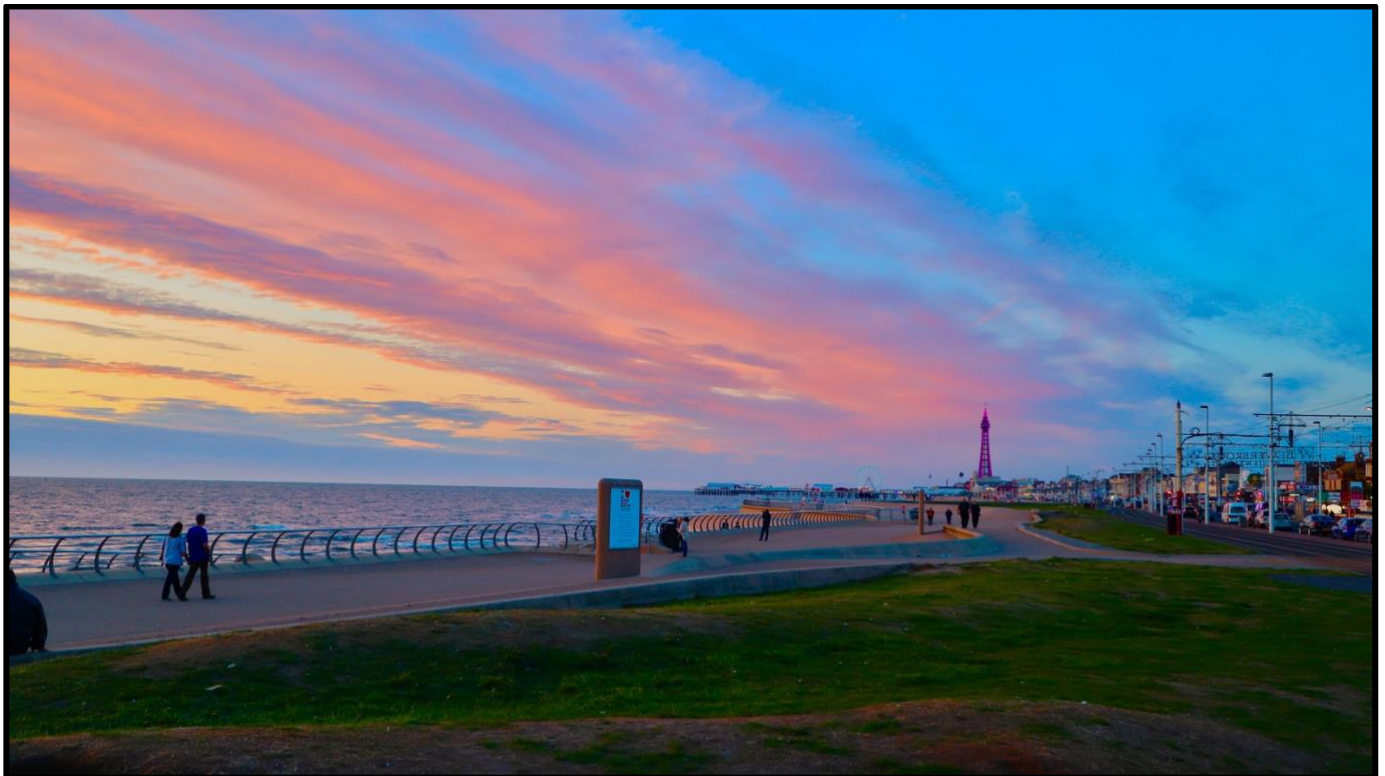


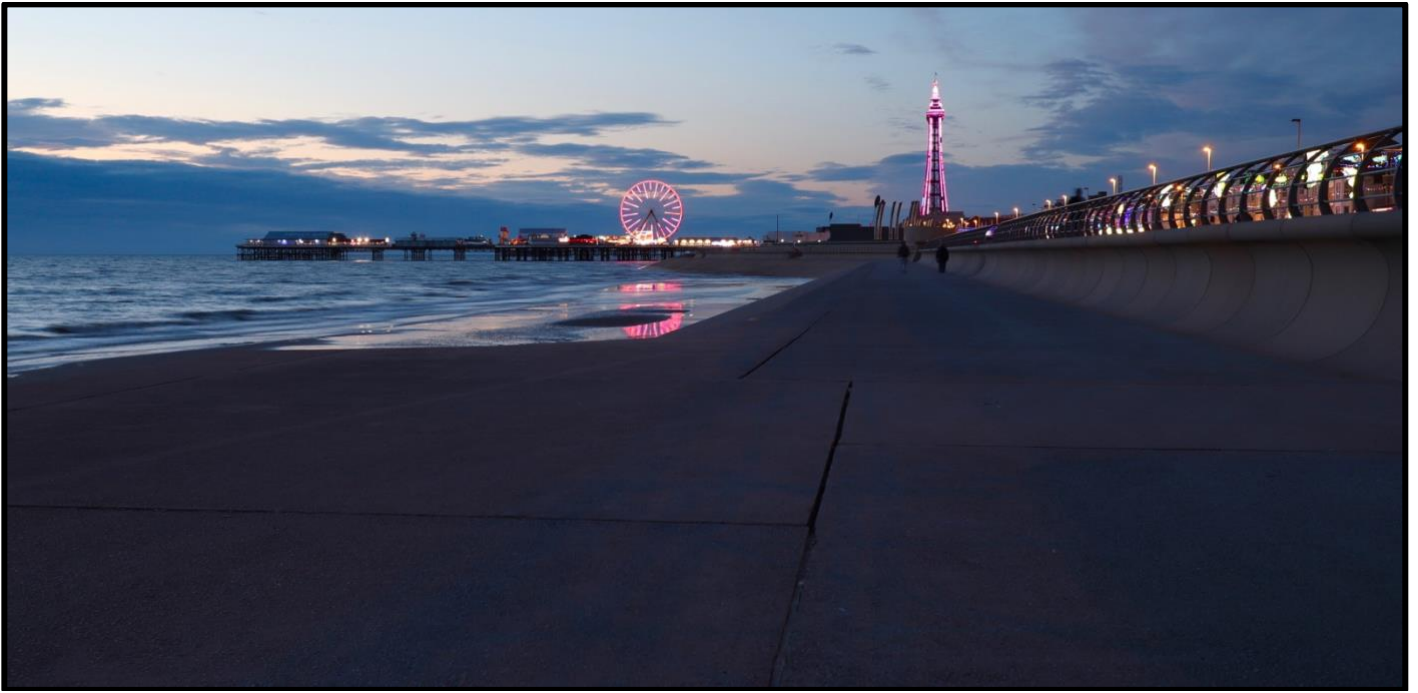
The "Girls" get that Outing to Blackpool



You may remember my purchase, a couple of weeks ago, of these cute figures from an outlet store. Well I decided to take them to Blackpool on a trip to film the annual illuminations. They had a great day!



Just before sunset the skylight above Blackpool was fantastic, almost the opening act to the main light show that was to follow.



I took the Canon M50 with 11-22mm f4-5.6 and 22mm F2 prime and the Canon SX740 HS travel zoom on this trip. The intent was to test the 4K video capabilities that have been implemented into these two cameras.

Image quality in both stills and video from the M50 is very impressive but I did make two fatal errors when filming the video sequences with it.

Firstly, I forgot to disable the continuous AF mode in the video menu and the camera was hunting for focus as people or cars with bright headlights passed through the image.

Secondly, when the camera was on a tripod and I did use manual focus using the LCD for the stills my eyesight deceived me and I had quite a few images out of focus. *Note to self: use your reading glasses like you are supposed to.*





When Canon brought out the M50 with 4K recording I was excited. This was the first consumer camera in their line up to feature this.

Many reviewers were quick to slate the camera as totally useless for 4K video for several reasons; No dual pixel auto focus when using it in the 4K video mode.

An additional 1.7X crop applied to the image.

These arguments against the camera are not deal breakers for me. The fact that dual pixel AF doesn't work in the 4K video mode is of no concern as I do manual focus during video shooting as I want to be in control of that.

The crop factor when using the camera goes from 1.6 to 2.5 thus narrowing the field of view and thus the wide-angle advantage is lost. This is also the case with many 4K cameras so why criticise this! Additionally, the use of electronic image stabilisation also increases this crop even further.

