A New Year and Time for Changes?

I'm not one who makes new year's resolutions, only to break them a few weeks later, however I do feel the need for change and new challenges.

I think it is far too easy to slip into a lazy attitude and a mind-set that doesn't make the most of your life and it becomes far too easy to just sit and watch TV/YouTube/Netflix etc., for more time than is healthy.

I promised myself that I would make more effort in trying to stay a little more organised and focussed during the coming year. I've never been a "finisher-completer" type of person - always wanting to get on with the next project rather than spend hours in adding the final touches.
My garage/workshop had become so cluttered with material left over from projects, tools that had not been cleaned and stored away in their cases and generally a health and safety hazard.
Being an ex-engineer you never break the habit of keeping stuff for that "just in case" need arose.

I have, in the past, fixed things by re-cycling components from old boards that I had kept. I have kept things for years that have never been used but loathed to throw them out.
The week after Christmas, whilst our winter weather was still hovering around 10C and not too cold to spend hours in there, I decided to start and "tidy up" and make the workshop fit for purpose once again.

Out to the local recycling centre went a miss-match of drawers and cupboards and old shelving.
Car loads full of old material that I had accumulated such as old circuit boards, satellite receivers, monitors, computers and old non-working tools. It was such a painful process, but one that was necessary.

With the garage, as empty as I could bear, I began by repainting the floor areas, section by section.
Once these had dried I bought and assembled new steel shelving and some plastic storage boxes.

I have tried to keep things local to their intended use so things like milling cutters are kept near to the milling machine, lathe tools adjacent to the mini-lathe and all my router bits are kept in one drawer.
Previously I have spent ages trying to locate a specific cutter for a job and ended up either buying a new one or compromising to get a job done.

So, after nearly three weeks I'm getting there, much to my wife's delight.

There's still a way to go in finally sorting out the remaining stuff that I have kept. I have repaired and refurbished tools as I went along and if I couldn't repair them - they went to the recycling centre!

I've added some additional work lights and currently waiting for a company to come and install a new roller shutter type garage door with insulated slats.
My current "up and over" door doesn't seal at the sides and top and it quickly becomes very cold when there is the slightest of winds blowing. I'm hoping it makes the winter working environment a little more pleasant.

So apart from the garage looking a lot tidier when the door is up it is also now more functional and if I need to go in there to cut some material or make something it is more likely that it will get done now.

I have, in my mind, plenty of projects that I might share during the coming year it is now just a case of prioritising what I want to focus may attention on during the year to come and that isn't going to be easy.

The Manchester Photo Walk (May 2019)

Following my proposal to run a photo walk in Manchester (UK) I have had responses from several of you who are willing to come on this trial excursion and join me for a half-day training/social event.

I will now work to finalise the date and time and venue and get local transport details as well as a place to meet and grab a coffee to start the event.

It will of course be a free event and I will be providing a booklet of the aims and location of the venue nearer the time.
This is something that I had planned during 2017 but ill health prevented that from happening so I'm hoping that this time I will be able to meet some of you and push myself a little to experiment on this type of project. If it works then I may add more venue in the future.

FZ300/330 Zoom Lever Failure

I was contacted by a subscriber to this newsletter about the failure of the zoom lever surrounding the shutter on this camera. My own camera has this problem where, most of the time, the camera is unresponsive to any change made to the position of the zoom lever.
I'm wondering if this is going to become a "stock fault" just like the rear control wheel failure of the FZ200. The service manual shows this as a potentiometer (variable resistor) and not a switch so it may be possible that this can be cleaned. However, this would require significant disassembly of the camera to get access to the top control unit and is probably not a task that should be undertaken without significant experience in this type of repair work.
One day I will boldly go and investigate just how feasible this is to achieve and whether the cleaning is a solution. The control is replaced as a top plate assembly and is over £100.
If anyone else is having an issue with this switch perhaps you could reply to me here

Digiscoping – a new possibility for the smartphone?

