Better Photography RECOMMENDED

Pentax K-1

First of its Kind

The **Pentax K-1**, the company's very first full frame DSLR, has plenty of unique surprises under the hood, discovers **K Madhavan Pillai**.

Pentax afficionados can finally rejoice! After months of speculation and teasers, the company's first full frame DSLR, the K-1, is finally here. Despite being quite late in the game to go full frame, Pentax has packed some very exciting features from their earlier models into the K-1, making the heavily weather-sealed, rain resistant 36.4MP DSLR stand out among other full frame high resolution pro cameras from Nikon, Sony and Canon. To sweeten the deal, Pentax has priced the K-1 extremely well, significantly lower than any other camera in its immediate sensor category... DSLR, DSLT, or mirrorless.

Apart from a set of newly launched and existing Pentax lenses (the K-1 I tested came with the Pentax D FA 24–70mm f/2.8ED SDM WR and the SMC FA31mm f/1.8 Limited), many older Pentaxians will also find the backward compatibility of the mount a very attractive proposition indeed. Any of the 200 odd film-era K-mount lenses, and older M42 mount lenses with adapters, including third party lenses, can be used on the K-1, which allows metering and focus confirmation, at the least, and auto exposure and AF with newer mount versions. This is also pertinent to mention because some of the older Pentax lenses are specialised, with superb optics. And with a bit of hunting around, many of them can still be found in India at low prices. Of course, mount adaptations with non-Pentax lenses need to be researched, to avoid damaging the K-1. Among current lens lineups, Samyang, Sigma and Tamron also have lenses that are compatible. Here's a look at other features that sets the K-1 apart.

WHAT'S IN THE BOX

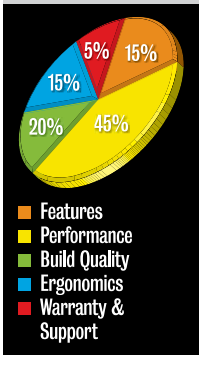
- Pentax K-1 body
- Lithium-ion battery
- Battery charger
- Body cap
- Finder cap
- Hotshoe cover
- Eyecup
- Software CD

Features

The sensor of the K-1 is currently rated by DxOMark as the third best sensor across cameras, immediately after, and very closely matched, by the Sony A7R II and Nikon D810, both of which are higher priced. The sensor shift based five-axis stabilisation (denoted by the SR on the body, or 'Shake Reduction'), compensates by a factor of up to 5 stops, with built-in panning detection.

Unlike any other full-frame camera yet, the sensor shift mechanism is used in several very innovative ways, some of which were first seen in earlier Pentax APS-C DSLRs. For instance, a sensor vibration function simulates the effects of an anti-alaising filter, when required, allowng the sensor to be without a physical filter, to maintain the best possible level of pixel sharpness.