Again, I rarely shoot hand held video as all cameras that don't have a global shutter show micro jitter or "jello" if the camera moves during the vertical scan of the sensor.

It was not with some concern then that I placed my order with Amazon for the camera body (I already have the M5 with a few EOS M series mount lenses).

When the camera arrived, I was eager to go out and test the 4K video with my favourite 11-22mm lens. Ok there is a 1.6 (slightly more if you use dynamic IS) crop applied to the image however it was not something to concern me in the slightest.

The image quality, was I expected from Canon, to be superb with good colour rendering.

Of course, you can adjust the parameters to your own taste (sharpening, contrast, saturation and skin tone) for recording.

I recorded the part 5C of the Panasonic Lumix FZ80/82 tutorial series using the M50 and the 11-22mm lens. And I think the quality is fantastic.



A still image captured from the Panasonic FZ80/82 Tutorial 5C shot with the M50



Using a Raynox M150 close-up lens shooting video in the same tutorial

There is full manual control when using creative video of aperture, shutter speed and ISO, so it is possible to set up the camera for almost all lighting situations.

The addition of the 3.5mm mic input socket is a must on all cameras equipped to shoot video IMHO and something that Panasonic seem to keep omitting from their cameras.

I'll be testing and reviewing the camera more thoroughly over the coming weeks prior to a trip to France in October.

Canon SX740 HS Travel Zoom First Impressions



During August of 2018 Canon also started to ship the latest camera in the SX700 series – the SX740 HS again equipped with 4K video recording.

You may recall I stopped buying Panasonic travel zooms after they all seemed to ingest dust and pollen at an alarming rate.

Panasonic no longer clean lenses/sensors under warranty and the lenses are just too complex now to split and clean!

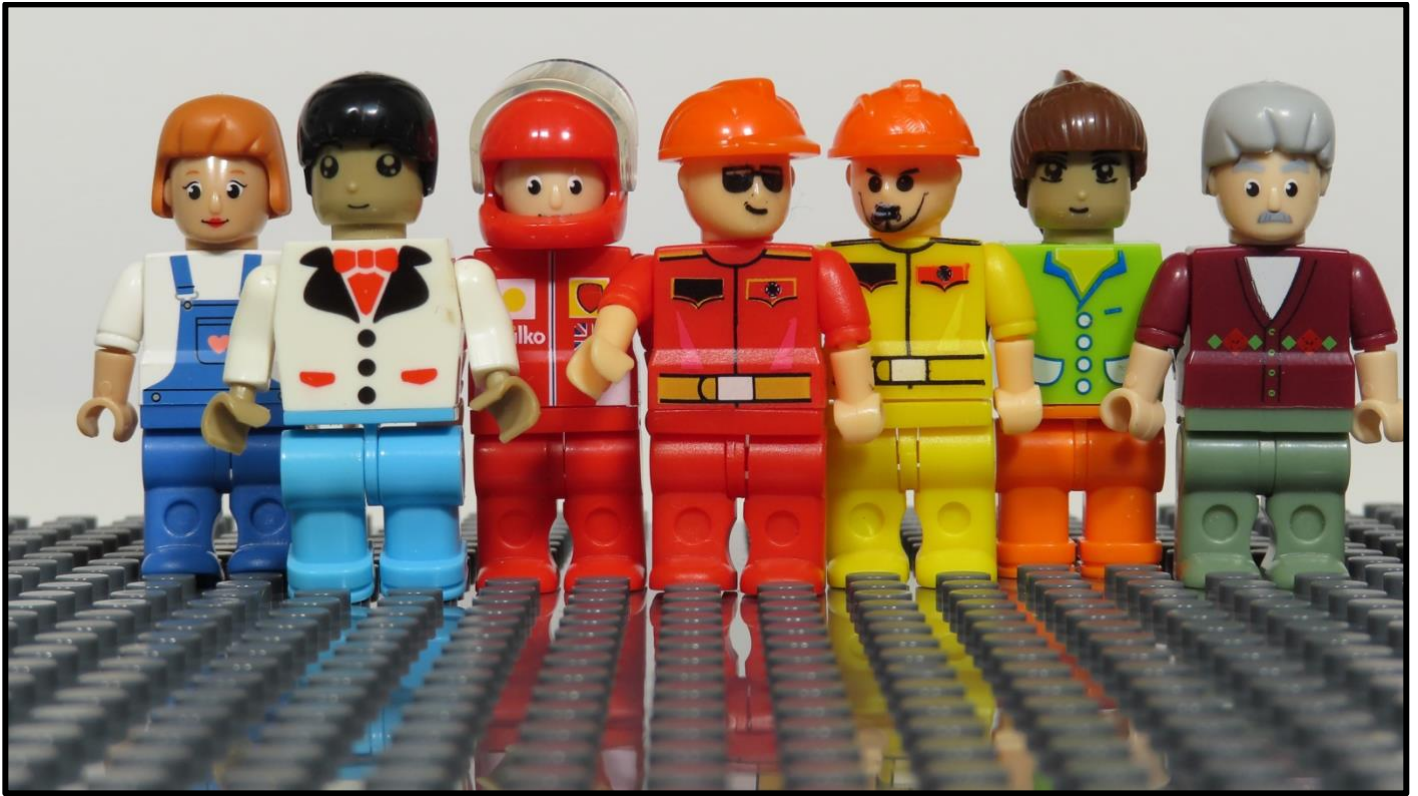
So, when this was announced I put it on my wish list to purchase.