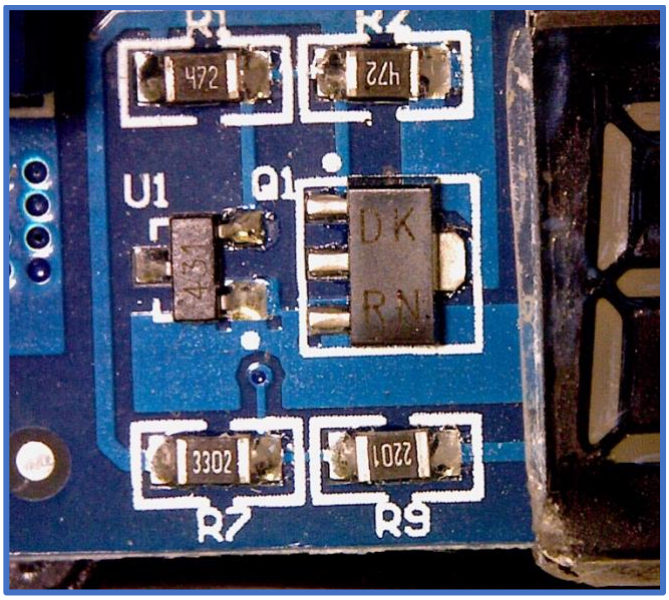
Having seen this advertisement for a smartphone to spotting scope adaptor (which also will adapt to mono/binoculars) I have added this as a project to try in the coming months. I have a decent pair of 10x50 binoculars so I will try and make an eyepiece adaptor to hold my older iPhone 5S or iPod touch4 in optical close coupling with the eyepiece as these adaptors don't appear to have any additional lenses to form the image on the smartphone sensor.
With a spotting 'scope it is possible to achieve 3000mm effective focal length using the higher power eyepieces however I suspect that image quality will suffer due to atmospheric haze etc., just as with longer focal length camera lenses.
I have already modified a hard plastic phone case to accept 37mm filters so I could do the same to adapt to the eyepiece of my binocular using something I could turn up on my lathe if I cannot find anything quickly "off the shelf"

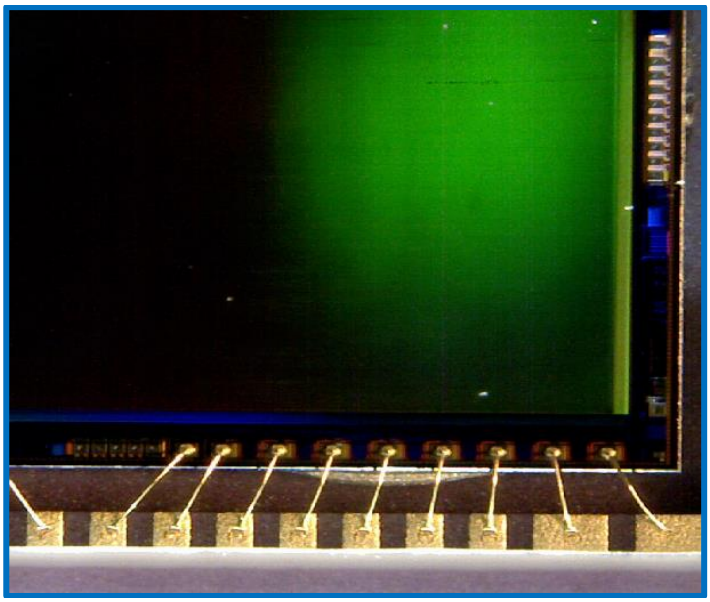
I subsequently purchased a "universal" mount to try out the idea on my binoculars and I'll report on the result, next time.

I have also wanted to adapt something like this to my microscope to capture images rather than using my TZ70 held against the eyepiece. As they say "watch this space".

Low Magnification USB microscope

Having rekindled my electronics hobby and needed to solder some SMD (surface mount devices) I found that using magnifying eye wear tiring over a long period of use.
As this is something that I will probably only do infrequently I didn't want to spend a lot of money on an industrial grade microscope. I had seen these USB microscopes previously and thought that for £14 it had to be worth a try. Here is an image of the microscope connected to my MacBook air and a snapshot image so as you can see it's worth the speculation. It's all plastic and a bit wobbly but certainly up for the job I want it for.



