At 3840x2160 pixels (4K UHD); 120 and 100 fps at 16:9 aspect ratio (ALL-I compression = up to 1800 Mbps, ALL-I Light = up to 1200 Mbps, LongGOP = up to 500 Mbps). At 2048x1080 pixels (2K DCI); 180, 150, 120, 100, 60, 50, 30, 25 and 24 fps at 17:9 aspect ratio (ALL-I compression = up to 900 Mbps, LongGOP = up to 150 Mbps). At 1920x1080 pixels (Full HD); 180, 150, 120, 100, 60, 50, 30, 25 and 24 fps and 16:9 aspect ratio (ALL-Intra compression = up to 900 Mbps, LongGOP = up to 150 Mbps).

- MP4 format with 8-bit 4:2:0 colour (XF-AVC S/H.264 codec) at 4096x2160 pixels (4K DCI Fine); 60, 50, 30, 25 and 24 fps at 17:9 aspect ratio (LongGOP compression = up to 150 Mbps). At 3840x2160 pixels (4K UHD Fine); 60, 50, 30, 25 and 24 fps at 16:9 aspect ratio (LongGOP compression = 150 Mbps). At 4096x2160 pixels (4K DCI); 120, 100, 60, 50, 30, 25 and 24 fps at 17:9 aspect ratio (LongGOP compression = up to 300 Mbps). At 3840x2160 pixels (4K UHD); 120, 100, 60, 50, 30, 25 and 24 fps at 16:9 aspect ratio (LongGOP compression = 300 Mbps). At 2048x1080 pixels (2K DCI); 180, 150, 120, 100, 60, 50, 30, 25 and 24 fps at 17:9 aspect ratio (LongGOP compression = up to 105 Mbps). At 1920x1080 pixels (Full HD); 180, 150, 120, 100, 60, 50, 30 and 25 fps and 16:9 aspect ratio (LongGOP compression = up to 105 Mbps).
- Built-in stereo microphones with auto/manual levels adjustment, attenuator and wind-cut filter (Auto/Off). 16/24-bit 48 kHz sampling. Stereo audio input and headphone output (with adjustable volume).

Video Features: Built-in cooling fan, Canon C-Log2 and C-Log3 gamma profiles, HDR PQ or HLG, 'Movie Digital IS' electronic image stabilisation (On, Enhanced, Off), 'Slow And Fast Movie' mode (from 1.0 to 180 fps) 'Movie for Close-Up Demos' mode, proxy recording, zebra patterns (choice of three with adjustable levels), false colour display, wave form monitor, time code support (with drop-frame correction), time-lapse movie mode (2K and 4K), auto flicker detection and correction, tally lamp, 'Movie Servo AF', adjustable 'Creative Filters' effects (Dream, Old Movies, Memory, Dramatic B&W and Miniature Effect), aspect ratio marker frames, focus peaking display, in-camera focus breathing correction (with supporting RF lenses), dedicated video 'Quick Menu', video 'Frame Grab' (8.8 MP from 4K DCI and 8.3 MP from 4K UHD).

HDMI Output: ProRes RAW 7K 3:2 with 10-bit 4:2:2 colour, at 30, 25 or 24 fps. 4K DCI 17:9 at 60, 50, 30, 25 or 24 fps. 4K UHD 16:9 at 60, 50, 30, 25 or 24 fps; Full HD at 60, 50 or 24 fps (50 and 60 fps = interlaced or progressive). Uncompressed output – 4K UHD and Full HD, with 10-bit or 8-bit 4:2:2 YCbCr colour.

Recording Media: Dual memory card slots; one each for CFexpress Type B and SD UHS-II/Video Speed V90 devices.

Continuous Shooting: Up to 330 JPEG/large/fine frames at 40 fps with a CFexpress Type B or an SD UHS-II memory card. Up to 150 frames with RAW capture and a CFexpress Type B memory card, up to 140 frames with an SD UHS-II memory card. Pre-continuous shooting mode captures up to 20 frames prior to shutter release (for all still formats).

White Balance: Auto/manual with six presets and one custom setting, white balance bracketing (over two, three, five or seven frames), white balance correction (blue-to-amber and/or green-to-magenta)

and manual colour temperature setting (2500-10,000 degrees Kelvin) with four preset options. Auto correction can be set to either Ambience Priority or White Priority.

Interfaces: USB Type C (10 Gbps, USB 3.2 Gen.2), HDMI Type A, 3.5 mm stereo audio input, 3.5 mm stereo audio output, E3 remote control terminal.

Additional Digital Features: In-body image stabilisation with five-axis movement and up to 7.5 stops of correction (frame centre and when paired with lens OIS), 'Dual Pixel RAW' capture modes (Portrait Relighting, Background Clarity), sensor cleaning, sRGB/BT.709/BT.2020/Cinema Gamut colour spaces, eight 'Picture Style' presets (Auto, Standard, Portrait, Landscape, Fine Detail, Neutral, Faithful and Monochrome), three user-definable 'Picture Styles', six adjustable 'Picture Style' parameters (Sharpness – Strength, Sharpness – Fineness, Sharpness – Threshold, Contrast, Saturation and Colour Tone), B&W filter effects (Yellow, Orange, Red, Green), B&W toning effects (Sepia, Blue, Purple, Green), three User Defined 'Picture Styles', 14 'Colour Filter' effects (with sRGB colour space only – Teal & Orange, Magenta, Blue, Pale Teal & Orange, Retro Green, Sepia, Accent Red, Tasty Warm, Tasty Cool, Bright Amber, Bright White, Clear Light Blue, Clear Purple, Clear Amber), Clarity adjustment (plus/minus four steps), focus bracketing (up to 999 frames and ten adjustment steps, with exposure smoothing), intervalometer (up to 9999 frames or unlimited), grid guides (choice of three), highlight warning, 'Exposure Simulation' display, flicker detection/correction, high-frequency (HF) flicker detection/correction, dual-axis level indicator, real-time histogram, long exposure noise reduction (Auto, On, Off), high ISO noise reduction (Low, Standard, High), 'Highlight Tone Priority' dynamic range expansion processing (Disable, Enable, Enhanced), 'Auto Lighting Optimiser' settings (Low, Standard, High, Off), in-camera lens corrections (Peripheral Illumination, Distortion and 'Digital Lens Optimiser'), multiple exposure facility (up to nine with Additive/Average/Bright/Dark exposure adjustments), multi-shot HDR capture for JPEG/RAW (Dynamic Range mode = Auto, +/-1.0, +/-2.0, +/-3.0 EV with auto align. Or Moving Subject mode), customisable 'My Menu' (up to five pages), in-camera editing functions (Creative Assist, RAW-to-JPEG conversion, HEIF-to-JPEG conversion, DPRAW Processing, Image Copy, Print Order, Cropping, Resize, Star Rating, Protect), slide show (with adjustable display time), auto image rotation, 4/9/36/100 thumbnail displays, side-by-side two image display, zoom playback (up to 10x), voice memo recording, copyright information, IPTC information, auto power-off (adjustable duration), WiFi (2.4 or 5.0 GHz) and Bluetooth 5.1 LE wireless connectivity. Compatible with GP-E2 GPS receiver.

Power: One rechargeable 7.2 volt 2130 mAh lithium-ion battery pack (LP-E6P type). In-camera charging via USB C (with LP-E6P and LP-E6N/NH series batteries only).

Dimensions (WxHxD): body only = 141.8x83.3x79.7 mm.

Weight: 598 grams body only (without battery pack or memory card).

Price: \$3599 body only. \$5399 with the Canon RF 20-50mm f/4.0L IS USM PZ power zoom lens. Canon Australia provides a five-year warranty for EOS R system cameras and lenses purchased from an authorised reseller.

Distributor: Canon Australia Pty Ltd, telephone 1800 021 167, www.canon.com.au



Photo credit | Landscape representing 'Spring!' captured by Camera House Photography Competition contestant **Christian Byrt** from Bundbury Camera House. He captured this inspiring image using a Sony ZVE10 Compact System Camera paired with the Sony E 10-18mm F4 OSS lens | **Image details** | 10mm | f/10.0 | 1/160sec | ISO 125

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NIKON ZR

REPORT BY PAUL BURROWS



SHOW TIME!

ZR adopts the cleaner, RF-style body shape that's now common for video-first mirrorless cameras.

It says “Z Cinema” on the back which gives you a good idea of the ZR’s orientation, but it also has most of the still shooting goodies from the Z6III so it’s an über-hybrid mirror camera that could set you off on a new career.

Life is getting interesting in the mirrorless camera world as the hybrid models start to develop sub-categories. There’s the hybrid that’s primarily aimed at photographers, but does a pretty decent job of shooting video. Then there’s the hybrid that’s primarily aimed at video content creators – i.e. shooters that mostly work solo doing presentations for

social media and maybe YouTube – but does a pretty decent job taking photographs. And the third breed of hybrid is primarily targeted more at professional video-makers – even cinematographers – because it has higher-end video capabilities, but it can also work well as stills camera. The boundaries between all of these definition can be confusingly blurred because there are plenty examples of what we might now call the

“traditional” hybrid mirrorless – Nikon’s Z6III among them – that are excellent at both disciplines. Canon’s EOS R6 Mark III and both Panasonic’s S1 II and S1R II are also hybrid cameras with solid stills credentials and enough video chops for pro-level productions if only as B-roll cameras (i.e. for supplementary footage).

So where does Nikon’s ZR fit in? It’s marked “Z Cinema” on the back which gives it lofty aspirations as a higher-end video camera, but it also has pretty all the same stills features and functionality as the Z6III. It is, Nikon tells us, the first in the Z Cinema line and the first to make use of the video expertise it’s acquired courtesy of purchasing American digital cine camera-maker RED. Of course, there’s already the ‘APS-C’ format Z30 which is primarily targeted at video content

creators, but the ZR is Nikon's first full frame mirrorless camera that's designed for video ahead of photography. As is currently common with this class of camera (with the exception of Sony's FX2), there's no EVF and, subsequently, the ZR is more compact than the Z6III and also has a very different control layout and user interface that's said to be optimised for videography. Overall, there's a greater reliance on the touch screen in concert with a joystick controller, but in practice this arguably a more efficient arrangement than we've seen on any previous Z mount mirrorless camera (we'll go into more detail in the In The Hand section). Perhaps because of the deleted EVF, the ZR is also cheaper than the Z6III. The key RED-sourced capability is a new 12-bit RAW video codec called R3D NE – to supplement Nikon's own Nikon's N-RAW and the Apple ProRes RAW HQ – and which has the same colour science as RED's RECODE RAW (although it doesn't use exactly the same coding), making it easier to integrate footage with that from the high-end RED cine cameras.

The ZR is built around the same 'partially-stacked' 24.5 megapixels (effective) BSI-type CMOS sensor that's used in the Z6III and the same 'Expeed 7' generation processor. The partially-stacked arrangement puts the read-out and analog-to-digital conversion circuitry – plus an integrated



▲ Main menus have the same design and navigation as any other full frame Z mount body.

memory – along the top and bottom edges of the chip rather than in a separate layer as is the case with a fully stacked design. Crucially, these sensors are cheaper to make, but still deliver a significant increase in the read-out speed. A full sensor scan is completed in 1/70 second.

For video recording with the ZR, this translates into internal 6K recording – using the full width of the sensor – in the R3D NE and N-RAW options at up to 50/60 fps and in ProRes RAW HQ at up to 25/30 fps. From here you can have the ProRes 422 HQ codec at resolutions of up to 5.4K (5376x3024 pixels) at 50/60 fps, and also the H.265 or H.264 codecs; the former with 10-bit 4:2:2 colour. With the compressed codecs, 4K UHD can be recorded at up to 100/120 fps or, with RAW recording, up to 50/60 fps. The Full HD frame rates extend up to 200/240 fps, and still with 10-bit 4:2:2 colour.

For stills shooting, the ZR matches the Z6III's continuous speeds which is 16 fps in the 'Continuous High Speed' mode and 20 fps in the 'Continuous High Speed Extended' mode for maximum-quality JPEGs, HEIFs and 14-bit RAW files; up to 60 fps for large/normal JPEGs and up to 120 fps in the 'APS-C' (a.k.a. 'DX') cropped

format). 'High Speed Frame Capture' shooting is available for full frame JPEGs in the large/normal quality at 15, 30 and 60 fps with the option of 'Pre-Release Capture' buffering prior to full shutter release. It can be set to 0.3, 0.5 or 1.0 seconds which means that you can have up to either 60 or 120 frames with the two faster high-speed settings. As on the Z6III, there's also a 'Post Release Burst' option which can be used to minimise the subsequent burst length to one, two or three seconds, or 'MAX' (which is around four seconds). The ZR only has a sensor-based shutter, but given the read-out speed enabled by the partially-stacked design, it still supports electronic flash with syncing up to 1/60 second (just like in the good old days).