WEIGHTAGE OF PARAMETERS

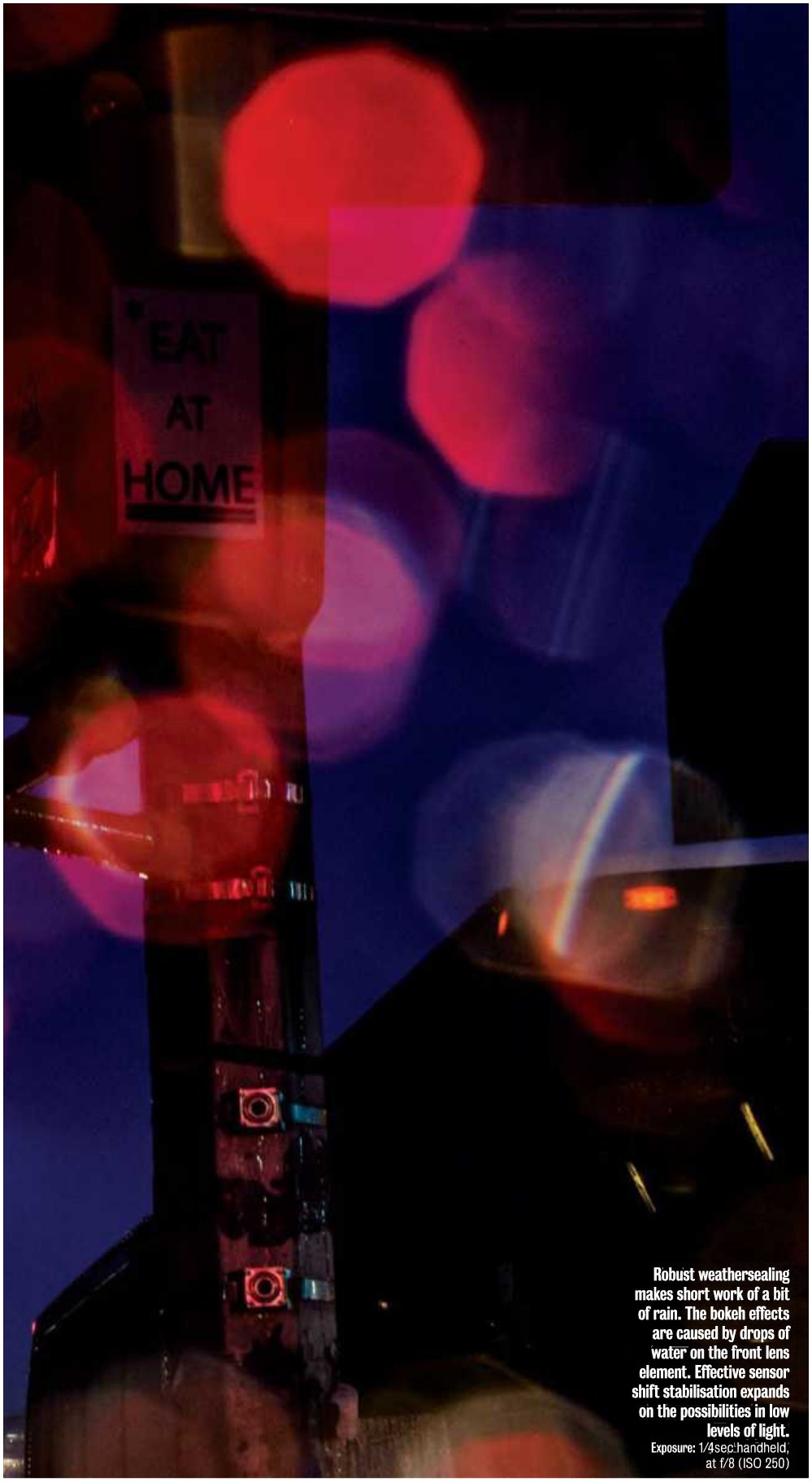


Pixel Shift Resolution is yet another significant feature. It works by moving the sensor around by a single pixel four times, for four exposures, that are then combined. This allows every pixel to be recorded in full colour, instead of a single colour of the Bayer array at each pixel site. This increases sharpness, resolution and colour accuracy significantly, while also reducing noise. It increases RAW files sizes from

With its range of built-in features, controls, and construction, the Pentax K-1 lends itself to a large variety of shooting situations. One needs to be technically adept to make use of the advantages.

While the K-1 is not meant for extreme shooting speed, burst speeds up to 4.5fps with a buffer for 13 RAWs (14-bit) along with high quality JPEGs, or 91 JPEGs without RAW, is good enough to capture any anticipated moment. The sensor is able to deliver excellent quality even at relatively high ISO settings, providing the photographer with plenty of bandwidth for manipulating exposure settings.
Exposure: 1/640sec at f/5.6 (ISO 8000)

All photographs by K Madhavan Pillai



Robust weathersealing makes short work of a bit of rain. The bokeh effects are caused by drops of water on the front lens element. Effective sensor shift stabilisation expands on the possibilities in low levels of light.
Exposure: 1/4sec handheld, at f/8 (ISO 250)