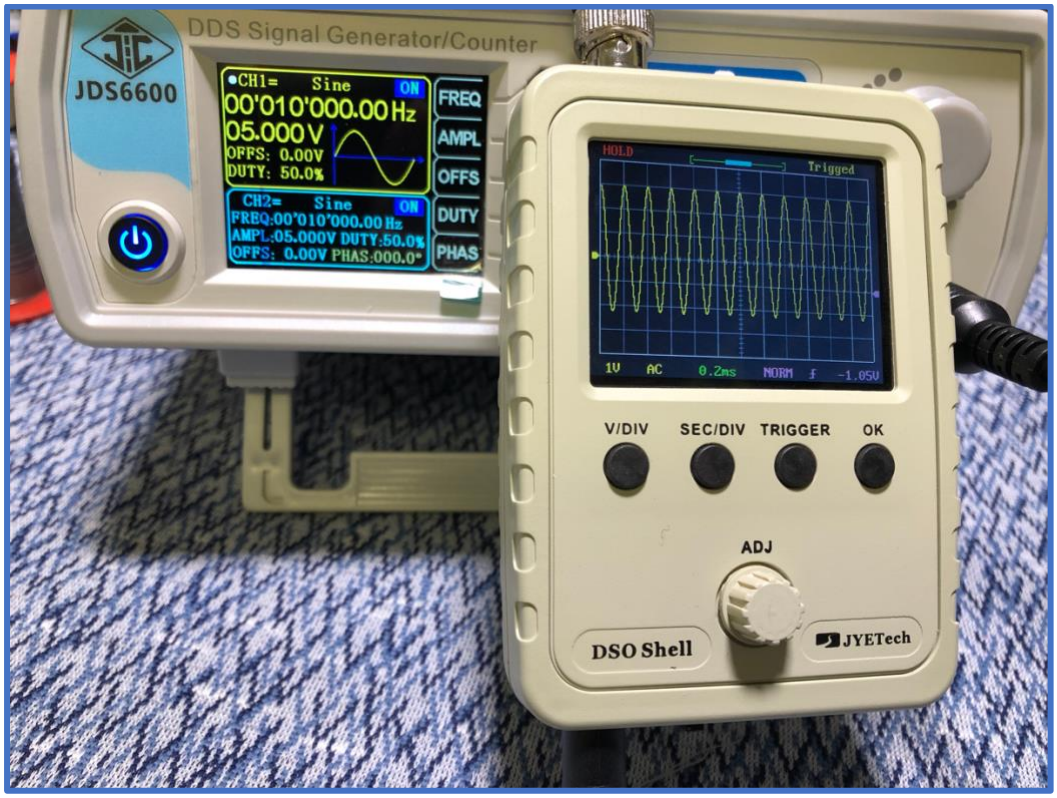


Close-up of a SMD soldered board

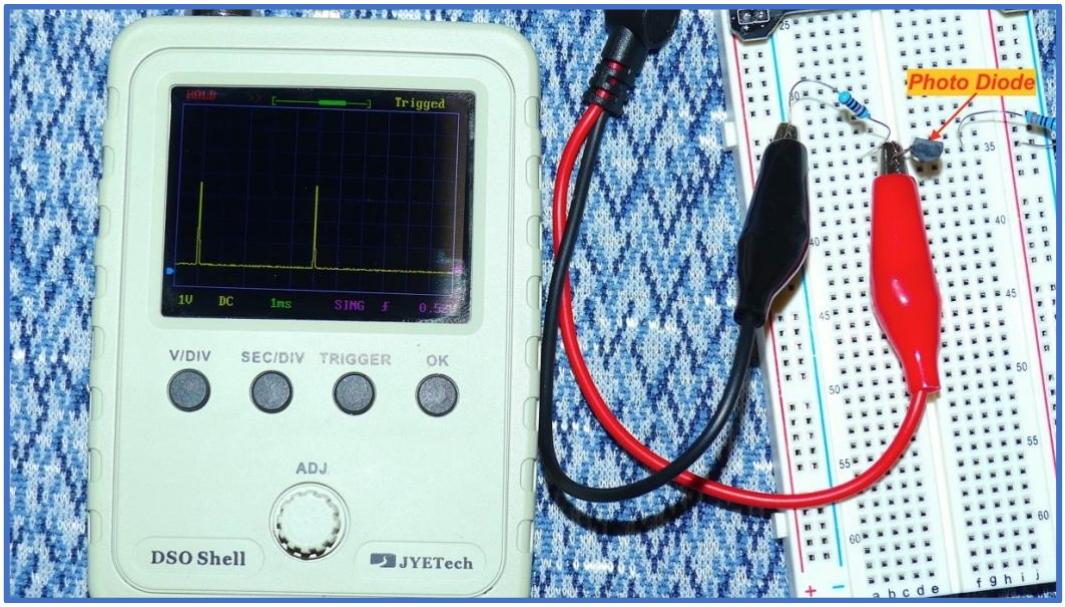
Part of the connections to a 1-2/3 inch cmos sensor