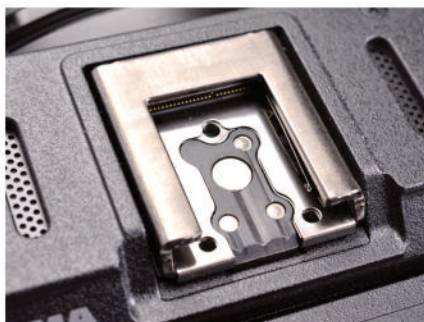
The ZR has dual card slots which comprise one for CFexpress Type B devices which is no surprise given the very high video bit rates it generates, but more curious is that the second is for microSD devices and with only UHS-I speed support so it's really no use for high-res/high-speed video. Also curious is that the card slots share the battery compartment in the camera's base which is a more compact camera design element than a mirrorless camera's.



INTERESTINGLY, THE ZR RETAINS THE 'PIXEL SHIFT SHOOTING' CAPTURE MODE FOR HIGHER-RES STILLS OF 96 MEGAPIXELS AND MORE ACCURATE COLOUR REPRODUCTION."



▲ External controls are kept to a minimum, but just about everything can be customised. The 'Fn2' button's default is exposure mode selection.



▲ Hotshoe is new 'Digital Accessory Shoe' – appearing for the first time on a Z mount camera – which supplies power and data communications to supported accessories.



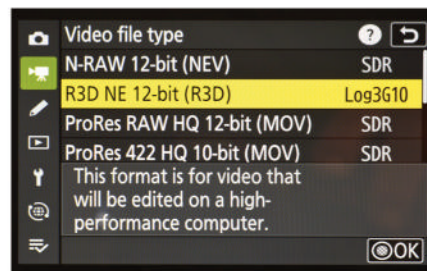
▲ Computer-style on/off button is similar to the Hasselblad X2D II. It glows green when the ZR is operational.



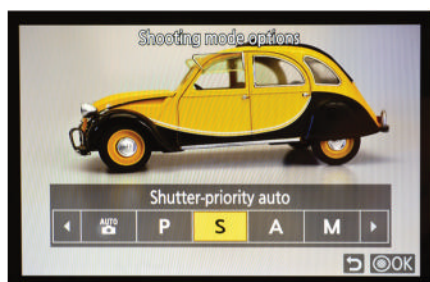
▲ Live view screen elements include a dual-axis level display, guide grid and a real-time histogram. You can cycle through up to four display designs.



▲ Focus point selection display in replay shows you exactly what the AF system was thinking.



▲ ZR adds RED's R3D NE 12-bit codec to the N-RAW and Apple ProRes HQ RAW options. All are recorded internally.



▲ Much of the ZR's operation can be done via on-screen submenus.

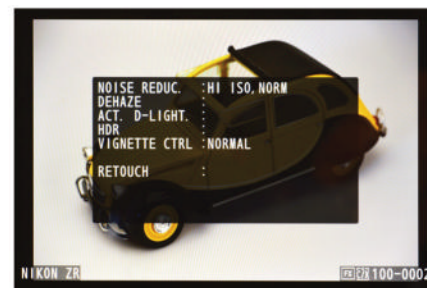
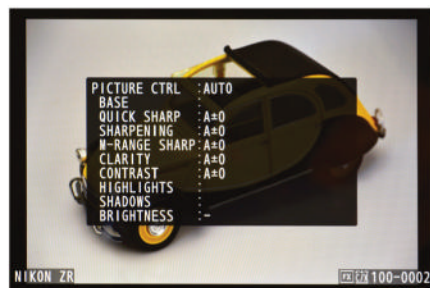
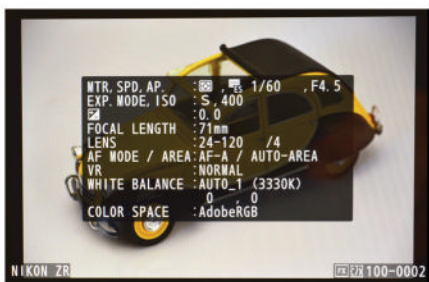


▲ The 'i-Menu' is the command centre of the ZR and is fully customisable, although the default set of functions is likely to meet most needs.



▲ ZR adds RED's R3D NE 12-bit codec to the N-RAW and Apple ProRes HQ RAW options. All are recorded internally.

▼ Review/replay screen cycles through a wide range of pages, including RGB channel histograms and info overlays for all the capture settings.



FORMATS AND FILES

The maximum still image size is 6048x4032 pixels with a choice of two smaller sizes. All RAW capture is with 14-bit colour regardless of the image size or the shooting speed, and the main RAW settings are 'High Efficiency' and 'High Efficiency*' along with a conventional lossless compressed option. The 'High Efficiency' settings employs a more efficient form of lossy compression – essentially using the H.265 video codec – to deliver close to the same image quality as an uncompressed RAW file, but at either one-third or one-half the file size.

HEIF capture is selected by switching the camera's Tone Mode setting from standard dynamic range (SDR) to HL (hybrid log gamma) high dynamic range. JPEGs and HEIFs can be captured at one of three compression levels and with a choice of three aspect ratios – 3:2, 1:1 and 16:9. There's both RAW+JPEG and RAW+HEIF capture options.

The sensor's native sensitivity range is from ISO 100 to 64,000 with extensions down to ISO 50 and up to ISO 204,800. Once again, this sensor has dual gain output circuitry with the two base levels for still

photography set at ISO 100 for the low-gain output – which helps optimise the dynamic range and colour saturation – and at ISO 800 for the high-gain output which optimises sensitivity, but also reduces the noise by, in this case, three stops.

Sensor shifting now up to eight stops of correction for camera shake – and has five-axis movements. There's the choice of Normal and Sport modes, the latter disabling the horizontal correction to allow for panning. There's also 'Focus Point VR' which links the stabilisation to the active focus point rather than only the centre of

MAKING MOVIES

Running through the ZR's video

features, capabilities and specifications gives you some idea of how good a hybrid model is the Z6III because it's pretty well the same in this department. The main difference is the addition of RED's R3D NE 12-bit RAW codec. It also has a RED CineBias LUT preloaded in the 'Custom Picture Controls' and there's the 32-bit 'float' levels adjustment for audio recording to prevent clipping and distortion with very loud volumes. For the record, the Nikon ZR is the first camera to have this built-in rather than available from a microphone adapter. While it lacks active cooling, Nikon says the camera's passive heat dissipation arrangement – which uses internal heat-dissipating sheets – is an effective substitute and allows for a quoted 125 minutes of running at 6K and 50/60 fps.

Thanks to the 'partially stacked' sensor's speed, the ZR delivers faster frame rates at all resolutions while the ability to handle more data internally delivers 6K video – using the full width of the sensor – in 12-bit N-RAW, R3D NE or Apple ProRes HQ RAW quality... and at up to 50/60 fps. The bit rate in N-RAW, by the way, is a massive 3730 Mbps with the high quality recording option switched on.

The N-RAW and R3D NE codecs are also available for 4K (at 4032x2268 pixels) up to 50/60 fps and for 4K (at 3984x2240 pixels) with the 'DX' format crop (i.e. 1.5x) at up to 120/100 fps. Likewise for Apple ProRes HQ RAW.

From here it's onto the compressed

codecs, starting with ProRes 422 HQ with All-Intra compression for 5.4K at up to 25/30 fps, 4K UHD at up to 50/60 fps and Full HD at up to 100/120 fps. The H.265 HEVC codec is served with LongGOP compression and either 8- or 10-bit 4:2:2 colour; for 5.4K at up to 50/60 fps and 4K UHD at up to 100/120 fps although these fastest frame rates have the 'DX' crop. The Full HD fast speeds run up to 200/240 fps for super slow-mo effects settings. The MP4 container is for the MPEG 4 AVC/H.264 codec with LongGOP compression and 8-bit 4:2:0 colour with the Full HD resolution up to 50/60 fps.

The ZR has three built-in MEMS stereo microphones for 24-bit 48 kHz PCM linear audio recording in the MOV and RAW formats. The audio functions comprise auto/manual levels, an attenuator, adjustable frequency response (wide range and vocal range) and a wind noise filter. In addition to the 32-bit floating recording, Nokia OZO Audio special technology enables a choice of five pick-up patterns. Both a stereo microphone input (switchable between mic or line level) and a headphone output (with adjustable volume) are provided. The HDMI output – surprisingly a micro Type D connection – supports up to 5.4K res with 10-bit 4:2:2 colour and 50 or 60 fps.

The video feature set includes the N-Log gamma profile, the HDR HLG profile, hybrid IBIS and electronic image stabilisation (which gives a 1.25x crop), time code support (with drop-frame correction), Atomos AirGlu BT support, time-lapse movies (2K or 4K), auto

flicker detection and correction, zebra patterns (a choice of two with adjustable highlight threshold and mid-tone range), and a waveform monitor display (which shows the luminance – or brightness – distribution in a scene). The upgraded AF control algorithms and the subject detection modes work as well for video as they do for still photography. Again, subject detection is also available with manual focus. All the 'Picture Control' and 'Creative Picture Control' settings are available for video which includes the newer Flat Monochrome and Deep Tone Monochrome B&W profiles and the Rich Tone Portrait colour profile for improved skin tone reproduction. Additionally, there's provisions for uploading LUTs, including RED Creative LUTs such as Film Bias, Film Bias Offset and Film Bias Bleach Bypass.

Apart its compact size and comparatively light weight for a cine-level camera, the ZR is also very affordable given its extensive capabilities and excellent performance. As noted in the main text, it's actually quite a bit cheaper than the Z6III, but also Sony's FX2 which probably its closest rival (it has an EVF, but is 4K only and not as fast). The cleaner form factor means it works well in a rig cage and also on a gimbal, but it is also definitely well-suited to hand-held shooting so it's also a very versatile camera too. Consequently, it makes us wonder how Nikon is managing to do it for such an affordable price, but we're not complaining. Right now, the Nikon ZR is the best value compact cine mirrorless camera on the market.

the image. This increases the effectiveness of the image stabilisation towards the edges of the frame if this is where the main subject is located. The caveats are that it won't work if you are using the 'Auto Area' AF mode for automatic point selection and it's selecting multiple focus points. It also doesn't work with the OIS-equipped Nikkor Z lenses and, mostly notably here, it isn't available when shooting video. Like the Z6III, the ZR supports 'Synchro VR' which works in conjunction with the optical stabilisation in a lens, adding to the efficacy of the corrections for pitch and yaw. This mostly comes into its own with longer lenses – when the degree of correction drops to perhaps as low as five stops – where it will help increase, although perhaps only by a small amount, the leeway for handheld shooting.

