# ZEUS PHOTOGRAPHY

## Panasonic

GX80
GX85

Lumix Camera

# Photography

## Product Review
## Cameras

## Panasonic Lumix camera GX80/85

**4K Video for everyone. Enjoy ultra high definition video footage on your 4K television. Capture special moments with Panasonic's 4K photo mode.**

W elcome to Mister Zeus's product review of the Panasonic Lumix GX80/85 camera. The product number depends on the geographic region in the world, but the cameras are the same. The product number used throughout this review will be GX80.

Section 1 of this review will begin by looking at the camera body, and focusing on the external and internals of the camera. The goal of this section is to explain the properties of the camera. This will help potential buyers identify their priorities for selecting a camera based on their photography style and needs.

In section 2 I look at the camera functions of the Panasonic GX80. The focus will be on still photography related features. I have included sample photos taken with the GX80.

Video and 4K deserve their own section, so in section 3 I cover those functions.

4K Photo and Post Focus are special features and unique selling points for Panasonic. I have included a review and still photo samples from the 4K photo modes.

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**Panasonic Lumix GX80**
**Compact System**
**Camera**
**Interchangeable lenses**

## Contents

Mister Zeus

## 01 Camera Body

The camera body is fairly small, as expected from micro 4/3 cameras in this type of category. It feels steady holding the camera in my hands, even when only using one hand around the hand grip.

With the kit lens (G Vario 12-32 mm) attached, battery and SD card inserted, the weight of the camera is approximately 493 grams (1.09 lb) which is quite light. I have also tried the camera with a 45mm f1.8 Prime lens from Olympus, and it still felt light enough to hold in one hand, or hang around the neck with normal camera strap.

One of the benefits of the micro 4/3 system (standard developed by Olympus and Panasonic) is the size and weight of their cameras and lenses.

The GX80 uses a in-body image stabilization system called "I**mage Sensor Shift**". Panasonic has enhanced its stabilization system to use 5-axis in the GX80 camera body, and with the appropriate lenses (lenses with image stabilization - Panasonic lenses) attached, the stabilization can be further enhanced by combining lens stabilization and sensor shift stabilization. The term Panasonic uses to describe this unique combination is "**Dual IS**" (Image Stabilization).

To keep the sensor clean the camera includes a dust reduction system called "**Supersonic Wave Filter**". Color reproduction can be via the commonly sRGB or AdobeRGB color space standards.

Panasonic has included Wi-fi in the body, supporting the common standards (IEEE 802.11b/g/n) across 1-11 channels, over a frequency range of 2412 - 2462 MHz. Wi-fi authentication modes supported include WPA and WPA2. There is no NFC support, but not many camera manufactures support this standard.

## Panasonic GX80 Dimensions

70.6 mm
2.78"

43.9 mm
1.73"

122 mm
4.8"
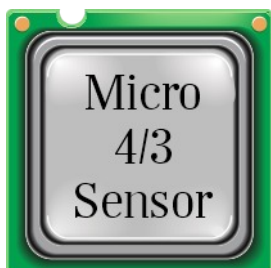
The sensor size of this Micro 4/3 camera is 17.3 mm x 13.0 mm (in 4:3 aspect ratio). The crop factor is x2, meaning lens focal range and aperture must be multiplied by two to calculate full frame (35 mm Analogue Film) equivalents.

The Panasonic GX80's 16 Megapixel sensor is capable of producing large still images with a pixel size of 4592 x 3448 (in aspect ratio of 4:3).

Video sizes:
4K = 3840 x 2160 pixels
Full HD = 1920 x 1080 pixels

Kit Lens
G Vario 12-32mm

ISO 800
23mm
F4.9
1/40 second

**1** Exposure - make sure you have the correct ISO, Aperture and Shutter speed to capture a balanced photo.

**2** Attach the best lens possible for the creative shots you are aiming for (e.g. portrait, telephoto lens).

**3** Set the suitable AF mode, e.g. AF-S (Single), AF-C (Continuous focus).

**4** Set the correct Focus area mode for your subject, e.g. Single point, Group, Custom area, or Tracking.

**5** Hold the camera steady in one hand. Hold the GX80 close to your body for least camera shake.

**6** Set the shooting mode to "H" (high, e.g. 6-8 frames per second). This will raise probability of capturing your photo.