Images can be acquired using the supplied PC/Mac software or from a Smartphone with the right App

Kit Build No 1



Since I started back with my electronics I wanted to have a small oscilloscope that had a memory capability so that I can use it to look at electronic flash communications from Panasonic Lumix cameras with wireless (optical) controlled slave flashes. The image below is from the TTL flash from the FZ300 using a Photodiode to capture the flashes. I'll build a better circuit to capture a faster rise time of the light pulses.



This little DSO Kit is only £26 and took just a couple of hours to assemble.
Its accuracy is excellent with both the time base and vertical amplifier/attenuator being within 2% or so of the scale values.
It has a maximum bandwidth of 200Khz which is more than adequate for my needs. It can even act as a frequency counter as well!
The kit is now on sale at Banggood for just £15 so I've ordered another one. Details here

Image Stacking versus Post Focus MP4 file

Quite a lot of macro or close-up images require a significant amount of depth of field. Using the Panasonic "post focus" feature found on the more recent bridge cameras generates an MP4 file. This can be loaded into Helicon soft as the whole image set used to create a stacked image with the full depth of field. Here's an image captured with the FZ300/330 using the "post focus" method and all images from the MP4 file stacked into one image.

For this image, I set the near point and far point in Gsimple release and set the interval to 1 which generated an 8 image set

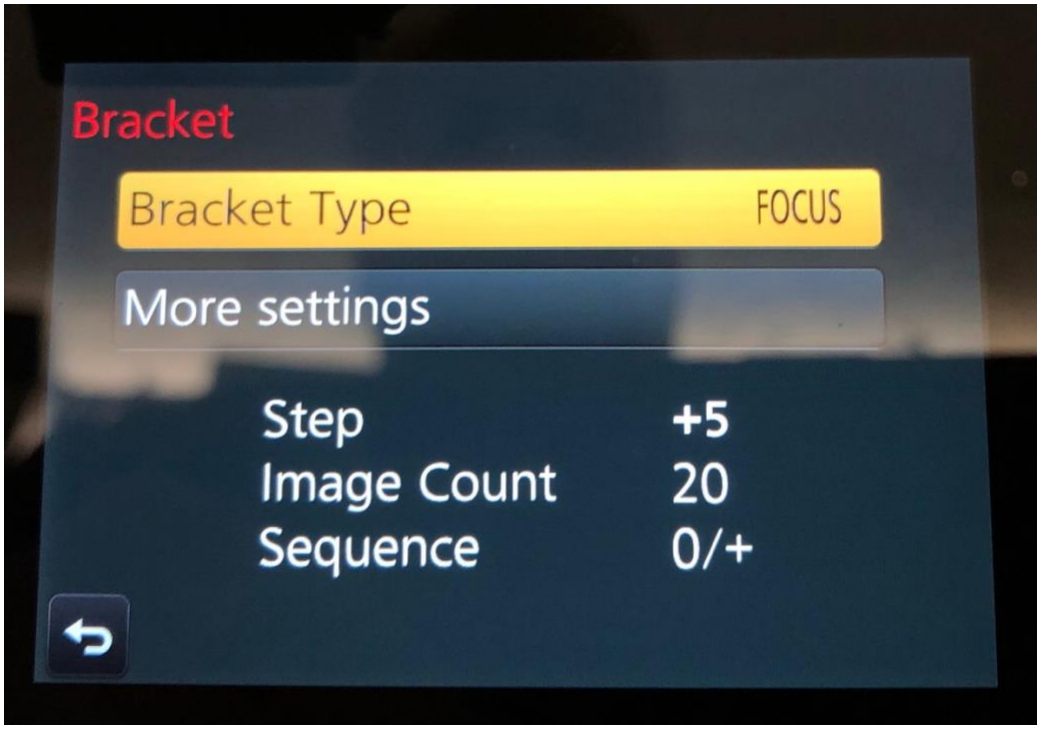
If you haven't seen Gsimplerelease app in use I created a tutorial back in 2016 for this program,
It is available for IOS and Android devices.

