Blackmagic Pocket Cinema Camera 4K review

It’s no larger than an SLR, but the Blackmagic Pocket Cinema Camera 4K capable of capturing extremely high-quality 4K video. We grabbed more hands-on time with the camera to see what else it’s capable of – including how it compares to a Canon C200 – and in this April 2019 update, a look also at the BlackMagic RAW (BRAW) codec.

A few years back, Blackmagic Designs came out with a very small cinema camera, one they called the Blackmagic Pocket Cinema Camera, or BMPCC for short. Not much larger than a smartphone, it used a 12×7 mm Micro Four Third sensor to shoot HD video in either 10-bit ProRes 422 or 12-bit CinemaDNG formats. It had 13 stops of Dynamic Range and recorded on very affordable SD cards.

Because of its size, price and professional video formats, it became a cult classic within the low-budget film community. The only thing that let it down was the large crop factor of that tiny sensor, its poor low-light capability and limited battery life.

Fast forward to last year and Blackmagic Design introduced a new Pocket Cinema camera that now shoots 4K video at a price of only £1,266 (inc VAT)/US$1,295. So naturally the company called it the Blackmagic Pocket Cinema Camera 4K. *Digital Arts* was invited to Manchester to get a hands on with the new 4K shooter – to check out what this new camera is all about and hopefully to see if Blackmagic was able to improve on some of the older model’s shortcomings. We also grabbed some time with the camera in studio and under various levels of lighting to see what magic it’s truly capable of.

First impressions of the Blackmagic Pocket Cinema Camera 4K

We were taken to an old gin distillery in the heart of Manchester to test out the new camera's low-light capabilities in available light, low-light and LED panel-lit scenes, as well as to get a good sense for the new ergonomics and menu system.

To our disappointment, the Pocket Cinema Camera 4K is no longer the pocket friendly camera its predecessor was. The Polycarbonet composite body is now heavier and much larger, and it has a striking resemblance to a DSLR. At 18 x 8.6 x 9.6 cm, we would say it's actually about the size of a medium DSLR body. Now this might be a good thing for some, as it is easier to hold, due to it's large grip, and boasts a rear five-inch touchscreen display. However, when most camera manufacturers are making smaller camera bodies, it's a little strange to see Blackmagic going the other way. You can forget about fitting this into your pocket, even a large pocket won't suffice.



On the plus side, with all that space on the large body, the

Pocket Cinema Camera 4K now comes with a handful of connections from headphone and 3.5mm audio jacks to Mini XLR with Phantom power – plus a full size HDMI 1.4 port, which unfortunately will only output 1080p.

The new five-inch touchscreen has a resolution of 1,920 x 1,080 and is quite sharp and usable even in bright environments. You can use it to focus on a specific object by tapping it, if you have a compatible AF lens. You can also punch in 2x to more accurately manually focus on something.

The large screen allows for the same menu system that is used on some of Blackmagic's larger Pro cameras. It is fantastic, very simple and intuitive to use. With large icons that are easily selected by taping on the touchscreen.



As well as two external audio inputs, there are four built-in microphones on the front of the body: two on either side. Yes, you might need to use these in a pinch or to record a scratch track, but honestly for any serious audio you're going to want to connect an external mic. So we're glad to see a professional XLR connection, though you will need a Mini to full-size adaptor. Blackmagic told us the audio pre-amps have

also been re-designed to improved audio capture. We weren't able to test this, but should be getting a review model later this month, so we'll update this section.

An interesting new addition is the 'Direct recording to USB-C' feature. Compatible with a handful of external portable SSDs, you can capture video straight onto these low-cost drives. You Of course still have a SD (UHS-II) and CFast card slots. We think this is a great move by Blackmagic as it allows for larger, and a lot cheaper storage media options. We just wish it could support recording externally and internally, at the same time for piece of mind.



While most camera makers shy away from giving their users pro video features in their budget offerings. Blackmagic has always put quality of the video image first, and they've stuck to their motto here as well. Just like their more professional cameras, the Pocket 4K can shoot up to 4,096 x 2,160 (4K DCI) in QuickTime ProRes 10-bit 422 as well as uncompressed 12-bit Cinema DNG RAW. This means you get the best possible image quality out of the new full 4/3 HDR sensor, without horrible MP4 compression, and with a claimed 13 stops of Dynamic range,

to boot.

As of 2019, the camera also shoots in BlackMagic RAW (BRAW) codec – you can see what we made of this below in our hands-on assessment.

Pro-res 4K footage shot by Blackmagic on a pre-production Pocket camera. Graded in DaVinci Resolve.

Blackmagic also introduced something it calls Extended Video Mode, which should preserve the highlights and shadows. The company says you can feel safe in knowing you're getting that 13 stops of dynamic range, even when shooting in 10-bit ProRes. In our opinion, Blackmagic has always had a great look to its footage, a very film-like look due to that dynamic range, and the Pocket Cinema Camera 4K is no different.



We've been told battery life has been improved and although it has to some extent, the Pocket Cinema Camera 4K is still in no way usable for longer than half an hour.

But the main issue is that the battery indicator is not very precise and we found on a few occasions that it went from a decent 80% battery life down to 20% in only 10 minutes. Shooting in 4K using image stabilised lenses and external storage drives burns through batteries at an incredible pace it seems, so do keep that in mind. You can get a few extra Canon batteries if you're not running of the mains, but we also found that some knock-off Canon batteries did not work in the camera at all.