**7** Gently press on AF point to focus and release shutter and hold camera steady during and after the moment.

**QR code connection mode makes the setup and pairing of a smart phone with the GX80 via Wi-fi even easier. You can scan the QR code with your smartphone instead of typing in relevant information. Connections can be secured with a Password.**

Setting a auto focus (AF) point is done via the touch screen. Having a dedicated joystick or 4-way buttons for setting a AF point as an addition to the touch screen would have been nice as you can frame your photo via the viewfinder and make selections via such controls. Overall I liked the touch screen very much, and am glad Micro 4/3 cameras excel in this area.

# Tilt Screen
## Touch Control

**The screen at the rear of the camera is a static TFT LCD monitor with static touch control. It is not as visually appealing as a OLED screen, and it does not flip out all the way (useful for selfies or other photo positions). The resolution is low (1,040 pixels) compared to other models and manufacturers, but still pretty good.**

The monitor is 7.5 cm (3.0 inches) large which is a common size for cameras. It can be used in 3:2 aspect ratio and wide viewing angle. The field of view (what you see on the screen frame versus real life) is approximately 100%

Menu selections can be made via controls on the camera body, or via the touch screen. Menu navigation and changing settings is certainly easier with the touch screen.

It is possible to achieve the same mode of operation with the touch screen, but it may take some getting used to if you are used to other ways. The camera body is kept small and light with these minor omissions.

In my opinion, the major benefit of a tilting touch screen is the ability to set the AF point and release the shutter almost instantaneously.

I have been able to capture photos with the "**Touch Pad AF + Touch Shutter**" that probably would not have been possible without a touch screen and tilting monitor screen. How important this feature is to you will depend on your photography style and camera use.

# Shutter

## Mechanical and Electronic

The Mechanical shutter is as fast as 1/4,000 of a second, and maximum time is 2 minutes. If you need faster times you can enable the Electronic shutter which is as fast as 1/16,000 of a second.

A self-timer shutter release is included and can be set for 10 seconds.

## Burst Shooting

The mechanical shutter can shoot images at 8 frames per second (fps), or 6 fps with Live View (using monitor screen instead of viewfinder).

The electronic shutter can shoot images at 40 fps without Live View or 10 with Live View.

# Viewfinder

The GX80 uses a Digital Viewfinder which Panasonic calls Live View. It has approximately 100% field of view and is equivalent to 2,764,800 dots.

Magnification is approximately 1.39x. The viewfinder has a eye sensor with diopter adjustment (-4.0 to +3.0 dpt).

Eye sensor adjustment (automatically switching from live view to viewfinder when eye is close to viewfinder) can be set to High or Low. The eye sensor is approximately 17.5 mm from the eyepiece lens.

# Battery

The GX80 uses a Li-ion battery pack which is 7.2V, 1,025mAh, 7.4Wh). Panasonic has decided to remove a external charger, and instead only provides a USB cable that connects the camera to a AC adapter.

This means the camera cannot be used while charging a battery. I would have preferred an external battery charger and then would have bought a spare battery.

Talking of spare batteries - you will probably require one or two (or more) depending on what and how you plan to use this camera. I found the battery life to be very short.

I mainly use a camera on the weekends, and found it to barely make it through a weekend. The number of images I captured was not that high either (not as high as the stated 270-290 images it should be able to do on one charge). I did try the 4K photo mode a few times, but those clips were under 1 minute.

Video does consume more battery power, as does using the LCD monitor, but I still found the battery time disappointing. Using a small battery does keep the size and weight of the camera body down, but the trade off may be negative for some.

Charging was also a painful process - at least on the camera I tested. The flip cover hiding the mini HDMI connection and the charging socket was quite flimsy. I was scared of breaking the plastic. I could not open the panel with my fingers (maybe my fingernails are too short), so I had to use a mini screwdriver to lift the plastic panel. That was another reason why I wished Panasonic had used an external battery charger.

The panel for inserting the battery or a SD card is at the bottom of the camera body. At least this panel was easy to open and lock with a easy to use sliding switch.

Included in the basic bundle is a Lumix G Vario 12-32mm kit lens that has Image Stabilization built in. Panasonic calls its in-lens stabilization system MEGA O.I.S. The kit lens has an aperture range of f3.5 to f5.6. The smallest aperture is f22, and the filter size is 37mm.