Interestingly, the ZR retains the 'Pixel Shift Shooting' capture mode for higher-res stills which can be set to capture four, eight, 16 or 32 shots with the options of a shutter delay timer (up to ten seconds) and an adjustable interval between shots

(up to 30 seconds). The four-shot setting records the full RGGB colour information at each pixel point – which enhances the overall reproduction since there's no interpolation involved – and the eight-shot option is essentially adding multi-shot noise reduction. Step up to 16 shots and you get full colour plus a boosted resolution of 96 megapixels (i.e. 4x24) with the 32-shot setting again adds lower noise to the mix. However, the camera still needs to be on a tripod and the subject static. And, also as before, 'Pixel Shift Shooting' only captures RAW files which have to be processed post-camera in Nikon's NX Studio software so, unfortunately, there's no JPEG option and no in-camera compositing which is now quite common elsewhere'

IT'S ALL ABOUT THE LOOK

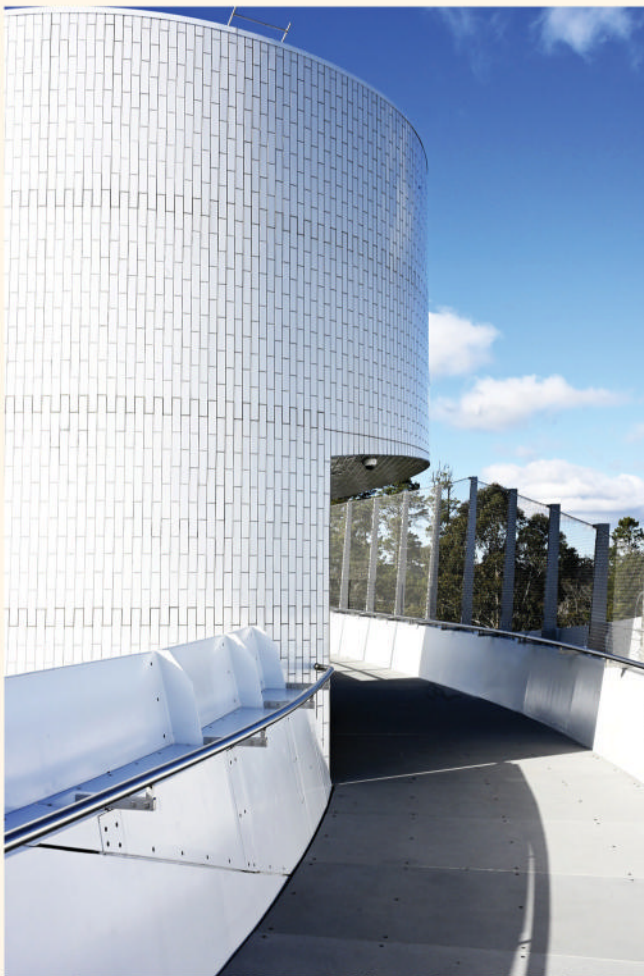
For in-camera processing, there's a choice of 11 'Picture Control' presets which includes an Auto mode and the newer Flat Monochrome, Deep Tone Monochrome and Rich Tone Portrait options that were originally introduced with the Zf. Flat Monochrome

delivers a softer tonal quality while Deep Tone Monochrome works in the same way that a red contrast filter does with B&W film. The Rich Tone Portrait setting is designed to enhance the reproduction of skin tones with a wider range of tonality while also managing the clipping of the brighter whites such as might happen with a bride's dress.

There's a further 20 'Creative Picture



THE ZR IS A VERY DIFFERENT CAMERA – BOTH PHYSICALLY AND IT TERMS OF ITS OPERATION – TO ITS PHOTO-ORIENTATED COUSIN, THE Z6III."



THE ALL-METAL BODYSHELL IS COMPARATIVELY SLIM WITH ONLY A HINT OF A HANDGRIP, BUT IT HANDLES SURPRISINGLY COMFORTABLY EVEN WITH A BIG AND HEAVY LENS ATTACHED."

Control' settings which are essentially special effects, but have the same choice of adjustment parameters as the standard picture presets along with a choice of ten effect levels. New is a set of HLG (i.e. HDR) 'Picture Control' profiles for use with HEIF capture and there are currently three settings –

Standard, Monochrome and Flat. These are obviously also available when shooting HDR video, and it's interesting to note that there's now a convergence between the 'baked in' picture profiles that have been the mainstay of photography and the downloadable LUTs (look-up tables) that are widely used in video and cine cameras. So the ZR has 'Cloud Picture Control' for the creation and downloading of 'Flexible Colour Picture Control' profiles for both stills and video. These are created in the NX Studio software and uploaded to the camera via a memory card, and they allow for much more customisation of the way an image (or video) looks. For example, you can adjust the hue, chroma and brightness for up to eight colours using the 'Colour Blender' control while there's a 'Colour Grading' tool for adjusting the colour in highlights, mid-tones and shadows. 'Flexible Picture Control' profiles created by other photographers can be directly downloaded to the camera from Nikon Image Cloud, and this library will become more extensive over time. You can also access RED's Creative LUT kit.

Up to nine 'Custom Picture Controls' can be created by adjusting eight parameters and the ZR has a CineBias Red profile already stored as C1. This applies RED's

colour grading in-camera and, of course, you can add other RED profiles to the 'Custom Picture Control' menu.

Aimed at photographers is the 'Skin Softening' function which was introduced with the Z8 and has the choice of Low, Normal or High settings. The ZR also has the 'Portrait Impression Balance' function from the Z8 (and Z6III) which provides three Mode settings which you create from adjustments for colour hue – over a magenta-to-yellow range – and brightness. This allows for the fine-tuning of the skin tone reproduction and is a more selective – and more precise – tool than trying to do the same thing with the white balance settings.

There's a multiple exposure facility which can combine up to ten shots (with various options for managing the overall brightness) and an intervalometer which can record up to 9999 frames in a sequence. Additionally, there's provision for adding in exposure bracketing at each point for up to nine shots which means, if so desired, you could record up to 9999x9 shots in a sequence.

The auto bracketing functions are for exposure, flash, exposure and flash, white balance and the camera's Active D-Lighting process for dynamic range expansion. Additionally, there's a 'Focus Shift Shooting' function which can capture up to 300 frames, adjusting the focus with each via a predetermined step from one (narrow) to ten (wide). These frames can subsequently be assembled post-camera for focus stacking.

The adjustable in-camera lens corrections are for vignetting, diffraction and distortion.

There's also the standard Nikon fare of 'Active D-Lighting' (ADL) processing to expand the dynamic range which, on the ZR, has a range of settings from Low to Extra High (plus Auto); noise reduction processing for both long exposures and high ISO settings; and an 'HDR Overlay' function which combines two images with each exposure adjusted to preserve more detail in the shadows and the highlights. The amount of exposure adjustment is set as the 'HDR Strength' from Low through to Extra High, or there's an Auto setting which adjusts according to the contrast range present in the scene.

STAYING FOCUSED

The ZR's autofocus system is carried over from the Z6III so it employs hybrid phase/contrast detection measurements using 299 points for stills and 253 points for video. AI-based detection covers nine subjects – people, dogs, cats, birds, aircraft, cars, motorcycles, bicycles and trains – which are contained in four main categories labelled People, Animal, Vehicle and Airplanes. Alternatively, they're all covered by an Auto setting which will anything from the subject list in the frame. The system samples at

120 fps so it can keep up with the ZR's fastest shooting speed, and the ZR also has the '3D Tracking AF' which has worked to great effect on Nikon's higher-end DSLRs and which simply follows whatever object is selected with the initial focus lock-on. It then uses the focusing distance and colour to track the subject, but it can also be used with the subject detection. Additionally, you can fine-tune the tracking's response to being blocked by another object from Quick to Delayed.

The area modes range in size from 'Pinpoint' to 'Auto Area AF' which is essentially using the full point count across the frame. In between are Single-Point AF, two 'Wide Area' modes – large or small – and three 'Dynamic Area' options – Small, Medium and Large – where, if the subject moves, the focusing point automatically switches to any of the surrounding ones. There are additionally are two custom 'Wide Area' modes which allow you to create your own shapes – either square or rectangular – from 1x1 up to 21x13 points.

As with the Z6III, the low light sensitivity extends down to EV -10 (at ISO 100 and f/1.2) without needing to resort to any special AF mode as was the case previously (the old 'Starlight View' mode).

The assists for manual focusing are a magnified image, a distance scale or a focus peaking display in a choice of four colours – red, white, yellow or blue – each with three intensity levels. It's also available with autofocus.

As noted earlier, the ZR only has a sensor-based shutter which has a speed



▲ A bit surprisingly for a video-first camera – and a higher-end model at that – the ZR only has a microHDMI port, yet the Z6III gets the full-size Type A connection.

◀ Test images captured as JPEG/large/ fine files, shutter-priority auto exposure control, Vivid 'Picture Control' preset and the ISO set between 100 and 800. Nikkor Z 24-120mm f/4.0 S zoom lens. The out-of-the-camera JPEGs exhibit plenty of crisply-defined detailing, silky smooth tonal gradations and a pleasing colour reproduction across the spectrum.

range of 15 minutes to 1/16,000 second with flash sync up to 1/60 second. There are also both 'B' and 'T' settings for even longer exposure durations. Following both Canon and Sony, the ZR is the first Nikon mirrorless camera to upgrade the hotshoe to a 'Digital Accessory Shoe'. This provides both power and data communications to supporting accessories which, as seen in the other systems, will be devices such as external microphones (Nikon has its new ME-D10 model). The new hotshoe gets a special cover to maintain the camera body's weather sealing when it's not being used.

Sensor-based metering gives the choice of multi-zone 'Matrix' metering, centre-weighted average, highlight-weighted average and spot measurements. Additionally, the multi-zone metering can be linked to face detection. With centre-weighted metering, the bias assigned to the central zone can be set to Small or Standard (which correspond to either 8.0 mm or 12 mm) or you can switch to a fully-averaged measurement which uses the whole frame area. The auto exposure modes are supplemented by an AE lock, up to +/-5.0 EV of compensation and auto bracketing (over two, three, five, seven or nine frames with up to +/-3.0 EV of adjustment).

For white balance control there's a choice of three auto correction modes called 'Keep White', 'Normal' and 'Keep Warm'. There also the 'Natural Light Auto' setting which was introduced with the Z system and essentially maintains a colour balance that looks natural to the human eye. There are eight lighting presets plus you can make and store up to six custom settings. Additionally, every WB settings has fine-tuning or you can manually set the colour temperature over a range of 2500 to 10,000 degrees Kelvin. The auto bracketing for white balance adjusts over a sequence of three frames.

IN THE HAND

As we've already noted, the ZR is a very different camera – both physically and in terms of its operation – to its photo-orientated cousin, the Z6III. The magnesium

alloy bodyshell is comparatively slim with only a hint of a handgrip, but it handles surprisingly comfortably even with a big and heavy lens attached... such as Nikkor Z 28-135mm f/4.0 power zoom that came with our test camera. With the more compact 24-120mm f/4.0 S zoom that we used for much of our testing, the ZR felt extremely well-balanced and as manoeuvrable, if not more so, than with the same lens on the Z6III.

The control layout may come as a shock at first because it is very different and transfers quite a bit of its operability to its very large touch screen monitor. In this regard though, it's quite similar to the way the Hasselblad X2D II works most of the time and, it has to be said, once mastered – which doesn't take very long – addictively quick and efficient. The computer-type on/off button is the same as on the 'Blad too, and glows green when the camera is powered up. There's no main mode dial, but exposure mode setting is the default of one of the three multi-function buttons on the top panel. Another accesses exposure compensation and another cycles through the live display options. There's a rear input wheel and a joystick-type controller which are the physical means of navigation – for the menus or focus points/zones – and the shutter release incorporates a power zoom lever (which will operate with the just-mentioned 28-135mm zoom). There's a good sized selector on the top panel for switching between the photo and video modes, but overall the ZR's external controls are pretty much pared down to a minimum so the key key – sorry – is the menu access button which brings up an on-screen 'i-Menu' and, from here, pretty much everything is at your fingertip... including the main menus. Now the ZR returns to familiar Nikon territory with a menu design, organisation and navigation that's carried over from rest of the Z mount clan and, more to the point, is very easy to get around. The 'i-menu' varies for photography, video and playback plus it's customisable should you want to change anything in the default group. However, this includes all the staples – such as exposure

THE CONTROL LAYOUT MAY COME AS A SHOCK AT FIRST BECAUSE IT IS VERY DIFFERENT AND TRANSFERS QUITE A BIT OF ITS OPERABILITY TO ITS VERY LARGE TOUCH SCREEN MONITOR."

modes, white balance, ISO, image quality, drive modes and the 'Picture Control' presets – so it will pretty much serve as your command centre.

Given the reduced number of external controls, the customisation options are more limited than on the likes of the Z6III, but just about everything can be assigned a different function if desired, including the power zoom lever and the joystick controller's press-in 'OK' action. The trio of multi-function buttons mentioned a few paragraphs earlier can be set to virtually anything that the ZR can do, so the list of assignable items is close to 80. While we noted with the Z6III that "external controls are everywhere", the ZR pares these down to the essentials and puts much more emphasis on its touch screen. You have to wonder whether a Z6III-type model would work better with this control configuration because it's certainly very efficient.

The monitor is a 10 cm TFT LCD panel with a resolution 3.07 megapixels resolution and, as you'd expect, full articulation for flexible positioning. It supports the wider DCI-P3 colour space – as does the X2D II's display incidentally – and has a brightness of 1000 nits. Consequently, it's a beauty – colourful, contrasty and super sharp – and really spoils you for anything less. It's adjustable for brightness over 15 levels and for colour temperature over blue-to-amber, green-to-magenta and all points in between



▲ Shutter release – which is also the video/stop start button – includes a power zoom lever.



▲ Memory card slots and battery share the same compartment in the ZR's base.



▲ Rear control panel comprises just three buttons... the important one is the menu access button in the centre.