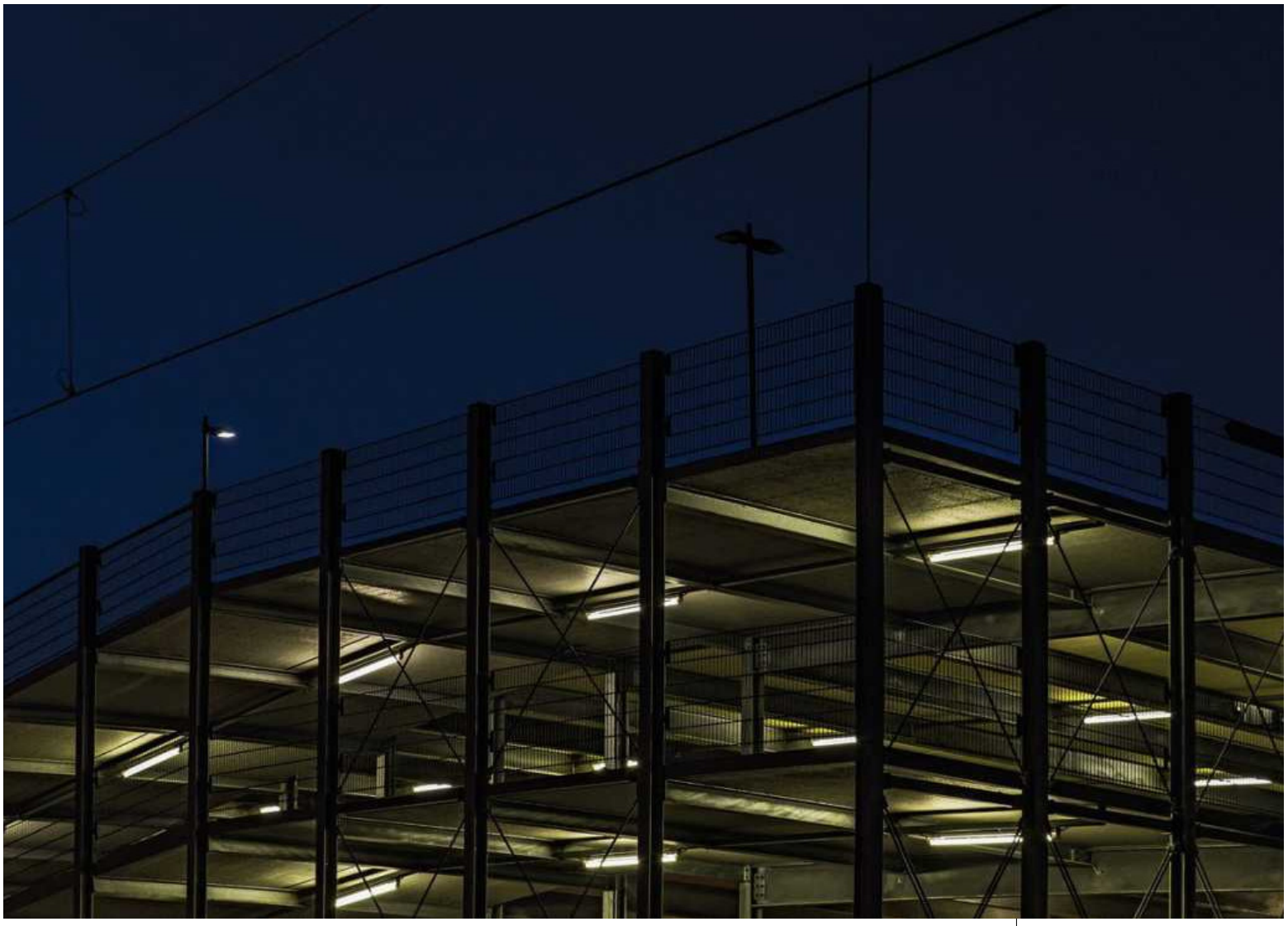
about 45MB to about 170MB. Pixel Shift Resolution is designed to be used on a tripod with non-moving subjects. The Motion Correction (MC) mode helps when there are moving subjects in the shot, but not if the motion is caused by camera shake. A tripod is needed for the best results from this mode.

The K-1 sports a rather comprehensive, built-in GPS receiver with an electronic compass, that can be conveniently switched on or off. Using the GPS is also the Astro Tracer function, which shifts the sensor gradually in conjuction with the movement of the stars during longer exposures of up to 5 minutes (depending on the lens and position of the camera), so that they remain pinpoints of light and don't form trails. For those who need it, this function alone makes the K-1 invaluable. Also enabled by the sensor shift capabilities are Auto Level Compensation that makes use of the electronic levels, and Image Composition Fine Adjustment which lets you manually shift the sensor (extremely useful for minimal but quick, accurate corrections when the camera is on a tripod).