**Charging is done by connecting a mini USB cable to the camera body. The camera has to be connected to charge a battery.**

# Flash ⚡

# Interfaces

The GX80 includes a little pop-up flash built into the camera body. The flash type is a TTL flash with a GN 6.0. Synchronization speed with the built-in flash os less than 1/160 of a second.

Flash output adjustment can be in 1/3 EV steps to +- 3 EV. The Flash synchronization provides Curtain synch, and 2nd curtain sync. Synchronization for flash dimming and exposure compensation is supported.

There is a hot shoe for adding an external flash. Panasonic Flash accessories can be added to this camera. There are also Flash systems from third party manufacturers like world renowned Metz.

Panasonic included a Micro-B USB 2.0 interface for charging the camera or connecting to devices (e.g. Printer, PC). The GX80 is PictBridge compatible.

The microHDMI Type D interface allows connecting the camera to a TV. If you have a Panasonic TV, then you can use VIERA Link for connecting the camera with the TV and watching 4K, 1080p, or 720p.

Unfortunately there is no external microphone input, which is key feature for a video blogger and hobby user alike. There is no Audio video output either.

The built-in microphone is Stereo, and has a Wind-cut feature (Off, Standard, High options). The speaker is Monaural.

As standard for cameras of this category, the GX80 also includes a tripod mount. It felt steady and was not leaning forward with a larger and heavier lens

There is no Microphone input in the Panasonic GX80.

Video bloggers may use external microphones and sync with video in post production, or select a higher end Panasonc model such as the new GH5.

# PHOTOGRAPHY

The Panasonic GX80 provides several AF modes:

- Face / Eye Detection
- Tracking
- 49 - Area
- Custom Multi
- 1 - Area
- Pinpoint

The Focus modes available are:

- AFS (Single)
- AFF (Flexible)
- AFC (Continuous)
- MF (Manual Focus)

My photography styles mainly include landscape, animals, and portrait. I usually set Focus mode to AFS for landscape and portraits, and use 1-Area AF mode.
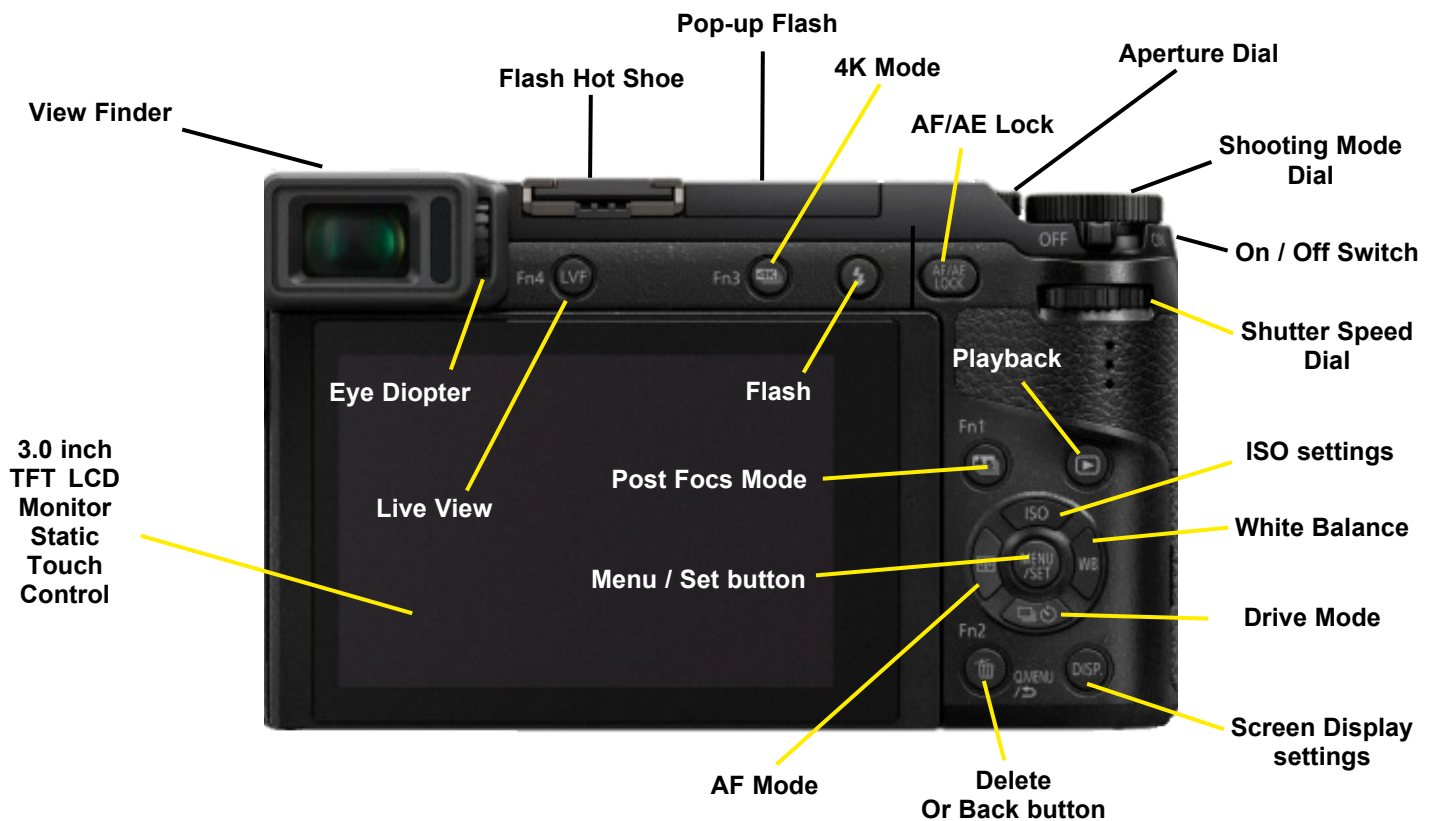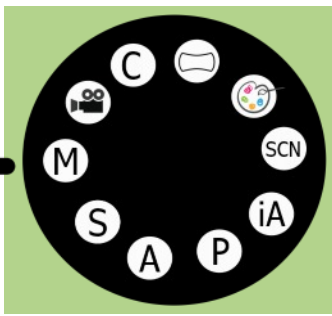
For animals I either use AFS or AFC as Focus mode, and select Tracking, Custom Multi, or 1 - Area as AF mode.