► The Nikon ZR's sensor has a native ISO range of 100 to 64,000 with extensions down to ISO 50 and up to ISO 204,800. The sensor's dual-gain design means the noise reduction at the higher sensitivity settings starts from a higher base ISO and noise is inherently lower. The two base ISO settings for stills are at 100 and 800, and the output circuits optimised for dynamic range and colour saturation (i.e. low gain), and sensitivity (i.e. low noise). Colour saturation and definition are very well maintained up to ISO 25,600, but some noticeable softening starts to occur beyond this and the two extension settings are very grainy indeed. Nevertheless, it's a very strong high ISO performance overall. These images were captured as JPEG/ large/fine files with the aperture set to f/11 and the exposure time varied to compensate for the adjustments to the ISO. High ISO and Long Exposure noise reduction processing are both switched off. Nikkor Z 24-120mm f/4.0 S zoom lens.



ISO 50



ISO 100



ISO 200



ISO 400



ISO 800



ISO 1600



ISO 3200



ISO 6400



ISO 12800



ISO 25600



ISO 51200



ISO 64000



ISO 102400



ISO 204800

on a colour square.

Up to four live view screen displays can be configured from a selection of elements which include a guide grid (3x3 or 4x4), a real-time histogram, a dual-axis level indicator (two types) and two levels of info indicators. You can have everything on the one screen or cycle through your set-ups if you prefer less clutter. The ZR also has a 'Starlight View' setting for the live image which brightens all the dark areas in the frame to assist with composition and manual focusing when shooting at night.

Power comes from the current 'c' version of Nikon's long-serving EN-EL15 battery pack which has a 1900 mAh capacity to give a quoted shot count of around 390 shots or 90-95 minutes of video recording. In-camera charging and powering is available via its USB C connection.

Rather surprisingly given the ZR's primary application, it only has a Type D microHDMI port while the Z6III gets the full size connection. Go figure. The other interfaces are a 3.5 mm stereo audio input (mic or line level), a 3.5 mm output with volume control and the new accessory shoe. Wireless connectivity is via WiFi (either the 2.4 or 5.0 GHz bands) and Bluetooth 5.0 LE (via the Nikon SnapBridge app).

SPEED AND PERFORMANCE

Loaded with a SanDisk Extreme Pro 128 GB CFexpress Type B memory card and using the 'Continuous High Speed Extended' mode, the ZR captured a burst of 175 JPEG/ large/fine frames in 8.595 seconds which

represents a continuous shooting speed of 20.3 fps. The camera would have happily gone on shooting at this speed and image quality as the quoted burst length is huge, but we elected to stop the timing before it got there. These test files averaged 13.0 MB in size.

Not surprisingly, the autofocus performance is on a par with that of the Z6III so it's very responsive, fast and reliable when tracking subjects even if they are quite small or are moving very erratically (or both). If you're shooting people and an eye isn't detectable, the system progressively switches from the eyes to face, head or body detection in order to stay locked on the subject. Likewise with animals or birds which is a big plus given the unpredictable movement of these subjects. Furthermore, the '3D Tracking AF' works very effectively when shooting subjects that aren't covered by the recognition categories. The low light/contrast performance is exceptional and even in very dim conditions the subject acquisition is still virtually instantaneous and the subsequent tracking stays solidly locked up.

The imaging performance too, is very similar to that of the Z6III. The out-of-

the-camera JPEGs have plenty of crisply-defined detailing, silky smooth tonal gradations and excellent colour fidelity across the spectrum... with the usual well-judged Nikon balance of saturation and realism. We've noted previously that Nikon rivals Fujifilm in this regard, but hasn't previously offered the same choice of looks as the latter's 'Film Simulation' profiles, but that's all changing with the 'Cloud Picture Controls' which have the potential to offer an infinite choice of image recipes.

The sensor's dual-gain circuitry and dual base levels means that less aggressive noise reduction processing needs to be applied to JPEGs at the ISOs above 800 which benefits both the definition and the saturation and these higher sensitivity settings. Consequently, the image quality remains excellent all the way up to ISO 6400, with only small reductions in definition and saturation at ISO 12,800 and even at ISO 25,600. The ISO 51,200 setting is still useable too, as the visible noise remains finely grained while both the colour and contrast are more than acceptable, but the extensions start to get a bit noisy.

With RAW capture, the exposure latitude is in the order four stops so there remains plenty of flexibility when it comes to brightening the shadows.

THE VERDICT

This is an interesting one because the Nikon ZR is undoubtedly very much a video-first mirrorless camera and it lacks both a viewfinder and a physical focal plane shutter, but there is still quite a bit to like when shooting stills. Apart from having most of the photography features of the Z6III, the handling is brilliant and the mostly monitor-based functionality is very easy to get to know... and to love. The monitor



▲ The ZR fitted with the Nikkor Z 28-135mm f/4.0 S PZ power zoom. Even with a big and heavy lens like this fitted, the handling still feels balanced.

screen itself is just gorgeous and its extra brightness overcomes some of the issues when shooting in bright conditions (although not entirely). Additionally, the faster sensor means that you can still use flash provided you're happy syncing at 1/60 second (which is the way it was for a long time). There are quite a number of compact – and very affordable – Nikkor Z primes that could make the ZR a very handy street camera. And then there's the price difference compared to Z6III... which is at least \$500 depending on the discounts on offer, but likely more (and we saw the ZR on offer online at under \$3000 at a number on retailers).

Hmmm. Again, the deal-breaker for photographers will be the lack of an EVF, but if video is your priority and you want to lift your game with slicker productions, the Nikon ZR represents unbeatable value because it is just such a well-executed balance of handling, features, functionality and performance. Additionally, it's a thoroughly engaging and enjoyable camera to use whether shooting stills or video which was a bit unexpected, but a testimony to some well-thought-out design work. It's not hard to fantasise about this camera basically unchanged in just about all respects, but with an EVF installed within the bodyshell RF-style. Sign me up. 📸



THE DEAL-BREAKER FOR PHOTOGRAPHERS WILL BE THE LACK OF AN EVF, BUT IF VIDEO IS YOUR PRIORITY AND YOU WANT TO LIFT YOUR GAME, THE NIKON ZR REPRESENTS UNBEATABLE VALUE."

VITAL STATISTICS



NIKON ZR \$3499 body only, recommended retail price

Type: Professional-level digital mirrorless hybrid movie and stills camera with Nikon Z bayonet lens mount

Focusing: Automatic via 299 points for stills and 253 points for video using hybrid phase/contrast detection (273 points available for manual selection). Area modes are Pinpoint, Single-Point, Dynamic Area – Small, Dynamic Area – Medium, Dynamic Area – Large, Wide Area AF – Small, Wide Area AF – Large, Wide Area AF – Custom 1 and 2 (with 77 shape/size options from 1x1 to 21x13 points), Auto Area, 3D Tracking, Subject Tracking. Manual switching between one-shot and continuous modes for photography with auto switching in AF-F mode for video. Subject recognition

for humans (body/head/face/eye), animals (body/head/eye, and which includes dogs, cats and birds), cars, motorcycles, bicycles, trains and aircraft. Auto subject detection. 3D Tracking. Adjustable tracking sensitivity. Sensitivity range is EV -10.0 - 19 (ISO 100, f/1.2). Low light/contrast AF assist provided by built-in illuminator. AF micro-adjustment available. Manual focus assist in live view via subject detection with magnified image, magnified image (up to 16x) and/or focus peaking display (choice of colours – red, yellow, blue or white; and high, standard or low intensities).

Metering: TTL via sensor with multi-zone (Matrix metering), multi-zone with face detection, centre-

weighted average (8.0mm or 12 mm centre circle), full average, spot (4.0mm/1.5%), highlight weighted and i-TTL flash. Spot metering can be linked to AF point. Metering range is EV -4.0 to 17 (at f/2.0 and ISO 100).

Exposure Modes: Full auto, continuously-variable program with shift, shutter-priority auto, aperture-priority auto and metered manual

Shutter: Sensor-based shutter with a speed range of 900-1/16,000 second plus 'B' and 'T' modes and with flash sync up to 1/60 second. Exposure compensation is up to +/-5.0 EV in 1/3 or 1/2 stop increments. ▶

VITAL STATISTICS



Viewfinder: No built-in viewfinder. 10 cm TFT LCD monitor (16:10 aspect ratio) with 3.07 megapixels resolution, tilt/swing adjustments and touch screen controls. Adjustable for brightness (over 15 levels) and colour temperature.

Flash: No built-in flash. External flash units connect via a hotshoe (the 'Digital Accessory Shoe' which also supports compatible video/audio accessories).

Additional Features: Magnesium alloy bodyshell sealed against dust and moisture, auto exposure bracketing over two to nine frames (up to +/-3.0 EV adjustment per frame), AE lock, depth-of-field preview, all exposure adjustments in 1/3 or 1/2 stops, programmable self-timer (two to 20 seconds delay, up to nine frames at 0.5 to three seconds intervals), quiet shooting mode, external OLED read-out panel with built-in illumination, audible signals, wired remote control terminal, wireless remote control, 84 custom functions.

DIGITAL SECTION

Sensor: 24.5 million pixels (effective) partially-stacked BSI CMOS with 35.9x23.9 mm area. Sensitivity equivalent to ISO 100-51,200.

Focal Length Increase: None.

Formats/Resolution: Three JPEG compression settings (1:4, 1:8 and 1:16; with size or quality priority); three HEIF compression settings (1:4, 1:8 and 1:16; with size or quality priority); and lossless compressed or High Efficiency* or High Efficiency lossy compressed RAW files. Three resolution settings at 3:2 aspect ratio ('FX' format): 6048x4032, 4528x3024 and 3024x2016 pixels. Three resolution settings at 1:1 aspect ratio (24x24 mm): 4032x4032, 3024x3024 and 2016x2016 pixels. Three resolution settings at 16:9 aspect ratio (36x20 mm): 6048x3400, 4258x2544 and 3024x1696. Three resolution settings in 'DX' format (24x16 mm): 3984x2656, 2976x1992 and 1984x1328 pixels. RAW (NEF) images are captured at 6048x4032, 4528x3024 and 3024x2016 pixels with 42-bit RGB colour. RAW+JPEG/HEIF capture is possible (with all JPEG/HEIF compression levels).

Video Recording: R3D NE/N-RAW 12-bit – 6K at 6048x3402 pixels; 60, 50, 30, 25 or 24 fps (up to 3780 Mbps for HQ, and up to 1920 Mbps at normal quality). 4K at 4032x2268 pixels; 60, 50, 30, 35 or 24 fps (up to 1710 Mbps for HQ, and up to 880 Mbps at normal quality). 4K (DX crop) at 3984x2240 pixels; 120, 100, 60, 50, 30, 25 or 24 fps and 16:9 aspect ratio (up to 3340 Mbps for HQ, and up to 1730 Mbps at normal quality).

- Apple ProRes HQ RAW 12-bit – 6K at 6048x3402 pixels; 30, 25 or 24 fps. 4K at 4032x2268 pixels; 60, 50, 30, 35 or 24 fps (up to 5000 Mbps). 4K at 4032x2268 pixels; 60, 50, 30, 35 or 24 fps (up to 4470 Mbps). 4K (DX crop) at 3984x2240 pixels; 60, 50, 30, 25 or 24 fps and 16:9 aspect ratio (up to 4370 Mbps).
- MOV format (ProRes 422 HQ codec, All-Intra compression, 10-bit 4:2:2 colour) –
- 5.4K at 5376x3024 pixels; 30, 25 or 24 fps and 16:9 aspect ratio (up to 1920 Mbps). 4K UHD at 3840x2160 pixels; 60, 50, 30, 25 or 24 fps and 16:9 aspect ratio (up to 1960 Mbps). Full HD at 1920x1080 pixels; 120, 100, 60, 50, 30, 25 or 24 fps and 16:9 aspect ratio (up to 980 Mbps).
- MOV format (H.265 HEVC codec, LongGOP compression, 8- or 10-bit 4:2:2 colour) – 5.4K at 5376x3024 pixels; 60, 50, 30, 25 or 24 fps and 16:9 aspect ratio (up to 400 Mbps at 10-bit, and up to 370 Mbps at 8-bit). 4K UHD at 3840x2160 pixels; 120 (DX crop),

100 (DX crop), 60, 50, 30, 25 or 24 fps and 16:9 aspect ratio (up to 400 Mbps at 10-bit, and up to 370 Mbps at 8-bit). Full HD at 1920x1080 pixels; 240, 200, 120, 100, 60, 50, 30, 25 or 24 fps and 16:9 aspect ratio (up to 340 Mbps at 10-bit, and up to 300 Mbps at 8-bit).