Uniquely, the K-1 also lets you individually customise options to switch on or leave off tiny LED lights that lets you see into the card slots, the lens mount (projected from under the pentaprism), near cable terminals, and over the rear controls (the LEDs are behind the LCD panel that you need to lift up)... again, a very thoughtful feature to include for seeing in the dark. The swivelling rear LCD panel is also uniquely designed for strength. It moves on four metal struts

The K-1 sports a new AF module, the SAFOX 12, with 33 points. The central 25 points are crosstype. Though not the best in class, three central points in the centre can focus down to a useful -3EV. The viewfinder shows a 100% field of view with a good 0.7x magnification, and features an illuminated LCD overlay with grids, formats and levels.

Video is a regular 1080P30, and microphone /headphone terminals are available with manual audio level controls. There is no clean HDMI output. However, the K-1 has built-in WiFi to transmit and share images and videos wirelessly. The K-1 does not have an on-board pop-up flash (in order to not compromise on the build, but which would have been rather useful in many situations), or a touchscreen.



ALSO LOOK FOR

- Canon EOS 5D IV / EOS 5DS / 5DS R
- Nikon D810
- Sony A7R II

Handling

The Pentax K-1 handles exceptionally well (see the box below) but needs a bit of time to get familiar with. The menu opens up a huge variety of customisations with both controls and how the K-1 processes images.

For instance, you can fine-tune JPEG image processing behaviour to include how much noise reduction is enabled at various ISOs. The K-1 also has a large number of in-camera RAW processing options, including the application of some fun filters.

The sensor and 14-bit open format DNG RAW files record plenty of colour depth and detail, useful in extremely high contrast situations.
Exposure: 1/40sec at f/5.6 (ISO 1600)

ERGONOMICS

Front

Built of magnesium alloy on a stainless steel frame, the K-1 is the smallest DSLR in its category, but is robust, weathersealed to withstand rain, dust and extreme temperatures, and feels quite comfortable in the hand with a well-designed, chunky, recessed grip.

Top

An additional Function Dial is acompanied by the Setting Dial, to access features that would otherwise have needed getting into the already crowded menu. Consequently, I found myself using options like Pixel Shift Resolution and HDR more frequently.

Rear

Every button is dedicated and many can be repurposed. With the 'green' button, you can instantly reset exposure to the chosen 'Program Line' behaviour, making shutter and aperture priority, and the program mode instantly accessible without really using the exposure mode dial.

SPECIFICATIONS

Model name	Pentax K-1
MRP	Rs 1,67,707
Effective pixels	36.4MP, 7360x4912 pixels
Sensor size, type	35.9mmx24.0mm, CMOS
Recording formats	Stills: RAW+, RAW, JPEG Movie: MPEG-4 AVC/H.264 (MOV), JPEG (AVI), interval movie record
Focusing system and modes	SAFOX 12, 33 point (25 cross type focus points in the center). EV-3 to 18, AF-S, AF-C
Metering	TTL open aperture metering using 86K pixel RGB sensor, multi-segment, center weighted and spot
Shutter type and Shutterspeed range	Electronic vertical-run focal plane shutter, Auto: 1/8000 to 30 sec., Manual: 1/8000 to 30 sec. (1/3 or 1/2EV steps), Bulb
Colour space	Adobe RGB, sRGB
ISO	Auto, 100–2,04,800
Viewfinder	OVF, 0.7x, 100%
LCD	3.2in, 1037k dots, swivelling
Other Features	Sensor based stabilisation, Pixel Shift Resolution mode, backward compatible with K-mount lenses since 1975 with metering and focus conformation, time-lapse
Battery	Lithium-ion
Dimensions, Weight	136.5 x 110.0 x 85.5mm, 924g