| | |
|---|---|
| Still Image | JPEG (DCF, Exif 2.3) RAW |
| Aspect ratio | 4:3, 3:2, 16:9, 1:1 |
| Image quality | RAW, RAW+Fine, RAW+Standard, Fine, Standard |
| Color Space | sRGB, AdobeRGB |
| Pixel file size (4:3 aspect) | 4592x3448 (L) 3232x3224 (M) 2272x1704 (S) |
| Pixel file size (3:2 aspect) | 4592x3064 (L) 3232x2160 (M) 2272x1520 (S) |
| Pixel file size (16:9 aspect) | 4592x2584 (L) 3840x2160 (M) 1920x1080 (S) |
| Pixel file size (1:1 aspect) | 3424x3424 (L) 2416x2416 (M) 1712x1712 (S) |

# Shooting modes

The GX80 provides the standard modes (Program, Aperture priority, Shutter priority, and Manual). It also has a iA (intelligent Auto), SCN (Scene mode), Creative mode, Panorama mode, Custom mode, and Movie mode. All of these modes can be set via the dial.

I mostly shoot in Manual (M) mode. There are two dials on the GX80 camera body. The front dial can be used to set aperture. The rear dial can be used to set shutter speed. ISO is set via a dedicated control button the back of the camera (on the right side next to the monitor screen). It is also easy to change values with the touch screen (e.g. ISO values, Aperture, Shutter speed) just by swiping.



Pop-up Flash
Flash Hot Shoe
4K Mode
Aperture Dial
View Finder
AF/AE Lock
Shooting Mode Dial
On / Off Switch
Eye Diopter
Flash
Playback
Shutter Speed Dial
3.0 inch TFT LCD Monitor Static Touch Control
Post Focs Mode
Live View
ISO settings
White Balance
Menu / Set button
Drive Mode
Screen Display settings
AF Mode
Delete Or Back button

Navigating the menus and selecting values was easy and quick, especially with the help of the touch screen. You can swipe left or right to see different options and touch to select value or option.

The GX80 includes a photo mode called "**Panorama**". This is accessed via the Shooting mode dial. After you select this option you will see instructions displayed on the rear monitor screen.