https://www.youtube.com/watch?v=rcpL5bc2ngI

GSimpleRelease is a focus bracketing app for Lumix cameras designed by Holger Kremmin. It works with any Lumix camera that is Wi-Fi capable and supports manual focus via the Panasonic Image App.

With the later Panasonic cameras like the GX80/85 and G9 they do have focus bracketing as an option from the menus which allows you to shoot a series of images for import into any image stacking program Here's the same scene from the GX85 with in camera focus bracketed and merged into one image.

As my license has expired for this program the saved file is watermarked however with a plain background image you can usually patch over this as in the previous image!



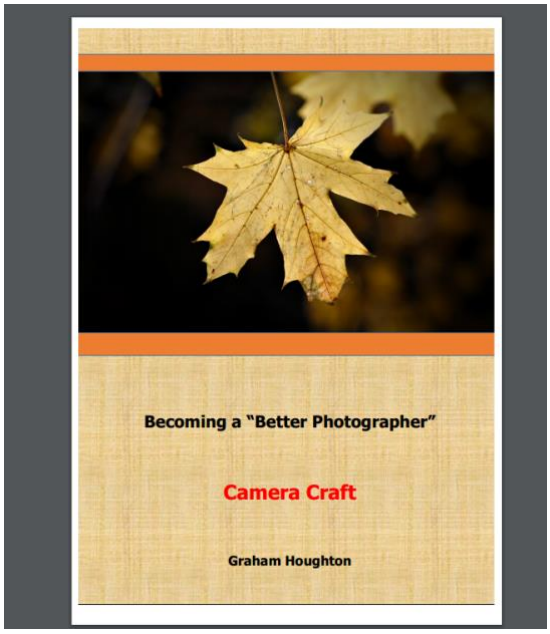
This is the focus bracketing option from the GX80 bracketing menu with focus option selected.
I've found it much better to select the 0/+ option as this then generates a logical series of images from near point to the far point.
Also ensure that the step count and image count is sufficient for the whole scene to be selected for the focus point.
The auto merge feature of the Post Focus method can produce some weird artefacts so I have always used the import video file into Helicon soft (or it can be done in Photoshop but is a lot more involved)

Post focus and in-camera merged (using the Range option) (some artefacts on close inspection!

New reading for recent subscribers

Over the last couple of months there have been nearly 100 new subscribers to this newsletter and I open this link here so that they may look at some of the free material that is not available anywhere else on the Photoblog.

You can find this extra content here



Complete guide to using flash with Panasonic cameras

If you are new to the fascinating world of flash photography if you haven't already downloaded it there is my free 43 page booklet on this subject and available here in PDF format.

Which Shooting Mode Should I Use?

The beauty of all digital cameras is the provisioning of a mode dial with several exposure mode choices.

For new camera users this can become a real challenge as to which, if any, of the semi-automatic modes they should choose.
Let me summarise the main reasons for selecting one of the PAS or M modes.

P Mode:

Is the same as iA mode however it does not include any scene recognition to enhance the images such as you would find using scene dependant parameters. In this mode aperture, shutter and ISO are all under the control of the camera. If you want to change the selected aperture/shutter speed combination you can use the program shift facility. The advantage is that you now have access to some of the more useful image producing menus such as the Photo Styles.