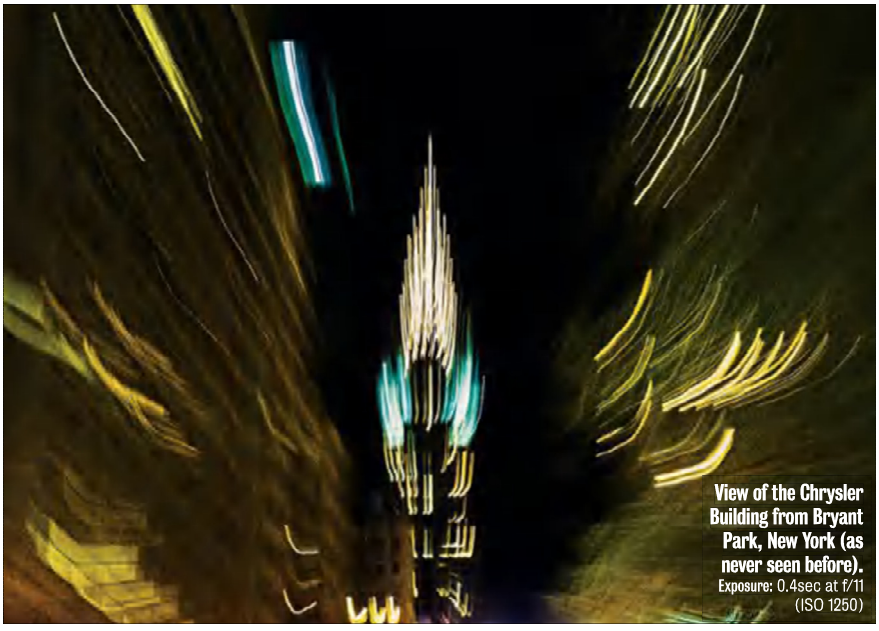
Performance.

In short... the sensor is brilliant with an excellent dynamic range of over 14 stops at ISO 100, to about 9 stops at ISO 3200. This allowed me to recover a lot of detail from RAWs very easily. Pixel Shift Resolution increases the apparent resolution by at about twice as much in images. JPEGs have a bit too much contrast by default, lending punchy colours, but causing highlights to clip and necessitating an underexposure of about –0.7 stops. However, on processing the RAWs, I felt that the sweet spot for compensation was about –0.3 stops, where shadows were not compromised at higher ISO settings.

The AF of the K-1, especially subject tracking, is not as blazing fast as some of the latest (and much more expensive) cameras by competitors. However, AF locks convincingly and is fast enough for most genres of photograpy except sports and some kinds of wildlife. On the positive side, the AF displays good low light performance without sacrificing speed. Live View focus takes a much longer time to lock. It there is an area of improvement, it would be here.

Conclusion

The Pentaz K-1 is priced at Rs. 1,67,707 for the body, which is the lowest price you would pay for a camera with a resolution higher than 30MP. Add to this the range of features and options, sensor quality, sensor shift stabilisation functions, extreme weathersealing, and handling capabilities of the K-1... and what you have is a camera that truly stands apart. This alone makes it a compelling buy for most photographers, even if they are invested in other brands. On the other hand, if you are looking afresh, the Pentax K-1 should certainly be high on your list. BP



View of the Chrysler Building from Bryant Park, New York (as never seen before). Exposure: 0.4sec at f/11 (ISO 1250)

Noise Test

Upto ISO 400, there is barely any noticeable difference. Noise creeps in at ISO 800 and slowly increases. Dynamic range begins to visibly reduce at ISO 3200. Images are printable well at full size (about 20 x 30 inches), with minimal noise reduction, till ISO 3200. While I would not recommend moving beyond ISO 25,600, the linearity of the deterioration allows you to retain quality and colour by halving the image size for every progressive stop after ISO 3200.

FINAL RATINGS

Features 4.5fps, 36.4MP, sensor shift technologies	14/15
Performance Exceptional dynamic range, average AF speed but works in light levels as low as -3EV	40/45
Build Quality Robust magnesium alloy construction	19/20
Ergonomics Green button options, Function & Setting dial	13/15
Warranty & Support Three years warranty, wide service network	4/5

OVERALL 90%

Who should buy it? Any photographer looking to invest anew into a high resolution camera, and older users of Pentax with an existing collection of full frame K-mount lenses

Why? The Pentax K-1 is priced extremely well, much lower than any other camera wth a high resolution sensor. The K-1 is also robust, weathersealed, feature rich and it comes with a three-year warranty in India.

Value for Money ★★★★½