I had already bought the SX720 a couple of months previous as the price had dropped to a point where it was an attractive proposition – also considering it came as a “travel pack” with mini gorilla pod and travel case.

Had I known of the imminent launch of the SX740 I might well have waited!

I have done a review of the camera on my blog: <https://www.grahamhoughton.com/travel-zoom-cameras/>





Again, the image quality is very impressive considering it is a 20M 1-2/3 inch sensor. 4K video, is OK but the camera lacks the full manual controls that you might need when shooting video clips in a variety of lighting situations. For example, there is no Manual mode – you cannot set the aperture or shutter speed. It appears to use the “P” mode. If you do need to adjust brightness, then this must be done by changing the EV before the clip is started – you cannot change settings during recording.



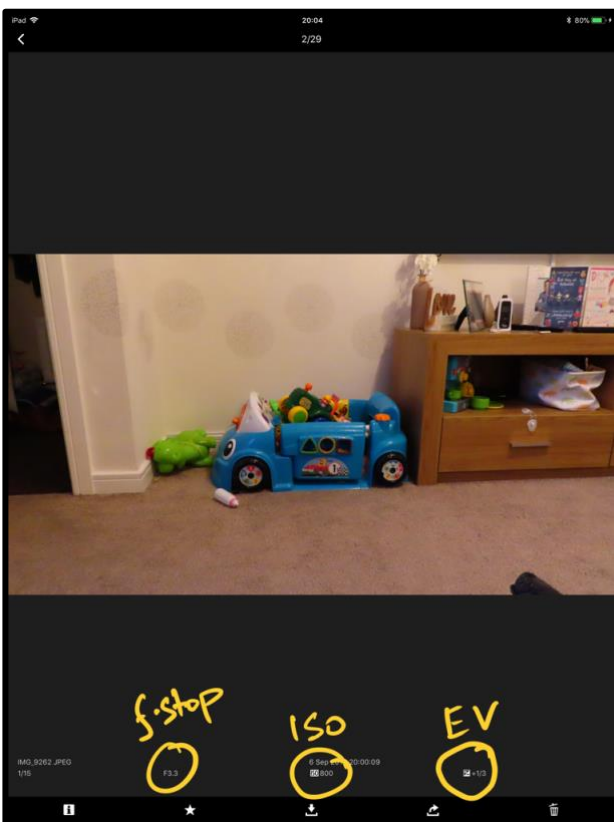
Low level light stills are acceptable up to about ISO 800 beyond which noise and colour streaking becomes an issue. Video was not acceptable to me in this situation due to severe noise.



With the 20M sensor and good light it can pack a lot of detail into an image

Thankfully the camera has a tilting screen (unlike the SX720 which is fixed) so this makes low angle and waist level shots very easy. It can be raised vertically for front facing v-logging style users.