A Mode:

Probably the widest used of all modes as it allows you to set the aperture to a value where you are in control of the amount of light entering the camera and the depth of field. Setting a small aperture, like F8, allows the lens to produce the greatest amount of depth of field (i.e. the front to back sharpness) in the image.
Stopping the lens down also reduces the light falling on the sensor so automatically the shutter speed is reduced to produce the correct exposure. In conjunction with ND (neutral density) filters this is the way we achieve silky looking waterfalls and seascapes.

S Mode:

This is primarily used where there is any action involved in the subject. This could be sports or wildlife. By selecting a fast shutter speed we can stop any subject motion blur in the image.

The camera in this mode automatically adjusts the aperture to compensate. As a rule of thumb selecting a shutter speed equal to 1/focal length of the lens will ensure good results.
So, with the FZ300/330 you can see the effective focal length as you zoom in or out or with the FZ200 if you multiply the on screen zoom factor by 25 you will get the equivalent focal length.

For example, x3 would be 75mm x8 would be 200mm. Set the shutter speed to 1/200 in this example. The OIS provides image stabilisation for camera movement, not subject motion so it is worth bearing this in mind!

M Mode:

Manual mode allows full control of all the key elements in the exposure triangle. Aperture, Shutter Speed and ISO. We can have a small aperture for depth of field, a fast shutter speed to arrest subject motion and then adjust the ISO for the correct exposure.
Unlike the PA or S mode the adjustment of the aperture/shutter speed/aperture are all independent you must look at the exposure meter to ensure you have set up a combination which gives the right exposure.

Fears about computer security and newsletter opening

From your feedback to the requests to click on links within my newsletter to provide validation of the subscription it appears that this is a very tricky, and sensitive, issue.

We read nearly every day of compromised computer systems, hackers stealing corporate databases etc., etc. In January 2019, there were in circulation 772,904,991 usernames and passwords available on a free to access, hackers forum! These had been harvested from sites which had been previously compromised.
You can read this incredible story here

You can see if your email address was affected by entering it here

So what steps can I, and you, take to minimise this risk?
We I send out an email newsletter the mail provider will not post out the email unless it is verified as coming from the right domain name and you have specifically opted in to receive my emailed newsletter.

In my case it is grahamhoughton.com, which I pay for and is registered to me.
Unless I verify their request to confirm I am the sender then the mail is not sent out.

When you receive the newsletter which will always have the Sender as Graham's Photo Blog and the subject line of **"Your personal copy of Graham's Photo blog Newsletter for week ending dd/mm/yy"**

If you hover your mouse over the sender heading it should show **support@grahamhoughton.com.** *(shown below)*
Anything else here - a typing alteration like support@grahamehoughton.com means that it is not from me and someone is trying to impersonate my domain name.

This is as much as I can do to try and ensure the email reaching you is genuine and the last thing that I want is for your computer system to be compromised by an attack from a hijacked email from me.

Close-Up Photography with the FZ1000/2000/2500 Camera

I've been asked again for recommendations for shooting close-ups with these cameras. The Raynox lenses do require a lot of zoom applied to overcome vignette due to the 43mm lens opening of them.
I have suggested using 62mm Close-up lenses to achieve quite respectable images as detailed below.

Close-up, and macro, photography can be very rewarding when you have the right combination of supplementary lens and focal length.

This combination will dictate both the image magnification and the working distance from the camera to the subject.

Too close to the subject and too wide a focal length will result in distortion of the image.

It is advantageous to shoot from a distance which allows the natural perspective to be achieved. Stronger power lenses (higher dioptre number) allow the cameras working distance to be reduced.

This allows much bigger images to be recorded at the sensor plane, however this comes at the expense of very much reduced depth of field being achieved.