- MP4 format (MPEG 4 AVC/H.264 codec, LongGOP compression, 8-bit 4:2:0 colour) – Full HD at 1920x1080 pixels; 60, 50, 30, 25 or 24 fps and 16:9 aspect ratio (up to 100 Mbps). Slow motion FHD video settings with output speeds at 30 fps x4, 25 fps x4 and 24 fps x5 (all at 30 Mbps).
- Stereo sound recording via three built-in microphones with auto/manual adjustable levels, 32-bit float auto levels adjustment and Nokia OZO Audio special technology with five pick-up patterns, adjustable frequency response, attenuator and wind noise filter. Stereo microphone/line level input and headphone output provided. Linear PCM (48 KHz, 24-bit) for video recorded in NEV or MOV format or AAC (48 KHz, 16-bit) for video recorded in MP4 format.
- Video Features: Nikon N-Log gamma profile, HDR HLG profile, hybrid IBIS and electronic image stabilisation, RAW video proxy recording (MP4, FHD, H.264, 8-bit 4:2:0 colour), shutter angle setting, time code support (with drop-frame correction), time-lapse movie mode (2K or 4K), auto flicker detection and correction, zebra patterns (choice of two with adjustable highlight threshold and mid-tone range, choice of colours), waveform monitor, time lapse video recording, focus peaking display, video aspect ratios (2.35:1, 1.85:1 and 90% 'safe zone'), 'ISO Fine Tune' provides 1/6 stop adjustment increments, Atomos AirGlu BT support.

HDMI Output: 5.4K 16:9 with 8/10-bit 4:2:2 colour and 60, 50, 30, 25 or 24 fps. 4K UHD 16:9 with 8/10-bit 4:2:2 colour and 120, 100, 60, 50, 30, 25 or 24 fps. Full HD 16:9 with 8/10-bit 4:2:2 colour and 120, 100, 60, 50, 30, 25 or 24 fps. N-Log or HLG with 10-bit 4:2:2 colour. Simultaneous recording to a memory card.

Recording Media: Two memory card slots; one for CFexpress Type B (with XQD support) and one for microSD devices with UHS-I speed support

Continuous Shooting: With CFexpress Type B or XQD memory cards; '1000+' frames at 20 fps – 'Continuous High Speed Extended' mode – in JPEG/large/fine or HEIF/large/fine modes or with RAW capture; with full AF/AE adjustment and using the sensor-based shutter. '1000+' frames in JPEG/large/normal mode at 15 fps in the 'High-Speed Frame Capture' C15 mode using the sensor-based shutter. '1000+' frames in JPEG/large/normal mode at 30 fps in the 'High-Speed Frame Capture' C30 mode using the sensor-based shutter. '1000+' frames at 60 fps in JPEG/large/normal mode in the 'High-Speed Frame Capture' C60 mode using the sensor-based shutter. '1000+' frames at 120 fps for JPEG/large/fine files in the DX/1.5x crop format (11.4 megapixels at 4128x2752 pixels) in the 'High-Speed Frame Capture' C120 mode using the sensor-based shutter. Full AF/AE adjustment at all shooting speeds. Sensor shutter allows 'Pre-Release Capture' at 0.3, 0.5 or 1.0 second with 'Post-Release Burst' at 1.0, 2.0, 3.0 seconds or MAX. Buffer limit can be set to 200 frames or 'infinity' (i.e. unlimited).

White Balance: Auto/manual control with 'Natural Light Auto', eight lighting presets and six custom settings. White balance fine-tuning available for AWB and all presets plus manual colour temperature setting (2500-10,000 degrees Kelvin, in ten degree increments or mired units) and white balance bracketing (up to nine frames). Three auto correction settings – Auto 0 'Keep White' reduces warmer hues under artificial

lighting. Auto 1 'Normal' balances subject colour and ambient lighting. Auto 2 'Keep Warm Lighting Colours' maintains warmer hues under incandescent lighting.

Interfaces: USB 3.0 'SuperSpeed' (Type C), HDMI (Type D), 3.5mm stereo audio input, 3.5mm stereo audio output, 10-pin accessory/remote trigger terminal.

Additional Digital Features: Sensor-shift image 'VR' stabilisation with five-axis movement and up to eight stops of correction for camera shake, 'Focus Point' VR stabilisation, 'Pixel Shift Shooting' (four, eight, 16 or 32 shots with RAW capture, up to 96 megapixels, tripod mode only), 'Active D-Lighting' contrast control (Auto, Low, Normal, High, Extra High), auto bracketing functions (AE, Flash, AE+Flash, WB or ADL), focus shift shooting (up to 300 frames), 11 'Picture Control' presets (Auto, Standard, Neutral, Vivid, Monochrome, Flat Monochrome, Deep Tone Monochrome, Portrait, Rich Tone Portrait, Landscape and Flat), three 'Picture Control HDG' presets (Standard, Monochrome, Flat), 20 'Creative Picture Controls' (Dream, Morning, Pop, Sunday, Sombre, Dramatic, Silent, Bleached, Melancholic, Pure, Denim, Toy, Sepia, Blue, Red, Pink, Charcoal, Graphite, Binary and Carbon), ten effect levels for 'Creative Picture Controls', adjustable 'Picture Control' parameters (Sharpening, Mid-Range Sharpening, Clarity, Contrast, Brightness, Saturation and Hue), with 'Quick Sharp' adjustment (for Sharpening, Mid-Range Sharpening and Clarity), B&W filters and toning effects, nine user-defined 'Picture Control' modes, 'Skin Softening' processing (Low, Normal, High), 'Portrait Impression Balance' (Mode 1, Mode 2, Mode 3), multiple exposure facility (up to ten frames with Add, Average, Lighten or Darken exposure adjustments), intervalometer (up to 9999 shots with exposure smoothing and silent mode), HDR dual-shot capture (Smoothing – High/Normal/Low; Exposure Difference Auto or 1/2/3 EV), auto bracketing functions (AE, flash, AE and flash, white balance and ADL), sRGB and Adobe RGB colour spaces, auto flicker detection and correction, HF flicker detection and correction, long exposure noise reduction (Off, On), high ISO noise reduction (Off, Low, Normal, High), 4x4 grid guide, real-time histogram, dual-axis level indicator, auto ISO with auto minimum shutter speed control, in-camera lens corrections (distortion, diffraction and vignetting), image comments input (up to 36 characters), copyright information, auto image orientation, adjustable image display time, slide show, 4/9/72 thumbnail displays, histogram displays (brightness and/or RGB channels), highlight alert, playback zoom (up to 32x), in-camera editing functions (Trim, Resize, D-Lighting, Red-Eye Correction, Straighten, Distortion Control, Perspective Control, Image Overlay, Trim Movie and RAW Processing), WiFi connectivity (2.4 or 5.0 GHz bands), Bluetooth 5.0 LE connectivity. May be fitted with optional GP-1/GP-1A GPS receivers and WT-7A/B/C WiFi wireless data transmitters.

Power: One 7.0 volt, 1900 mAh rechargeable lithium-ion battery pack (EN-EL15c type) with in-camera charging and powering.

Dimensions (WxHxD): Body only = 133.0x80.5x49.0 mm.

Weight: 540 grams body only (without battery or memory card).

Price: \$3499 body only. \$4449 with Nikkor Z 24-70mm f/4.0 S zoom. Nikon products purchased from an authorised Nikon Australia reseller are covered by a two-year warranty.

Distributor: Nikon Australia Pty Ltd, telephone 1300 366 499 or visit www.nikon.com.au

REPORT BY PAUL BURROWS

CANON AE-1 PROGRAM



AGING GRACEFULLY

As the legendary AE-1 celebrates 50 years – it was launched in early 1976 – we revisit the later (and even better) AE-1 Program model. Selling around 7.5 million units combined, both models helped establish Canon's reputation and put it at the top of the 35mm SLR market.

Along with millions of fledgling photographers in the late 1970s, the Canon AE-1 was my first taste of automatic exposure control in a 35mm SLR and also to a set of decent specifications which were previously beyond the budget. At high school, I'd started out with a base-level Praktica L2 before graduating to a Fujifilm ST605 which, as well as being much more compact, also had the luxury of a built-in TTL exposure meter. The AE-1 was definitely next level and, given what it offered at the time, comparatively affordable which is why it quickly became a best seller, setting Canon on its way to a long-term dominance of the 35mm SLR market. Like many too, I also

upgraded to the AE-1 Program when it was launched in 1981. A lot of these users would become rusted-on Canon users for decades to follow. Canon sold around 5.7 million AE-1s – which remained in production until 1984 – and 1.8 million AE-1 Programs.

Prior to the AE-1, Canon's 35mm SLR offerings were solid, but largely unremarkable although it had gained a loyal following with the likes of the mechanical enthusiast-level FTb (1971) and the mechanical F-1 (also 1971), its first professional system model. But the 1970s was a time of great change in 35mm SLR design with a move away from mechanical operation to an increased use of electronics primarily to

drive automatic exposure control. Some of Canon's main competitors were starting to do interesting and progressive things during the first five years of the decade. Olympus with its down-sized OM-1 (1972) – albeit still fully mechanical – and semi-automatic OM-2 (1975), Minolta with its semi-auto XE-7/XE-1 (1974), Konica with its semi-auto Autoreflex T3 (1973), the Pentax K2 (1975, but short-lived as the compact M series was launched the next year) and the quartz-timed Contax RTS (1975).

The next half of the decade would bring even more microprocessor-driven automation, but Canon was ready to be highly competitive, kicking off its new A series line with the AE-1 which was launched in April 1976.

As Canon has done many times since, the AE-1 wasn't a cheap camera, but it did offer more for your money as an enthusiast-level model, including a superior build quality and the backing of an extensive system of accessories, including an autowinder, a data back and a choice of flash units. Thanks to the use of microprocessor control – for the first time in a 35mm SLR – the AE-1 was also a lot more compact than its predecessors, although not quite as petite as the OM-1/OM-2 duo or Pentax's M series models. It used Canon's FD mount lenses – introduced with the F-1 in 1971 – which featured a breech-lock bayonet arrangement (as did the earlier FL series lenses). Once the lens was mounted onto the camera body, a ring located at the very rear of its barrel was turned to lock it in place (rather than the whole lens). Canon's main argument for this method of coupling a lens was that it reduced wear and tear on the mounts themselves, but it was generally accepted to be slower than a conventional bayonet fitting. It was dropped in 1979 with the introduction of the New FD lens system which adopted a quicker, one-handed twist-the-lens mounting action.

TIME LINE

The AE-1 set the styling and basic ergonomics for the subsequent Canon A series 35mm SLRs which continued with the mechanical AT-1 in December 1976 and the flagship A-1 in April 1978. This was also a very significant model as it was the first 35mm SLR with a proper programmed exposure mode whereby both the aperture and shutter speed were automatically set via the camera's CPU based on the metering measurement and the film speed setting. Minolta's XD-7 – released a year earlier – also technically allowed for automatic aperture and speed setting together, but not via a dedicated

program ('P') AE mode. Consequently, the A-1 was also the first 35mm SLR with a true 'PASM' set of exposure control modes. While not specifically designed to be a pro-level camera, the A-1 was nevertheless adopted by working photographers and was part of Canon's strategy to get them more accustomed to higher levels of automation. It was followed by the T90 which only left focusing as an exclusively manual operation.

The AV-1 was launched in 1979, one of a generation of 35mm SLRs which offered only aperture-priority auto exposure control in a bid to make them more appealing to beginners. As noted earlier, the AE-1 Program appeared in April 1981 and, like the A-1, it offered the option of fully programmed exposure control, but didn't have the latter's aperture-priority AE mode. The final A series model was the AL-1, introduced in 1982 and which had focus-assist indicators in the viewfinder which showed which way to turn the lens's focusing collar in order to focus the subject. Canon called this feature 'Quick Focus' (QF) and it was the earliest beginnings of autofocus in the 35mm SLRs as it used passive phase-difference detection measurements from a CCD sensor to drive visual indicators and an audible in-focus signal. Fitted with the FD 35-70mm f/4.0 AF zoom released in 1981, the AL-1 could autofocus, but so could any of the A series models and this lens focused automatically independent of the camera body. It incorporated a built-in passive distance detection module using a method Canon called 'Solid State Triangulation' – again employing a CCD sensor array – and a pair of AA-size batteries to drive its focusing motor so it was a bulky and curious-looking lens. For the record though, Pentax was first with its ME-F focus-assist body (1981) and the SMC Pentax AF 35-70mm f/2.8 zoom performed distance measurements through-the-lens (TTL) using this camera's dedicated MOS-type sensor which was located in the base of the mirror box. Consequently, the Pentax lens was less bulky overall, although it still required four AAA-size

THE 1970S WAS A TIME OF GREAT CHANGE IN 35MM SLR DESIGN WITH A MOVE AWAY FROM MECHANICAL OPERATION TO AN INCREASED USE OF ELECTRONICS PRIMARILY TO DRIVE AUTOMATIC EXPOSURE CONTROL."

batteries to drive its focusing motor. Down the track, though, Canon would ultimately trump everybody by adopting lens-based AF motors – as opposed to one in the camera body – right from the outset with its EOS system and all-new EF mount.