Basically you use the horizontal to use as level guidance, and slowly pan from left to right holding down the shutter button. Once you have panned to the far right or your scene, the GX80 will process all the captured images and "stitch" them together into one panorama wide screen image.

Included with the GX80 is 4K Photo. When this mode is selected (Function 3 - FN3 button)

you can choose capture images at 30 fps, and then use the camera to extract one or more 8 MegaPixel still image(s) in JPEG file format and save to the SD card. It is of course possible to extract still images (individual frames) from video footage with a PC and special software, but Panasonic makes this easier by providing this feature in-camera.

Time Lapse (accessible from the main Menu - click Menu button) is another nice feature that Panasonic has included. You specify the required values (e.g. event time, frames) and it will then take images automatically and joint them together into a short clip.

The GX80 has a lot of customisation options, and buttons (e.g. Fn1 - Fn9) that you can assign your favourite options to.

# FOCUS OPTIONS

- On Shot AF
- Shutter AF
- Half Press Release
- Quick AF
- Continous AF
- Eye Sensor AF
- AF+MF
- MF Assist
- Touch MF Assist
- Focus Peaking
- Touch AF / AE Function
- Touch Pad AF
- Touch Shutter

*4K Photo JPEG*
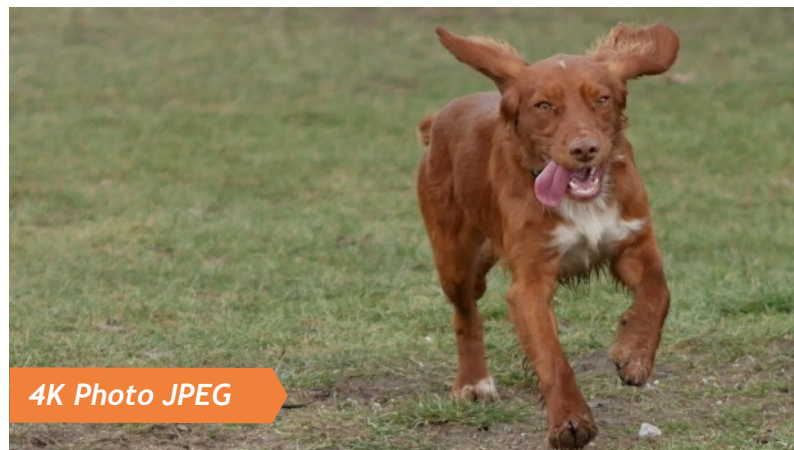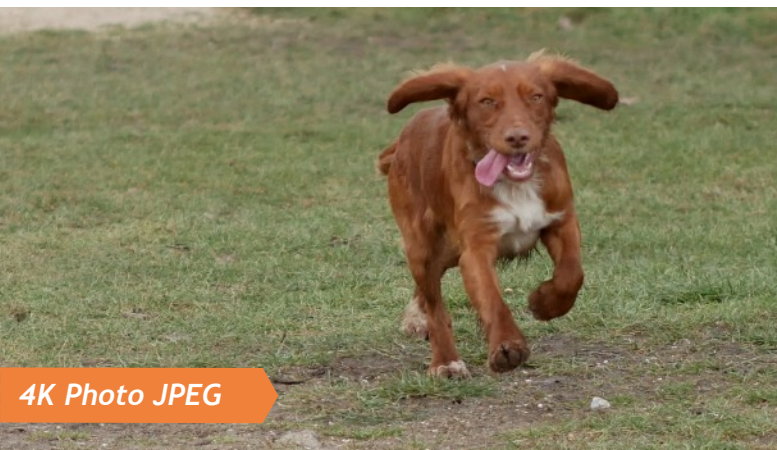


*4K Photo JPEG*

# 4K Photo

The GX80 includes a Panasonic specific feature called "**4K Photo**". This allows you to capture video at 30 fps (frames per second) and then use the camera monitor to save individual frames as still JPEG files. The resolution of the JPEG file is 8 MegaPixels.

This mode makes it easier to capture some fleeting moments that may have been very hard or near impossible to capture even with a fast burst rate (e.g. 8-10 fps with RAW file mode).

I tested this mode with a fast moving subject (e.g. the running dog as seen in images above). The GX80 locked onto the subject (I set camera AF to "Tracking" and focus to AFC (Continuous).