More information on using close-up lenses on the FZ1000 at near the bottom of here on my photoblog

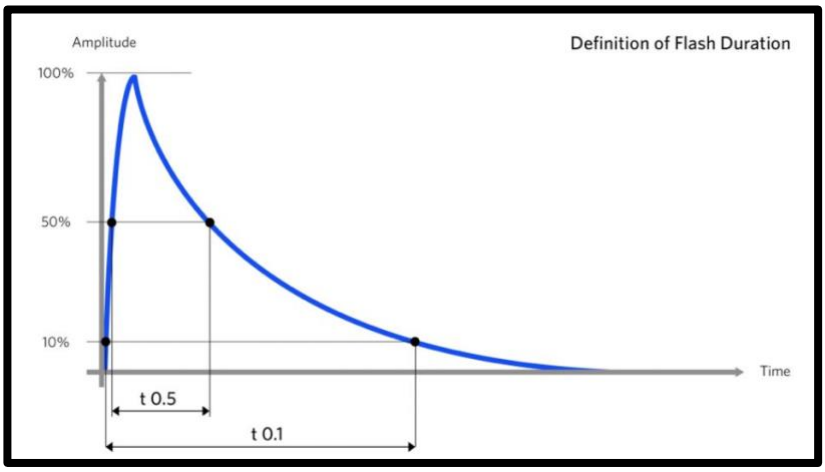
Understanding Flash Speeds

There is common misunderstanding about electronic flash.
Some people believe that as you decrease the flash power level the intensity of the emitted light from the flash unit is reduced.
This is not actually the case!
When you reduce the flash power level you do not reduce the intensity of the flash pulse but you do shorten the time that the light is emitted from the xenon flash tube.
At full power, most flashes have a flash duration of around 1/200 second and at minimum power (normally 1/128) it may be as short as 1/8000 sec.

In the following images. you can see this in my Godox AD600 flash unit which actually displays the flash duration.

In this case, you can see that at minimum power (1/256) the flash pulse is 1/10000 second however at full power (1/1) the flash pulse burns for 1/220 second.
This explains why sometimes you can still get subject motion blur when the flash is firing at full power as the 1/200 second is not enough to stop some sporting actions.
When the flash units are used for “stroboscopic” type images the flash pulse duration is normally set to 1/2000 or faster to ensure that the image is frozen.
These slower (longer) flash pulses also heat up the flash tube and associated drive mosfets and this is one of the reasons why the flash units have a time limit imposed and the number of flashes that can be fired before the units get too hot and shuts down to prevent damage.
Incidentally you can see the t0.1 value in the above images. Sometimes both the t0.5 and t0.1 values are quoted.
T0.5 flash duration measures the amount of time a flash takes to go from its highest output to half (0.5) of that output. The problem with this metric is when the flash is still producing half the light, it’s still showing up in your image, just 1 stop darker.
The t0.1 standard measures the amount of time the flash takes to go from its highest output to one tenth, which is about 3.3 stops of light difference.

For example, a single flash event might have a t0.5 value of 1/1200 and t0.1 of 1/450. These values determine the ability of a flash to "freeze" moving subjects in applications such as sports photography.



As you can see the t0.5 value is the period during which the flash intensity is above 50% of its maximum brightness. The t0.1 value is the period during which the flash intensity is above 10% of its maximum brightness. Hence, the t0.1 value is a much more accurate assessment of the actual flash duration.

After all that talk about flash, here is an image of two new characters I purchased recently
Off camera Godox AD600 Flash in 24inch dish with diffuser. Panasonic G9 and Olympus 40-150mm lens

Coming soon

I have spent almost my entire working career developing and experimenting with electronics and microprocessors.
During the winter months when outdoor photography (mine at least) tends to decrease somewhat I intend to try and develop a few photography related electronic projects that might also be of interest to some of you.

I'm in the process of completing the software for my microprocessor driven camera slider and have designs for a macro photography slider which will increment the camera forward by a given (adjustable) amount and then fire the shutter and repeat for a given (adjustable) movement.
I also will be completing my optical slave flash trigger that will allow the use of older high voltage trigger guns to be used. These are usually quite high powered and very cheap.
I've also designs to make my portable light meter even smaller and more portable and incorporate a colour temperature cell in it as well.
I also want to design/build a flash delay unit for water droplet photography that will release a water drop and then fire the flash after a given (variable) time delay.
I'll also be looking at electret mics and mixers and building a low noise mic pre-amplifier for the Panasonic cameras with Mic inputs.
I have several iterations now of portable power bank to 8.4v adaptors and dummy battery for all my cameras and will be looking to standardise the design to work across the Canon/Olympus/Panasonic cameras and can use them for USB –C charging as well.