The seeds for all this future success were sown by the AE-1 and its successor, the AE-1 Program. The AE-1 was an instant hit, chalking up a million sales quite soon after its launch. By the time the AE-1 Program arrived, this number was four million and, together, the two models sold over six million units. From being an also-ran in the 35mm SLR business, Canon went to the top of the class... and stayed there.

GET WITH THE PROGRAM

While the body was largely unchanged from the AE-1, the AE-1 Program introduced some variations in its control layout. Most notably, the shutter speed dial moved from beneath the film advance lever to become a stand-alone control and the shutter release button was faired into a new plastic cover that extends over the advance lever. The film speed selector was moved to the other side of the top plate, and was repositioned below the film rewind crank handle. While the original camera's ergonomic were good,

this was a much better arrangement, sharing the key operational duties over both sides of the top panel.

Of course, the shutter speed dial gained a 'PROGRAM' position, with shutter-priority auto being the option plus, of course, full manual exposure control. The AE-1 was unusual when it was launched in that its semi-auto exposure mode was shutter-priority (i.e. the apertures are set automatically) when just about everybody else opted for aperture-priority control... the other exception being the Konica Autoreflex T3.

Aperture-priority auto was the easier route for many camera-makers to take in terms of the lens mount, but Canon's FD lens mount already allowed for full-aperture metering so adding auto aperture control was a fairly straightforward modification and on-going compatibility wasn't a problem either. For both program and shutter-priority auto exposure control, the lens's aperture collar is set to 'A'. With both auto and manual control, the shutter speed is 2-1/1000 second plus 'B' and with flash sync up to 1/60 second. There isn't a mechanical back-up speed to get you out of trouble if the battery dies. Certainly a carry-over from an earlier generation, the shutter itself employs rubberised silk cloth curtains which travel horizontally. While the earlier EF – introduced in 1973 – had a vertical-travel metal-bladed shutter (which was actually hybrid mechanical/electronic in operation), all the A series models had cloth shutters and it wasn't until the T series arrived in 1984 that Canon adopted metal shutters across the board.

Both AE-1 models had a battery compartment set into the front panel, but on the AE-1 Program, Canon modified the cover so it serves as a small handgrip which was another progressive touch at the time. The battery itself is a six-volt LR44/A544/PX28 cell which is still widely available as it's a type used in quite a number of other devices.

Auto exposure control was just the first step in camera automation so both the



▲ On the AE-1 Program, Canon turned the front compartment battery cover into a small handgrip. It does improve the handling.



▲ Unlike Canon's multi-mode A-1, the AE-1 Program lacked an aperture-priority auto exposure control option, but it was quite a bit cheaper at the time and still a very well-featured camera for the money.



▲ Main switch has three settings – 'A' for on, 'L' for off (i.e. lock) and 'S' for engaging the self-timer which is electronically timed.

CANON AE-1 PROGRAM

CLASSIC

► Rewind crank handle is lifted to pop open the camera back, but there's a locking tab to stop you doing this accidentally (i.e. before you've rewound the film).

AE-1 and the AE-1 Program were largely manual cameras in all other areas – i.e. the film transport, film speed setting and, of course, focusing. They retained a PC flash terminal, but also had a hotshoe and the feature set included a depth-of-field preview, an AE lock, a self-timer, a battery check button and interchangeable focusing screens... a bit of a luxury at this level. What's more the screens were user interchangeable, each being supplied with a special tool to make the job pretty straightforward. Among the other accessories for the AE-1P were the Motor Drive MA which is good for 4.0 fps (and also adds a substantial handgrip) or the more compact Power Winder A2 that does 2.0 fps.

IN THE HAND

While the AE-1 marked a switch to a lighter-weight ABS plastic top covers (while brass was retained for the baseplate) with an aluminium chassis and the electronics eliminated over 300 mechanical parts, it was still a fairly hefty camera by today's standards. The AE-1 Program – on which we'll now concentrate – weighs 575 grams body only and 778 grams with the FD 50mm f/1.4 standard lens that's fitted to our example here. It certainly feels very solidly-built and, although small, the 'Action Grip'



THE SEEDS FOR ALL CANON'S FUTURE SUCCESS WERE SOWN BY THE AE-1 AND ITS SUCCESSOR, THE AE-1 PROGRAM."



(as Canon called it) adds some extra comfort and security. There's a proper power switch which has three settings – 'A' for on, 'L' for off or lock, and 'S' for engaging the self-timer. It's electronically timed rather than clockwork and can be cancelled using the battery check button. Another feature of the move into the electronic era, audible signals are used for both the self-timer countdown and the battery power check function.

The TTL metering employs an SPD (silicon photo diode) cell – as did the original AE-1 – with centre-weighted average measurements and a sensitivity range of EV 1.0 to 18 at ISO 100 and f/1.4. SPD-based metering in 35mm SLRs – first introduced by Fujifilm in 1971 in the Fujica ST701 – offered much-improved low-light sensitivity and better responsiveness compared to the earlier CdS (cadmium sulphide) meters. Canon actually used the terminology 'Silicon Photo Cell' (abbreviated to SPC), but is an SPD doing the work. The camera's film speed setting range spans ISO 12 to 3200.

The viewfinder is surprisingly bright and crisp thanks to the use of the finer-textured laser-matte focusing screen which reduces diffusion. The standard screen has a split-image rangefinder surrounded by a microprism collar, but the former uses crossed prisms – which was a world first when introduced on the AE-1 – so it remains fully visible with slower lenses. The (then) conventional single-angle echellette rangefinder prism would black out by around f/4.0. The viewfinder provides roughly 94

percent scene coverage.

The AE-1 Program replaced the previous model's simple needle and aperture scale viewfinder display with a set of multi-coloured LEDs. These show the aperture (either auto selected or recommended for manual setting) with both under/overexposure and camera shake warnings plus indicators for the 'P' and 'M' exposure modes and a flash ready (i.e. it's fully recharged) signal. The display is activated by either pressing the shutter release button to its half-way metering position or by pressing the camera's 'Exposure Preview Button', located on the lens mount binnacle.

While centre-weighted metering is a lot more reliable than fully-averaged measurements – especially if the main subject is in the centre of the frame – it's by no means goof-proof... which is where the AE-1 Program's AE lock proves handy. It holds a meter reading – and the auto exposure settings – while you recompose the scene as might be needed when the subject is located off-centre or you particularly want either a high-key or low-key exposure.

Of course, the metering, the viewfinder displays and the shutter require battery power, but as noted earlier, the good news is that they're still readily available and at the right voltage so no adjustments need to be made to exposures.

Film loading is quite straightforward with the leader tongue easily threaded onto the slotted take-up spool. The advance lever is



▲ Battery check button delivers audible signals to indicate power levels. It also cancels the self-timer operation.



▲ Located on the lens mount binnacle, the top button engages the AE lock while the button below is for exposure preview... to be specific, exposure *settings* preview.



▲ Depth-of-field preview lever folds out for easier activation. It also enables stopped-down metering when using an FL series lens.



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CANON AE-1 PROGRAM

single-action with a 120-degrees through and 30-degree stand-off position, but it's clutchless so ratcheted winding (i.e. using multiple smaller strokes) is possible, but frankly not necessarily any quicker. After rewinding the exposed film, the rewind crank-handle pops the camera back when it's pulled up, but there's a locking tab to prevent you from doing this accidentally.

USING TODAY

Despite its vintage, the AE-1 Program still feels surprisingly modern to use and the same is true of the AE-1, albeit without the added convenience of programmed exposure control. Both models handle nicely, but the AE-1 Program is the better organised ergonomically and has the better viewfinder experience. Even if you're new to shooting 35mm film, everything works quite logically and smoothly, making it an excellent choice as a classic – but very usable – camera purchase.

The high production volumes means that both volumes are quite widely available on the used market and at sensible prices... likewise Canon's second-generation New FD mount lenses which were also widely available from third-party manufacturers such as Tokina, Sigma and Tamron (via its Adaptall-2 interchangeable mount system). Consequently, you can afford to be picky



EVEN IF YOU'RE NEW TO SHOOTING 35MM FILM, EVERYTHING WORKS QUITE LOGICALLY AND SMOOTHLY, MAKING IT AN EXCELLENT CHOICE AS A CLASSIC – BUT VERY USABLE – CAMERA PURCHASE."



about condition as there are plenty of AE-1P bodies in mint or near-mint condition out there. Reliability problems are few, apart from the usual old camera issues of deteriorating foam light seals and drying lubrication on the shutter assembly which manifests itself as distinct squeak during shutter release. Mirror bumper foams can degrade too, but this won't unduly affect the camera's operation. Foams can be replaced D-I-Y – kits are readily available if you search online – but fixing the shutter lubrication will need expert help. A CLA service – Clean, Lubricate, Adjust – will fix all these problems (assuming you have access to a qualified camera repairer). However, it should be noted that you can find later-build AE-1 Programs without any of these issues at all and this appears, subjectively at least, to be more the case than with rival models of a similar vintage from other brands. Certainly, Canon also introduced new and more advanced methods of volume manufacturing with its A series line – as well as new materials – and the quality control improved greatly as a result.

Incidentally, you can check a camera's date of manufacture by looking inside the film cassette compartment where there's a faint code printed. You'll have look hard

because it's black-on-black and is only visible at certain angles. The AE-1P featured here is marked 'A1135' with the letter being the year of manufacture – in this case 1986 – and the first number or two numbers representing the month so '11' is the month of November. The remaining two numbers are factory codes of some description. Canon's year codes started in 1960 with 'A' and progressed through to 'Z' in 1985. It then went back to 'A' for 1986.

THE VERDICT

When it was launched 50 years ago, the AE-1 was a great camera and, a few years later, the AE-1 Program was even better. The same is true today with both making excellent classic camera choices, but the AE-1P the better bet. It's easy to use, exceptionally reliable and still offers plenty of user involvement, but with a few more modern luxuries thrown in which only serve to enhance the overall enjoyment. It's not really surprising that rumours persist of a revived AE-1, but this will most likely be a retro-styled digital mirrorless camera and not a return by Canon to 35mm film. If it's anything like Nikon's Zf, it'll still be brilliant, but it won't beat the originals for history, character and sheer charm.



▲ Canon's FD lenses allowed for full-aperture metering from the start so adding auto aperture control was a fairly straightforward modification.



▲ Film loading is very straightforward thanks to a slotted take-up spool which makes it quick and largely goof-proof.



▲ Film speed selector is located below the film rewind crank and has a setting range of ISO 12 to 3200.

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WINNER

A great photograph should always have viewers intrigued and it certainly takes a while to appreciate what's going on with **Paul Watson's** image titled (which is obviously a big clue to the subject matter). The graphic composition and the contrast between the soft and swirling snowbanks and sharper ice formations creates a dramatic and compelling study. Paul says that the original was shot in colour and converted to B&W so the tonal qualities are better emphasised. He used a Fujifilm X-T2 fitted with the Fujinon XF 18-135mm f/3.5-5.6 R LM OIS WR zoom lens.

2026 SIGMA SHOWCASE

SiSigma lenses is the sponsor for our Showcase competition, made possible through the generosity of the Australian distributor, C.R. Kennedy & Company Pty Ltd. The grand prize for the 2026 Sigma Showcase is a Sigma lens to the value of \$1000 and the winner can pick the model and the mount that they'd like.

Additionally, the winner of each round receives a complimentary six-issue subscription to *Australian Camera* magazine. If you already subscribe, your prize subscription will commence upon the expiry of your existing paid one. You can enter the Sigma Showcase as many times as you like during the year, submitting up to four photographs each time. The entries received after the 2025 competition's closing

date of 31 December 2026 will be automatically entered in the 2027 Sigma Showcase which kicks off on 1 January 2027.