You can select different aspect ratios (e.g. 4:3, 3:2, 1:1, and 16:9) for this mode.

The different 4K photo modes available are:

- 4K Pre-Burst (4K PRE)
- 4K Burst Start and Stop (4K S/S)
- 4K Burst

As it is 4K Video, the footage will consume vast amounts of storage space on your SD card. Also make sure you have a fast SD card (high write speeds).

Use the touch screen to swipe through the individual frames, and then save your selection to JPEG file on your SD card.

I would have liked this feature even more if it was possible to extract a RAW image file (allowing more post editing that is non-destructive), but it does allow me to capture moments that may otherwise not have been possible.

# Post Focus
# Photo Stacking

Building on the 4K Photo capabilities, the GX80 provides a feature called "**Post Focus**". In this mode the camera captures images at 30 fps, and automatically sets the focus on fixed regions (from front to the back of a scene). The number of regions are 49, and use Panasonic's Depth From Defocus (DFD) technology. You are then able to select the frame with the focus you like and save that capture as a JPEG file.

This features allows creative freedom without having to worry about technical details. You can focus on capturing the moment or scene, and then extract the finished shot (image) afterwards. This could be useful in wedding photography, or macro photography. For more information click here.

Another interesting feature Panasonic has added to the GX80 is "**Photo Stacking**". This feature is provided via a firmware upgrade. With photo stacking the GX80 also takes a series of photos at 30 fps, and you can then select the regions you wish to be included in the "stack". The camera will then merge the photos with the regions you selected into one final image (JPEG). This is especially useful for macro photography. For more information click here.

While it is possible to perform "photo stacking" in post-production with special software and a PC, it is a nice and convenient feature to have in-camera. The end result is a JPEG file, so not as good as a digital negative (RAW) file, but it provides another creative option for photographers. The touch screen makes it easy to select regions and focus points, and then to save images to JEPG.



*Panorama Photo*

# 03 Video and 4K
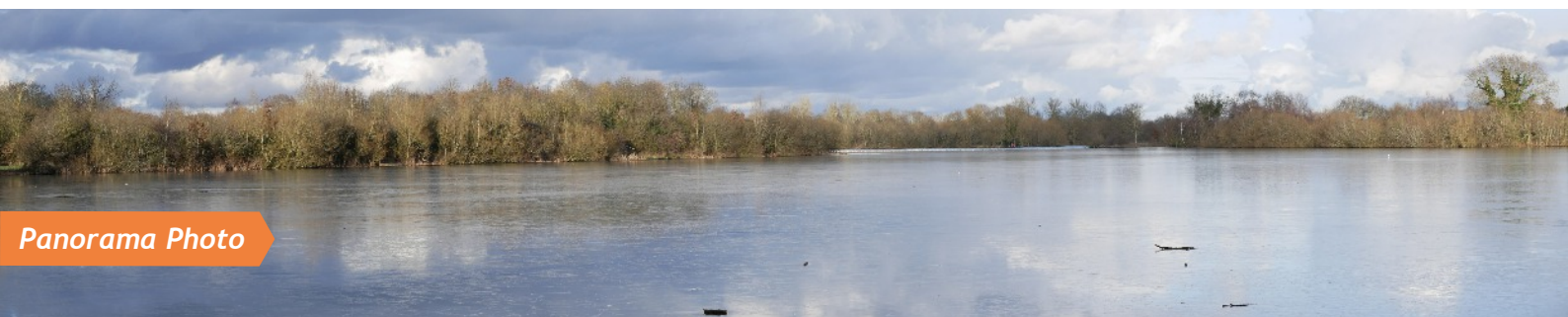
# VIDEOGRAPHY

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| | |
|---|---|
| Motion Picture | AVCHD (Dolby Digital 2ch) <br> MP4 (AAC 2ch) |
| MP4 | 3840x2160 4K/25p 100 Mbps |
| MP4 | 1920x1080 FHD/50p 28 Mbps <br> 1920x1080 FHD/25p 20Mbps |
| AVCHD | 1920x1080 FHD/50p 29 Mbps |
| AVCHD | 1920x1080 FHD/50i 17 Mbps <br> 1920x1080 FHD/25p 24 Mbps |
| Recording time (Continuous) | AVCHD FHD/50i → 90-100 Minutes <br> 4K/25p → 70-80 Minutes |
| Creative Video Modes | Program AE <br> Aperture Priority <br> Shutter Priority <br> Manual Exposure |