With the original Pocket Camera having quite a bad rep for low-light performance, Blackmagic had to improve on this a lot in order to win their fans back. The Pocket 4K camera now has Dual Native ISO. This should now allow for very clean video in well lit environments using the native 400 ISO, as well also when shooting in available or low light, by using the second native 3200 ISO setting.

Hands-on with the Blackmagic Pocket Cinema Camera 4K

Shooting in BRAW codec

Fast forward to 2019 and with its latest firmware update, BlackMagic Design has introduced the ability to shoot in the BlackMagic RAW (BRAW) codec, not just in their high-end cinema camera range but also in the Pocket 4K. This is great to hear, as it is a fully open format, and could be standardised across platforms and products, making it easy to implement into all kinds of workflows. However, by upgrading the Pocket 4K with the latest firmware you do loose the ability to shoot in RAW DNG, which has been used in BlackMagic products for quite a long time now.

So what is it like to shoot with BlackMagic RAW, or BRAW for short? We shot a few of the the same high-contrast scenes, in both BRAW and in Pro-Res, shot in the flattest cinema colour

profile. For starters it’s nice to see that the BRAW files are comparable in size to Pro-Res (127 MB/s VS 110 MB/s respectively). We did use the medium compression 5:1 in our tests, against Pro-Res 422 compression.

We imported both into the latest version of DaVinci Resolve and started to do some simple grading to see if there are big differences. While Pro-Res is very easy to playback, even on our older 2013 MacBook Pro, we needed to use an external eGPU to smoothly playback BRAW footage. Our much newer and more powerful iMac was happy to playback both file formats without any lag.

Both files look great out of camera with the BlackMagic LUT applied. We didn’t notice any differences here. However, you do get the extra RAW options with the BRAW footage., and other options like White Balance Colour Space, Gamma, ISO, and Highlight Recovery. This is where you can see why shooting in BRAW has its advantages. White Balance in particular is very handy, as it allows you to change the the colour balance in post, with a click of a button, even if it was set incorrectly in camera. With Pro-Res meanwhile it is much more difficult to get the colour balance right if you’ve used the wrong setting in camera.



The second advantage is the Highlight Recovery option. We

found that without this option on, BRAW had actually worse dynamic range than the Pro-Res. However, with Highlight Recovery turned on BRAW was able to hold more details in the highlights, as you can see clearly from the comparison images bellow.



We feel that BRAW is definitely an improvement over shooting in Pro-Res. And while it doesn't take up much more space on your media card, it does give you a few very useful features that can save your footage when shooting in extreme conditions. As of this update, the only way to open BRAW is within DaVinci Resolve, but we do hope that Adobe and Apple will release plug-ins for their video editors at some point. If you're shooting in a controlled environment or need compatibility with other systems, then Pro-Res is still a great codec to use. But it's nice to have the option to shoot in RAW and not fill up your media in five minutes flat.

In the studio

When we received our review unit and played around with the camera for a few days, testing it against our Canon C200 camera, we have to say we're very impressed with how well the Pocket 4K performs in low light and with the dynamic range. See for yourself in the short video test below.

[embedded content]

In fact the camera captures less noise in the dark areas then the much more expensive Canon C200 when shooting RAW. Now, we're not sure if BlackMagic is using some kind of in camera noise processing or not, but the image is definitely cleaner in the shadow areas.



Keeping the price low meant that there are a few compromises that Blackmagic had to make when designing this camera. For starters, the 5-inch touchscreen doesn't swivel around. This means that the extra record button on the front of the camera, presumably made for YouTubers and the like is mostly pointless, as you can't see if you're composed properly in the frame or in focus. Auto Focus is also very limited as it's push-to-focus only. It will not continuously focus or follow a face, like some other new cameras do.



Another budget decision is the use of a 18.96 x 10mm Micro Four Third sensor. Although larger then the original 12 x 7 mm sensor in the original Pocket Cinema Camera, you will need to pair it with some very fast glass in order to get that lovely shallow depth of field. Luckily, there are now hundreds of native M43 lenses available, from Panasonic and Olympus to Sigma, Voigtlander and Zeiss. And with the Active MFT mount, you can take advantage of image-stabilised lenses and iris control. Also, with many M43 adaptors and Speed Boosters, this potentially opens you up to thousands of lenses. Blackmagic tells us, the smaller sensor shouldn’t be much of an issue these days.



Lastly, this camera does not have IBIS (In Body Image Stabilisation). Again this is something that can be doctored by using IS lenses. But, for such a portable camera, it would have been a huge advantage to have image stabilisation in the body. It would free up a potential to use those super-fast cine prime lenses and still get smooth handheld shots. Using the camera hand held, we found that even after a few minutes it started to feel heavy, and difficult to hold steady without stabilisation. Putting it on a tripod, stabiliser or gimbal will of course help.

Final thoughts on the Blackmagic Pocket Cinema Camera 4K

As you can see, there are still a few shortcomings due to the very aggressive price. The camera won't be for everyone – we just can't see it being popular with vloggers and the non-articulating screen might be a deal breaker for some. In our short time with it, we found it very cumbersome to use and would need to attach an external monitor to it – which would then make the Pocket 4K even larger.

That said, there is so much potential here for the in-house editorial and commercial content I produce, to the work of wedding videographers and film students. This is for anyone who is serious about image quality and getting that beautiful organic cinematic look at a nicely affordable price. And you even get the full version of DaVinci Resolve Studio 15 thrown in for free.

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