The tripod mount screw is not directly under the lens axis so good nodal point panoramic images are not possible without some means to re-align the axis. It also means that access to the battery/SD card compartment is restricted when you have the camera mounted upon a tripod with a quick release plate.



The SX740 HS features Bluetooth and Wi-Fi connectivity so connecting to a smartphone or tablet is very quick and a lot easier than the conventional way.

Images can be transferred from the camera or the camera can be controlled via the Canon Camera Connect App.

Video can be captured with the App however 4K video cannot be transferred via this connection. It is held, as usual, on the camera SD card.

The Canon Camera Connect App in use

Using Close-up Lenses on the Panasonic Lumix FZ80/82



Close-up photography can often be very rewarding and opens new ways of being creative.

The camera itself will focus to within a few centimetres of the subject.

In some instances, this may all you may require. In other situations, like wildlife for example, you may not be able to get so close to your subject. To overcome this, you need to use a supplemental lens to the main camera lens.

This has the effect of reducing the focus distance of the main lens. (see how close-up lenses work in newsletter week ending xx/xx/2018 for more details).

Although it is possible to purchase cheap sets of close-up lenses I do not recommend them as the optical quality in some cases is quite poor. An achromatic lens is the best solution.

These lenses are constructed from two or more elements and reduce colour fringes and edge distortion.

The most popular type is the Raynox lens system available in two strengths the M150 and M250. The 250 is quite powerful and more difficult to use and has very shallow depth of field when used at high magnification. For that reason, I recommend the M150 lens.



To establish the working distances of the camera lens and supplementary lens combination I used a simple rig so that I could measure the subject to the front of the camera lens. I did this at the closest focus distance and again at the infinity focus position.

I created a simple chart to illustrate the size of image versus the zoom setting and focus position.

If you purchase your own lenses it may be worth constructing your own chart.

Zoom Setting in mm (EFL)	At Minimum focus cms	At Infinity focus cms
50	5	8
90	10	20
200	19	25
400	19	26
800	22	27
1000	22	27

This table relates to the Polaroid 250 lens equivalent to #4 lens

At the 50mm zoom Setting and minimum focus the subject width was 5 cms and at 1000mm just 1.2 cms

The Raynox M150 had a very similar profile with just a slightly higher magnification and shorter working distance. At 50mm min focus 5.5cms wide and 0.8cms at 1000mm max focus

Zoom Setting in mm (EFL)	At Minimum focus cms	At Infinity focus cms
50	4	-
90	8	29
200	15	22
400	15	21
800	18	20
1000	18	20

Astrophotography and the Aurora Borealis

Now and then I get questions about “star trails”, photographing the moon and the “northern lights”. Well I’m no expert in this field however I do know a couple of things that may help if you are starting, or thinking of, photographing these types of subjects.

As you will quickly discover if you did not know it already, all celestial bodies move regularly through the night sky (to be precise it is us on planet earth that moves!)

This movement may not be instantly visible to the naked eye but it is quite considerable. Its effect on us as photographers is that the stars or our moon very quickly begin to produce a trail.

This effect is made more visible, or its effect more pronounced as we start to use longer focal length lenses.

There is a good formula that calculates the expected effect roughly by the equation”:

$$\text{Length of time before the effect becomes noticed} = 700 / \text{Focal length of lens}$$

For example, a 50mm lens (or EFL) would be visible after 14 seconds of exposure and if you were to use the FZ80/82 at 1000mm EFL its effect would be seen on an exposure of just over ½ second.

In practice this means that for all images of the night sky if you want to avoid these star trails you would need to invest in some form of rig which moves the camera and keep it in the right position. These equatorial mounts would normally be found on telescopes designed for this purpose.

In all cases a sturdy tripod is also essential to hold the camera, especially a CSC or DSLR with a long telephoto lens fitted.

Because of the need for special rigs more people are shooting “star trails” where the camera is held static and the image of the star/earth movement can produce a noticeable trail on the image.

Large apertures are necessary to gather the faint light and to produce respectable trails the exposures may need to be in the order of several minutes. Other techniques for cameras only having a 1 minute exposure maximum is to use image stacking to stack multiple shorter trails into one longer trail. There will be gaps in the trail using this technique though.