The Panasonic GX80 provides **Actual** video recording times of:

- AVCHD - 50 Minutes
- 4K - 40 Minutes
- 4K - 35 Minutes (Live View)

Ensure you have a fast SD card to record video (fast write speeds), and that there is enough space. I recommend at least 32 GB.
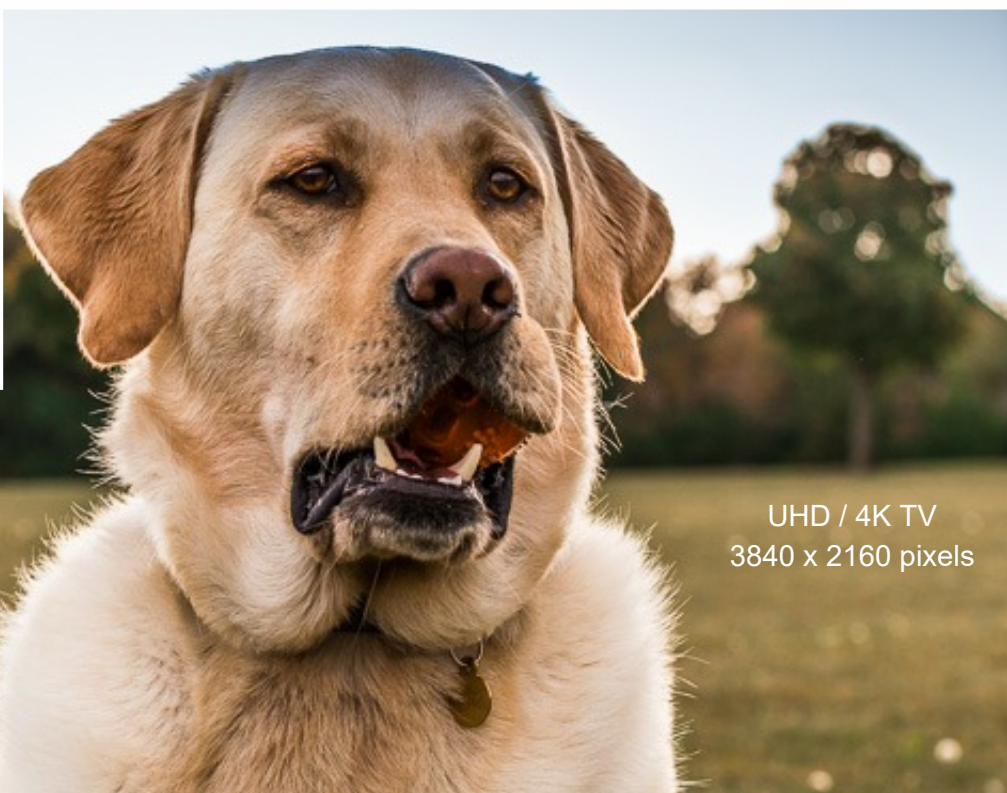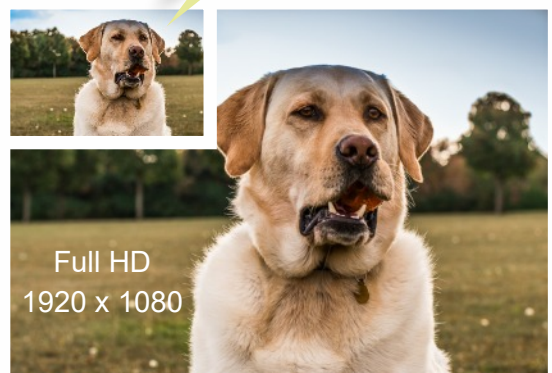
The GX80 does not have a microphone input, so it may not be an ideal camera for a video blogger.

Advanced camera models from Panasonic (e.g. GH5) provide more video options, but that camera is quite a lot more expensive.

HD
1280 x 720

Full HD
1920 x 1080

UHD / 4K TV
3840 x 2160 pixels

# Video

Video profiles are not available with the GX80 model. Such advanced features are available in Panasonic's higher end models. For many users the standard video profile and features will be adequate. This camera is an affordable option for capturing 4K video for viewing on a 4K television.