Note that it is not a requirement that entries to the Sigma Showcase be taken with a Sigma camera or lens. Read the accompanying rules carefully and get snapping.

ENTRY GUIDELINES

You can enter the Sigma Showcase by emailing your entries as attachments to camera@futurenet.com. Please note that we are no longer accepting physical entries.

The requirements for submitting digital files are as follows.

300 dpi resolution, and at a file size which enables a reproduction of up to 20x15 cm. Please avoid submitting overly large file sizes, especially when emailing the images. Up to 2.0 MB in file size is more than sufficient.

- Digital retouching and manipulation is permitted, but the judges will continue to reward good in-camera techniques.

- Full details of the camera, lens and any retouching must be supplied with the image. Images can be titled if you wish, but this isn't essential.
- Up to four images may be permitted per entry.

What We Need To Know: We'd like to know a bit about your entries, so supplying the details below will help the judges better assess your images. Please feel free to add any other information that you feel is important.

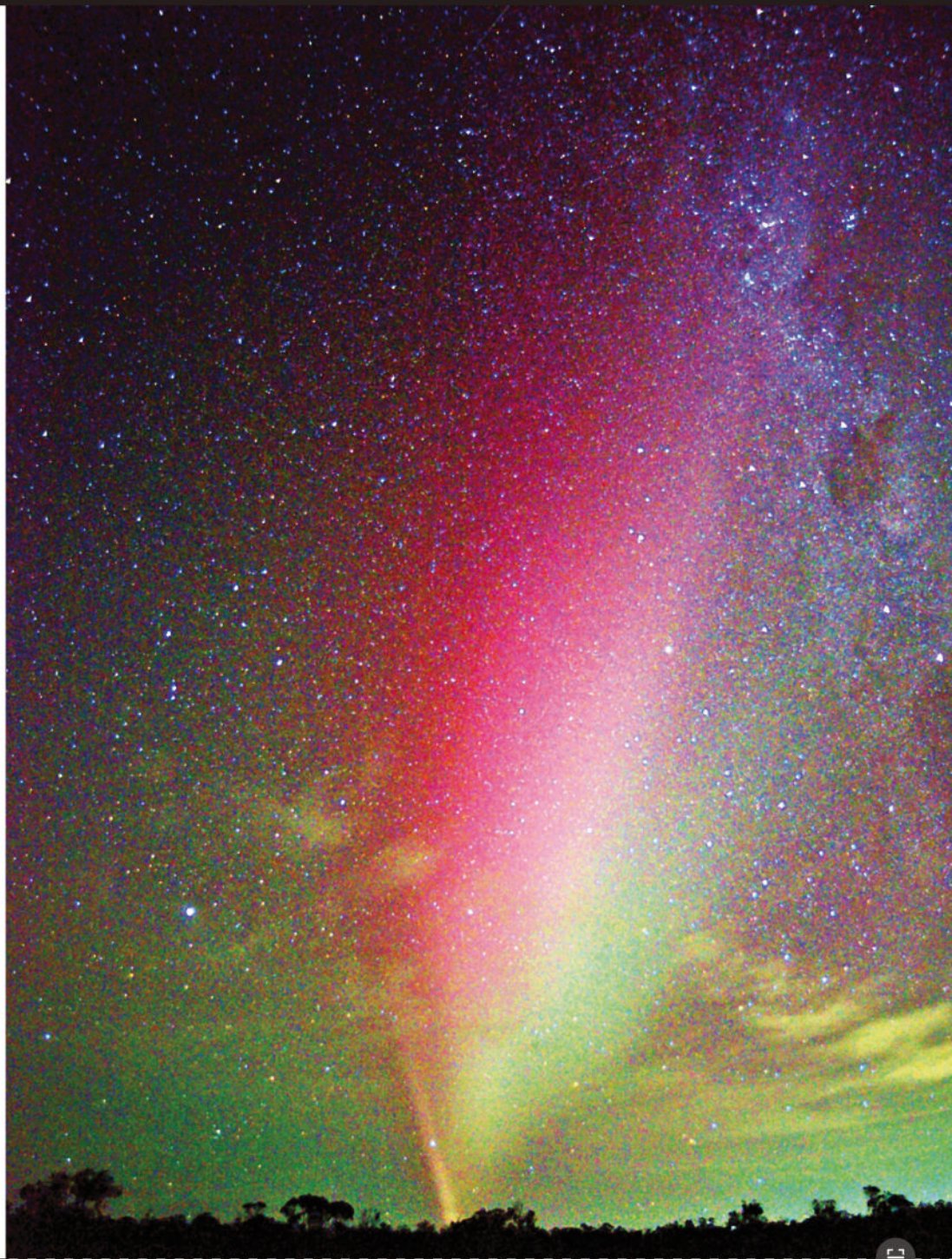
- | | |
|--|-----------------------------------|
| • Title (optional) | • Location and/or situation |
| • Camera | • Post camera processing (if any) |
| • Lens | • Additional Comments |
| • Exposure - shutter speed, aperture and ISO | • Your mailing address |

2026 SIGMA SHOWCASE – THIRD ROUND WINNERS

HIGHLY COMMENDED

It's a phenomenon known as STEVE – Strong Thermal Emission Velocity Enhancement – which sometimes occurs alongside auroras and it's beautifully captured here by **John Walker**.

The location is central Tasmania and well away from any light pollution. Astrophotography is technically demanding, but John adds to the visual impact with his framing and composition. He used a Nikon D800 fitted with a Tokina 20-35mm f/3.5-4.5 wide-angle zoom set at 20mm. For those who are interested, the exposure was 15 seconds at f/4.0 and ISO 6400.



Tell us how you did it! When you enter the Sigma Showcase, remember to explain any tips and techniques you used to achieve the result. Also, let us know the type of camera and lens. Enter by email (see next page).

1. Title _____ Camera _____ Lens _____

2. Title _____ Camera _____ Lens _____

3. Title _____ Camera _____ Lens _____

4. Title _____ Camera _____ Lens _____

Name _____ Telephone _____

Address _____ State _____ Postcode _____

Email to: camera@futurenet.com

THIS CHECKLIST is designed to allow direct comparisons between different camera models, listed here in price order within each brand. The published prices are mostly supplied by the distributors as recommended retail prices (RRPs). However, some distributors no longer supply RRP's to the media, so it has become necessary to determine an 'estimated street price' derived from the range of prices for a model published by retailers. Where this has been necessary, the letter 'E' appears at the start of the entry.

A dot appearing in a column indicates that the feature is available on the camera model listed. Where a specification or product detail hasn't yet been published or confirmed, the letters TBA (to be announced) or TBC (to be confirmed) are used. If a feature is irrelevant to a particular model – such as mirror lock-up for compact system cameras – then n/a (not applicable) is used. Every effort is made to ensure accuracy; please send any corrections to camera@futurenet.com.



				Sensor Size	Sensor Type	File Formats	Memory Cards				Exposure Modes		Features															
													Shutter Speeds	Manual	Shutter Priority	Aperture Priority	Subject Programs		Anti-Dust	FHD Video	4K Video	Anti-Shake In Body	Wi-Fi	Weather Proofing	Monitor Size (cm)	Weight (Body Only)	Review Issue	
Model	Price (Body Only Unless Noted With Asterisk *)	Megapixels (Effective)	Full-Frame	Four-Thirds APS/DX	CCD	CMOS	Foveon	RAW	TIFF	JPEG	CF/XD/Class	Memory Stick	SD/SDHC/SDXC															
Canon EOS 1500D*	\$849	24.1	•	•	•	•	•	•	•	•	•	•	•	3	150	9	63	•	•	•	•	•	•	•	•	7.62	475	Jul/Aug '18
Canon EOS 5D Mark IV	\$3,699	30.4	•	•	•	•	•	•	•	•	•	•	•	7	U	61	150K	•	•	•	•	•	•	•	•	8.1	890	Jan/Feb '17
Nikon D7500	\$1,599	20.9	•	•	•	•	•	•	•	•	•	•	•	8	100	51	180K	•	•	•	•	•	•	•	•	8.1	640	
Nikon D780	\$3,599	24.5	•	•	•	•	•	•	•	•	•	•	•	7	100	51	180k	•	•	•	•	•	•	•	•	8.1	755	Jul/Aug '20
Nikon D850	\$4,599	45.7	•	•	•	•	•	•	•	•	•	•	•	7	200	153	180K	•	•	•	•	•	•	•	•	8.1	915	Nov/Dec '17
Pentax K-3 Mark III	\$2,995	25.73	•	•	•	•	•	•	•	•	•	•	•	12	37	101	307K	•	•	•	•	•	•	•	•	8.1	735	Issue 423
Pentax K-1 Mark II	\$3,399	36.4	•	•	•	•	•	•	•	•	•	•	•	4.4	70	33	86K	•	•	•	•	•	•	•	•	8.1	925	
Pentax K-3 III Monochrome	\$3,499	25.73	•	•	•	•	•	•	•	•	•	•	•	12	55	101	307K	•	•	•	•	•	•	•	•	8.1	735	

DIGITAL NON-TTL OVF/EVF INTERCHANGEABLE LENS CAMERAS

Leica M EV1	\$14,200	60.3	•	•	•	•	•	•	•	4.5	100	MF	TBC	•	•	•	•	•	•	•	•	•	7.5	413	Issue 435
Leica M11	\$16,500	60.3	•	•	•	•	•	•	•	4.5	100	MF/RF	TBC	•	•	•	•	•	•	•	•	•	7.5	455	Mar/Apr '22
Leica M11-P	\$16,500	60.3	•	•	•	•	•	•	•	4.5	100	MF/RF	TBC	•	•	•	•	•	•	•	•	•	7.5	455	Issue 425
Leica M11-D	\$17,300	60.3	•	•	•	•	•	•	•	4.5	100	MF/RF	TBC	•	•	•	•	•	•	•	•	•	457		
Leica M11 Monochrom	\$17,500	60.3	•	•	•	•	•	•	•	4.5	100	MF/RF	TBC	•	•	•	•	•	•	•	•	•	7.5	461	