Stars photographed in the southern sky appear to travel east to west and if you photograph the northern sky then the star trails tend to curve with a rotation around the north pole star.

An image with the pole star accurately centred will produce a beautiful circular trail.

The “northern lights” are another popular topic. These tend to be very unpredictable. The brightness depending upon latitude, atmospheric conditions and other factors.

With our modern digital cameras setting the mode to “A” and selecting as wide an aperture as possible will give exposures of around 1 second with ISO 400. However, some experimentation may be needed depending upon the brightness. Video is possible especially if you use the manual focus mode in some cameras which will allow exposures down to ½ second with the aperture at f2.8 and an ISO of 800.

When photographing the moon, it appears to be quite a sizeable object but remember it is some 250,000 miles away and will appear disappointingly small in your images.

To calculate the size of the image formed on the camera sensor there is another convenient calculation.

By dividing the lens focal length by 110 will give the size of the image in millimetres.

If we have a lens like the one on the FZ80/82 then the image would be $215/110 = 1.95\text{mm}$.

On a 1-2/3inch sensor which has a size of 6.17 x 4.55 mm the image will half fill the frame.

Use 2x i.Zoom and it almost fills the frame.



cropped FZ80/82 image @ x60 zoom

Photographing the moon is a bit challenging. Your camera will probably wildly overexpose it, because your camera sees more black sky than bright moon, and it tries to make that black sky grey.

Because of that, you'll need to use manual mode or maybe +3 EV exposure compensation in “A” mode.



There's no one set of camera settings that will work for every condition. However, I usually start at ISO 100, f/4, and 1/400th of a second. Autofocus should work fine if you use the edge of the moon to focus and then recompose the shot. Spot metering from a crater also gives good exposures.

I usually handhold moon photos using a lens that has image stabilisation. A tripod could help, but usually the moon is clearest when it's high in the sky. Pointing a telephoto lens straight up at the sky on a tripod is difficult, or even impossible, with most tripods. Thus, it's often more stable just to hand-hold it bracing the camera against a tree or door frame to add extra stability.

After you take your first picture, look at it on your LCD screen. Zoom all the way in, and make sure that no part of the moon is overexposed. If it is, use a faster shutter speed, like 1/800th.
 The brightest parts of the moon should be almost completely white. If they're more grey than white, use a slower shutter speed, such as 1/200th.
 More on my hints and tips cards in the download section of the blog.

HINTS & TIPS CARDS
CAMERA Set Ups #004

Nature - Shooting The Phases of the Moon

THE GOAL To Take A Picture Of The Moon Showing Crater Detail using the Panasonic Lumix FZ200

★

How To Do It Set the camera to A (Aperture Priority mode) by turning the top mode dial, use the back control wheel to dial in an aperture of f4 .
 ISO should be set to the minimum the camera supports – ISO 100. Image stabiliser should be on.
 Set the focus to AF on the side of the camera, set AF Style to AFS and AF Area to SINGLE and leave the default size and position. Set Metering mode to SPOT. Set Photostyle to Standard and increase contrast to +2 (you should be using sharpness +1 and noise reduction -2 as my basic camera default setting).
 Zoom to x24 optical and aim the focus area at the Moon, The spot exposure metering will adjust the exposure to give you a clear image with plenty of surface detail without just being a big white orb. *Notes: The exposure time will be in the order of 1/500 second or faster so you should get very sharp, hand held images. Vary the position of the metering point to get the correct exposure. A dditional Digital Zoom can be applied but no more than x1.5 to prevent loss of image quality*

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The Inverse Square Law

Every time you use flash or LED studio lights you will be experiencing the effect of the inverse square law every time that you move the position of the lights of flash unit relative to the subject.
 The “law” is defined as:

Intensity (I) is inversely proportional to the square of the distance from the source of the light.

Or $I = 1 / \text{Distance}^2$

This means that if you move a light farther away from the subject such that it is now twice the distance to the subject the exposure will not be ½ as you might expect but it will be ¼ of the original exposure. From our F-stop (or EV values) we know that every f-stop change doubles or halves the light entering the camera so the effect of moving the light to double the distance away is to reduce the exposure by 2 f-stops. The opposite of course also applies – by moving the light to half of the distance mean we can close the aperture down by 2 f-stops. Look at my table to see how this looks as light fall-off.
 If our subject or light moves to 5 feet farther away on 4% of the original light intensity remains!