You can access video recording via a dedicated red record button on the top of the camera body (to the left from the Mode dial), or you can also activate video via the Model dial. For Full HD use AVCHD format. If you want 4K video, then use the MP4 format. You can then copy the video file from your SD card to a PC or USB hard disk (HDD). I placed a MP4 video file on a USB HDD and connected it to my 4K television. You can also connect the camera to a TV via the mini HDMI port in the camera body.

Image stabilization in video was very good. So far the best image stabilization system I have tested was that from Olympus, but the Panasonic 5-axis in-camera sensor shift stabilization (can be extended to dual Image Stabilization if combined with appropriate lens) is extremely powerful.

If you have a telephoto lens make sure it has a silent mode for video.

It is a pity that Panasonic did not include a microphone input, or audio headphone jack (to hear sound as you are recording - allows you to check you have optimal settings while recording), but I guess Panasonic wanted to keep those features for higher end models, and keep the camera body small and light.

The touch screen was very useful for setting Auto Focus (AF) points, especially while recording, and moving from one AF point to another was smooth.

I did not encounter any overheating of the camera body, nor have I read any reports that suggest this could happen. Most of the time my video clips were quite short, so I cannot make a fair comment on overheating.

Video recording, especially with powerful video codecs (like H.265) for 4K will consume computing power from the camera, increase warmth of the internals, and use more battery power.

For cameras from Sony (e.g. A6000 series) there were quite a few reports concerning overheating and the camera switching off.

If extended video recording periods are important for you, then I suggest you search photography forums for experiences with the Panasonic GX80.

The videography features provided in the GX80 camera are very powerful, but if video is important for you, then a higher end model such as the new GH5 from Panasonic may be more suitable for you.

# Conclusion

Rating

4 Paws out of 5

The Panasonic GX80 / 85 is a very good camera. It is a compact system camera with interchangeable lenses.

New in this camera is a 5-axis sensor based (in-camera) image stabilization system. This means you can leverage image stabilization with lenses that do not have lens image stabilization (e.g. lenses from Olympus as Olympus has always used sensor based image stabilization).

Another special feature included in the GX80/85 is Dual IS (Image Stabilization). This means the camera can combine image stabilization from the sensor and from a compatible lens (e.g. Panasonic lenses with image stabilization). This feature is especially useful for telephoto lenses.

The 16 MegaPixel sensor provided very good results, and the camera supports shooting in RAW (digital negative) and JPEG. It would have been nice if Panasonic had used its newer 20 MegaPixel sensor in this model, but maybe the next version will see that upgrade.

The micro 4/3 standard provides plenty of lens choices for users. Panasonic, Olym-

pus and Sigma lenses can be used with the GX80/85 thanks to its sensor based image stabilization.

Camera manufactures like Panasonic and Olympus have included a touch screen in their models for quite some time, and I find it very useful. It would have been nice if the GX80/85's touch screen was fully articulating, not just tilting, but it is still very useful and easy to use.

I was able to capture low angle photos via the touch screen without having to lie on the ground or at least kneel down. Having a touch AF+Shutter is a great feature as it makes it easier and faster to capture the scene or moment.

4K Photo, Post Focusing, and Photo Stacking are unique features that Panasonic includes to make photography even more fun and easy. No need for a PC or complicated software and editing. Yes, images are JPEG but that is better than missing the shot.

4K Video is another great feature included with the GX80/85. It does not compare to the video options (e.g. microphone, video

profiles, etc.) of higher end models, but then the price tag is also a lot less.

Overall I find the Panasonic GX80/85 to be a great camera at an affordable price.

# DONATE TO CHARITIES

## SUPPORT ANIMAL AND HUMAN CHARITIES

## Animal Charities:

- Charity for Guide Dogs

- Charity for Dogs for the Disabled

- RSPCA - Animal welfare charity

- World Wide Fund Charity for Animals - Adopt a Tiger

- World Wide Fund Charity for Animals - Adopt a Snow Leopard

- World Wide Fund Charity for Animals - Adopt a Amur Leopard

- World Wide Fund Charity for Animals - Adopt a Lion

- World Wide Fund Charity for Animals - Adopt a Jaguar

- Charity for re-homing pets

## Human Charities:



Click here



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