MIRRORLESS CAMERAS

Canon EOS R100*	\$1,099	24.1	•	•	•	•	•	•	•	6.5	97	3975	384	•	•	•	•	•	•	•	•	•	7.5	309	
Canon EOS R50*	\$1,399	24.2	•	•	•	•	•	•	•	15	28	4503	384	•	•	•	•	•	•	•	•	•	7.5	328	Issue 423
Canon EOS R50 V	\$1,169	24.2	•	•	•	•	•	•	•	15	28	4503	384	•	•	•	•	•	•	•	•	•	7.5	323	
Canon EOS R10*	\$1,649	24.2	•	•	•	•	•	•	•	23	123	4503	384	•	•	•	•	•	•	•	•	•	7.62	429	Issue 419
Canon EOS RP	\$1,819	26	•	•	•	•	•	•	•	5	U	4779	384	•	•	•	•	•	•	•	•	•	7.62	440	May/June '19
Canon EOS R7	\$2,299	32.5	•	•	•	•	•	•	•	30	184	5915	384	•	•	•	•	•	•	•	•	•	7.62	612	Jul/Aug '22
Canon EOS R8	\$2,599	24.2	•	•	•	•	•	•	•	40	1000+	4897	384	•	•	•	•	•	•	•	•	•	7.5	414	Issue 423
Canon EOS R6 Mark II	\$3,299	24.2	•	•	•	•	•	•	•	40	190	4897	384	•	•	•	•	•	•	•	•	•	7.62	588	Issue 421
Canon EOS R6 V	\$3,599	32.5	•	•	•	•	•	•	•	40	330	6097	384	•	•	•	•	•	•	•	•	•	7.62	598	Issue 438
Canon EOS R6 Mark III	\$4,299	32.5	•	•	•	•	•	•	•	40	330	6097	384	•	•	•	•	•	•	•	•	•	7.62	609	Issue 437
Canon EOS R5	\$4,799	45	•	•	•	•	•	•	•	20	350	5940	384	•	•	•	•	•	•	•	•	•	8.1	650	Sept/Oct '20
Canon EOS R5 Mark II	\$6,699	45	•	•	•	•	•	•	•	30	760	5850	6144	•	•	•	•	•	•	•	•	•	8.1	588	Issue 428
Canon EOS R3	\$8,199	24.1	•	•	•	•	•	•	•	30	540	4779	384	•	•	•	•	•	•	•	•	•	8.1	915	Jan/Feb '22
Canon EOS R1	\$10,990	24.2	•	•	•	•	•	•	•	40	500	4368	6144	•	•	•	•	•	•	•	•	•	8.1	920	
Fujifilm X-T30 Mark III	\$1,679	26.1	•	•	•	•	•	•	•	20	127	425	256	•	•	•	•	•	•	•	•	•	7.62	329	Issue 436
Fujifilm X-M5	\$1,449	26.1	•	•	•	•	•	•	•	20	127	425	256	•	•	•	•	•	•	•	•	•	7.62	307	Issue 430
Fujifilm X-S20	\$2,299	26.1	•	•	•	•	•	•	•	20	256	425	256	•	•	•	•	•	•	•	•	•	7.62	410	Issue 424
Fujifilm X-T50	\$2,399	40.2	•	•	•	•	•	•	•	20	168	425	256	•	•	•	•	•	•	•	•	•	7.62	389	Issue 428
Fujifilm X-E5	\$2,699	40.2	•	•	•	•	•	•	•	20	168	425	256	•	•	•	•	•	•	•	•	•	7.62	396	Issue 433
Fujifilm X-T5	\$2,899	40.2	•	•	•	•	•	•	•	15	119	425	256	•	•	•	•	•	•	•	•	•	7.62	476	Issue 422
Fujifilm X-H2	\$3,399	40.2	•	•	•	•	•	•	•	13	1000+	425	256	•	•	•	•	•	•	•	•	•	7.62	579	Issue 420
Fujifilm X-H2S	\$3,999	26.1	•	•	•	•	•	•	•	40	1000+	425	256	•	•	•	•	•	•	•	•	•	7.62	579	Jul/Aug '22
Leica SL3-S	\$9,300	24.6	•	•	•	•	•	•	•	30	175	779	TBC	•	•	•	•	•	•	•	•	•	8.1	768	Issue 433
Leica SL3-P	\$10,500	44.3	•	•	•	•	•	•	•	40	80	819	TBC	•	•	•	•	•	•	•	•	•	8.1	768	
Leica SL3	\$12,500	60.3	•	•	•	•	•	•	•	15	70	315	TBC	•	•	•	•	•	•	•	•	•	8.1	769	Issue 429



Photo: Seiichi Nakamura

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				Sensor Size	Sensor Type	File Formats	Memory Cards					Exposure Modes					Features																			
Model	Price (Body Only Unless Noted With Asterisk*)	Megapixels (Effective)		Full-Frame	APS/DX	Four Thirds	CMOS	Foreon	RAW	TIF	Compact Flash	Memory Stick	SD/SDHC/SDXC + microSD	Continuous Shooting Speed (fps)	Buffer Length (Unlimited) Max. Resolution	Autofocus Points	Metering Zones	Program	Subject Programs	Aperture Priority	Shutter Priority	Manual	Shutter Speeds		Built-In Flash	Anti-Dust	FHD Video	4K Video	Anti-Shake In Body	Wi-Fi	Built-In Viewfinder	Weather Proofing	Monitor Size (cm)	Weight (Body Only)	Review Issue	
	* single lens kit ** twin lens kit																																			
Leica SL3 Reporter	\$12,900	60.3	•				•	•	•	•	•	•	•	15	70	315	TBC	•	•	•	•	•	3600-1/16,000		•		•	•	•	•	•	•	•	8.1	769	
Nikon Z30*	\$1,549	20.9		•			•	•	•	•	•		•	11	71	209	TBC	•		•	•	•	30-1/4000	•			•	•		•			7.5	350		
Nikon Z50II	\$1,599	20.9		•			•	•	•	•	•		•	30	200	231	TBC	•	•	•	•	•	900-1/4000	•			•	•		•	•		8.1	495		
Nikon Zfc*	\$2,049	20.9		•			•	•	•	•	•		•	11	71	209	TBC	•	•	•	•	•	30-1/4000	•			•	•		•	•		7.5	390	Nov/Dec '21	
Nikon Z5	\$2,399	24.3	•				•	•	•	•	•		•	4.5	100	273	TBC	•		•	•	•	30-1/8000		•		•	•	•	•	•	•	8.1	590	Jan/Feb '21	
Nikon Z5II	\$2,699	24.5	•				•	•	•	•	•		•	30	120	299	TBC	•		•	•	•	900-1/8000		•		•	•	•	•	•	•	8.1	620	Issue 431	
Nikon Z6II	\$3,699	24.5	•				•	•	•	•	•		•	14	200	273	TBC	•		•	•	•	900-1/8000		•		•	•	•	•	•	•	8.1	615	May/June '21	
Nikon Zf	\$3,499	24.5	•				•	•	•	•	•		•	30	120	273	TBC	•		•	•	•	900-1/8000		•		•	•	•	•	•	•	8.1	630	Issue 425	
Nikon Z6III	\$4,499	24.5	•				•	•	•	•	•		•	60	1000+	299	TBC	•		•	•	•	900-1/16,000		•		•	•	•	•	•	•	8.1	660	Issue 429	
Nikon Z7II	\$5,549	45.7	•				•	•	•	•	•		•	10	200	493	TBC	•		•	•	•	900-1/8000		•		•	•	•	•	•	•	8.1	615		
Nikon Z8	\$7,449	45.7	•				•	•	•	•	•		•	20	1000+	493	TBC	•		•	•	•	900-1/32,000		•		•	•	•	•	•	•	8.1	820	Issue 424	
Nikon Z9	\$9,899	45.7	•				•	•	•	•	•		•	30	1000+	493	TBC	•		•	•	•	900-1/32,000		•		•	•	•	•	•	•	8.1	1160	Jan/Feb '22	
Olympus OM-D E-M10 IV	\$949	20.3			•	•	•	•	•	•	•		•	15	49	121	324	•	•	•	•	•	60-1/16,000	•	•		•	•	•	•	•	•	7.62	335	Nov/Dec '20	
OM System OM-5	\$1,499	20.4			•	•	•	•	•	•	•		•	30	20	121	324	•		•	•	•	60-1/32,000		•		•	•	•	•	•	•	7.62	366	Issue 421	
OM System OM-5 Mark II	\$1,699	20.4			•	•	•	•	•	•	•		•	30	TBC	121	324	•		•	•	•	60-1/32,000		•		•	•	•	•	•	•	7.62	370	Issue 433	
OM System OM-1	\$2,699	20.4			•	•	•	•	•	•	•		•	120	92	1053	324	•		•	•	•	60-1/32,000		•		•	•	•	•	•	•	7.62	511	Mar/Apr '22	
OM System OM-3	\$3,199	20.4			•	•	•	•	•	•	•		•	120	90	1053	324	•		•	•	•	60-1/32,000		•		•	•	•	•	•	•	7.62	413	Issue 430	
OM System OM-3 ASTRO	\$3,399	20.4			•	•	•	•	•	•	•		•	120	90	1053	324	•		•	•	•	60-1/32,000		•		•	•	•	•	•	•	7.62	413	Issue 430	
OM System OM-1 Mark II	\$3,599	20.4			•	•	•	•	•	•	•		•	120	219	1053	324	•		•	•	•	60-1/32,000		•		•	•	•	•	•	•	7.62	511	Issue 427	
Panasonic Lumix G100D*	\$1,299	20.3			•	•	•	•	•	•	•		•	10	480	49	1728	•	•	•	•	•	60-1/16,000	•	•		•	•	•	•	•	•	7.62	303		
Panasonic Lumix G97*	\$1,599	20.3			•	•	•	•	•	•	•		•	9	300	49	1728	•	•	•	•	•	60-1/16,000	•	•		•	•	•	•	•	•	7.62	484	Nov/Dec '19	
Panasonic Lumix GH5 II	\$2,099	20.3			•	•	•	•	•	•	•		•	12	999	225	1728	•		•	•	•	60-1/16,000		•		•	•	•	•	•	•	7.5	647	Sept/Oct '21	
Panasonic Lumix S9	\$2,699	24.2	•				•	•	•	•	•		•	30	36	779	1728	•		•	•	•	60-1/8000		•		•	•	•	•	•		7.62	403		
Panasonic Lumix S5II	\$3,199	24.2	•				•	•	•	•	•		•	30	300+	779	1728	•		•	•	•	60-1/8000		•		•	•	•	•	•	•	7.62	657	Issue 422	
Panasonic Lumix G9 II	\$3,299	25.2			•	•	•	•	•	•	•		•	75	225	779	1728	•		•	•	•	60-1/32,000		•		•	•	•	•	•	•	7.62	575	Issue 427	
Panasonic Lumix S5IIX	\$3,499	24.2	•				•	•	•	•	•		•	30	300+	779	1728	•		•	•	•	60-1/8000		•		•	•	•	•	•	•	7.62	657		
Panasonic Lumix GH7	\$3,899	25.2			•	•	•	•	•	•	•		•	75	260	315	1728	•		•	•	•	60-1/32,000		•		•	•	•	•	•	•	7.5	721		
Panasonic Lumix S1 IIE	\$4,199	24.1	•				•	•	•	•	•		•	30	300	779	1728	•		•	•	•	60-1/8000		•		•	•	•	•	•	•	7.62	712		
Panasonic Lumix S1 II	\$5,299	24.1	•				•	•	•	•	•		•	70	300	779	1728	•		•	•	•	60-1/16,000		•		•	•	•	•	•	•	7.62	718	Issue 435	
Panasonic Lumix S1R	\$5,299	47.3	•				•	•	•	•	•		•	9	50	225	1728	•		•	•	•	60-1/8000		•		•	•	•	•	•	•	8.1	898	Sept/Oct '19	
Panasonic Lumix S1R II	\$5,499	44.3	•				•	•	•	•	•		•	40	80	779	1728	•		•	•	•	60-1/16,000		•		•	•	•	•	•	•	8.1	712	Issue 432	
Panasonic Lumix S1H	\$5,999	24.2	•				•	•	•	•	•		•	9	999	225	1728	•		•	•	•	60-1/8000		•		•	•	•	•	•	•	8.1	1052	Mar/Apr '20	
Sigma BF	\$3,995	24.2	•				•	•	•	•	•		•	8	1000	49	TBC	•		•	•	•	30-/25,600		•		•	•	•		•	•	8.1	388	Issue 431	
Sigma fp L	\$3,899	61.2	•				•	•	•	•	•		•	10	14	49	TBC	•		•	•	•	30-1/8000		•		•	•	•	•	•	•	8.1	375		
Sony Alpha ZV-E10	\$849	24.2		•			•	•	•	•	•	•	•	11	99	425	1200	•	•	•	•	•	30-1/4000		•		•	•	•	•			7.5	343		
Sony Alpha 6400	\$1,149	24.2		•			•	•	•	•	•	•	•	11	115	425	1200	•	•	•	•	•	30-1/4000	•	•		•	•	•	•	•	•	7.5	403	Sept/Oct '19	
Sony Alpha ZV-E10 II	\$1,499	26		•			•	•	•	•	•		•	11	1000+	759	1200	•	•	•	•	•	30-1/8000		•		•	•	•	•			7.5	292		
Sony Alpha 6700	\$1,999	26		•			•	•	•	•	•		•	11	143	759	1200	•	•	•	•	•	30-1/8000		•		•	•	•	•	•	•	7.5	409		
Sony Alpha 7 III	\$1,999	24.2					•	•	•	•	•	•	•	10	163	693	1200	•	•	•	•	•	30-1/8000		•		•	•	•	•	•	•	7.5	650	Sept/Oct '18	
Sony Alpha ZV-E1	\$2,699	12.1	•				•	•	•	•	•		•	10	1000+	759	1200	•	•	•	•	•	30-1/8000		•		•	•	•	•	•	•	7.5	400		
Sony Alpha 7C II	\$2,499	33	•				•	•	•	•	•		•	10	88	759	1200	•		•	•	•	30-1/8000		•		•	•	•	•	•	•	7.5	429		
Sony Alpha 7 IV	\$2,899	33	•				•	•	•	•	•		•	10	1000+	759	1200	•		•	•	•	30-1/8000		•		•	•	•	•	•	•	7.5	658		
Sony Alpha 7R IV	\$3,799	61	•				•	•	•	•	•	•	•	10	68	567	1200	•		•	•	•	30-1/8000		•		•	•	•	•	•	•	7.5	665	Jan/Feb '20	
Sony Alpha 7CR	\$3,899	61	•				•	•	•	•	•		•	8																						

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