1 Foot	2 Feet	3 Feet	4 Feet	5 Feet
100% of light	25% of light	11% of light	6% of light	4% of light
1	1/4	1/9	1/16	1/25
Measured f-stop	2 f-stops less	3 f-stops less	4 f-stops less	5 f-stops less

Is it a coincidence that the reduction in f-stop corresponds to the distance the light moves?
 No, that's how the f-stop scale was first devised by halving or doubling the previous value!

Of course, this theory is all well and good however in practice you will find that because of light reflecting in the room that this may add to the exposure created by moving the light source. The theory will work well using flash outdoors at night time where little light spills back from the surroundings.

FZ1000 User's Guide- update

I started to write this guide nearly two years ago and had to car park it due to constraints on my time. I know it's a long time in completion but I have taken up writing the final chapters and hope to get it published during November.

There's so much in there that it would be a shame to just abandon it.

Part of the reason that I stopped writing was also the high cost of publication through Amazon Createspace publishing.

That was the reason for the FZ300/330 also being issued in black and white to keep the price down.

This was augmented by the free issue of the colour PDF to those who bought the book.

I may do the same with this guide as sales of colour to black and white version are about 60 %.

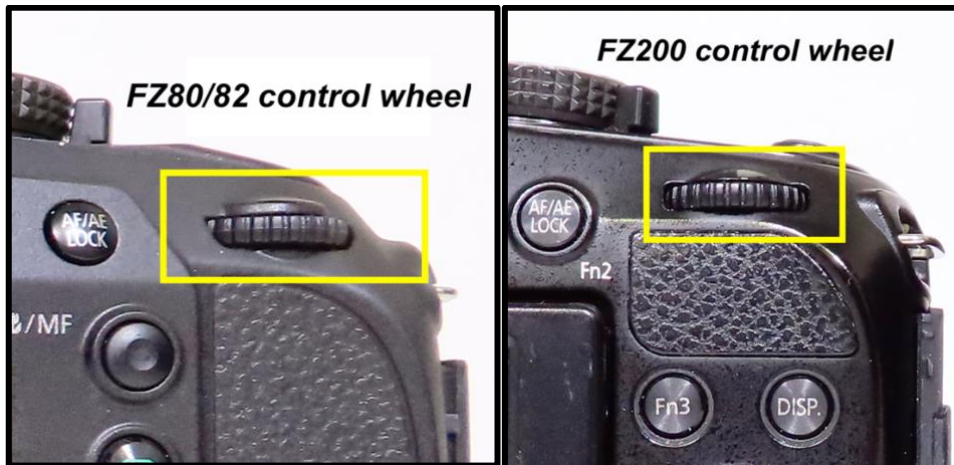
A lot of subscribers have just bought the colour PDF rather than hard copy as they wished to have it available on smartphones/tablets etc.



Back Control Wheel Failures on Panasonic Lumix Bridge Cameras

Camera like the FZ200, FZ1000 and the FZ80/82 have a back-control dial which is used to select functions by pressing it in and control values by rotating it left or right.

It is very apparent from feedback here on my blog and in other user forums that the component used to provide this function is failing in many user's cameras. My own FZ200 failed just outside warranty and was only replaced free of charge after it was publically outed on my Youtube channel and with emails to the European head office.



The usual failure of this wheel is the “push in” function and prevents the selection of functions associated with it – for example switching from Aperture control to Exposure compensation in Aperture priority mode.

As the FZ80/82 uses the same part number it may be worth using the alternative methods that I outline in this video: <https://www.youtube.com/watch?v=nQB6h5B39Uk>



It is within the scope of user replacement if you have some basic skills and tools. The Panasonic switch part number is P/N KORB00300004. It is available on Amazon.com <https://amzn.to/2wQNOH> And on Amazon.co.uk <https://amzn.to/2QaseaC> Details of how to do this for the FZ200 can be found here: <https://www.ifixit.com/Guide/Panasonic+DMC-FZ200+Rear+Wheel+Switch+Replacement/61564>