

Stills Photography with the Lumix G80

Modern digital cameras are marvellous pieces of technology that are capable of capturing wonderful images. However, most are needlessly complex. We typically face four exposure modes, three metering modes, at least three focus modes and several auto-focus modes. And that is before considering ISO (sensitivity), white balance, exposure compensation, drive mode and a host of other settings!

Lumix G cameras are highly configurable, have a relatively user-friendly interface and (most) have a number of programmable buttons and other controls. However, this adds yet another level of complexity.

It has taken me years of use to find effective ways of using and configuring Lumix G cameras. Having done so, I find them a delight to use. Features and capabilities hidden in the menus and documentation can be programmed onto buttons and the QUICK MENU (Q.MENU) and made directly accessible and highly usable.

This manual attempts to distil this experience into a relatively short document. It is directed at stills photographers and does not cover taking video or intelligent auto mode. Don't let this put you off using intelligent auto: it does work well. However, the techniques in this manual let you make full use of your camera's capabilities and are no harder, once mastered.

Please refer to the official Panasonic manuals, which can be downloaded from Panasonic's web site, for the basic details of camera operation and for full details of features such as 4K PHOTO.

The manual is organised as follows:

- The first chapter gives an overview of the controls, so you can follow the rest of the manual.
- The second chapter covers taking photos, using recommended custom modes. The setup of the custom modes is described in chapter 4.
- The third chapter summarises the technical capabilities of the camera. It provides details of additional capabilities for you to refer to as needed.
- Chapter four summarises the functions and settings of the cameras and describes how to set up (program) your camera. This should be the first thing you do.

I hope you enjoy using your camera.

1. Controls on the G80

This chapter provides a brief overview of the controls: see the photographs on page 2. Note the name / function of each control. Some buttons have the function embossed on or by them. The function of other buttons, which only have an icon or Fn number on them, are shown on the photographs.

Insert a charged battery and memory card, following the instructions in the camera manual. Turn on your camera using the ON / OFF switch. It's obvious how to turn it off again.

Before proceeding further with this manual, please set up your camera as instructed in chapter 4, which also describes the functions in the menu system. The setup makes the frequently-used features of your camera readily accessible. The functions used most frequently are allocated to the dials, programmable function buttons and screen icon 'buttons'¹. For example, the FOCUS AREA SET button lets you enable use of the touch screen and cursor keys to position the AF (auto-focus) area. The use of the other buttons and dials is discussed below.

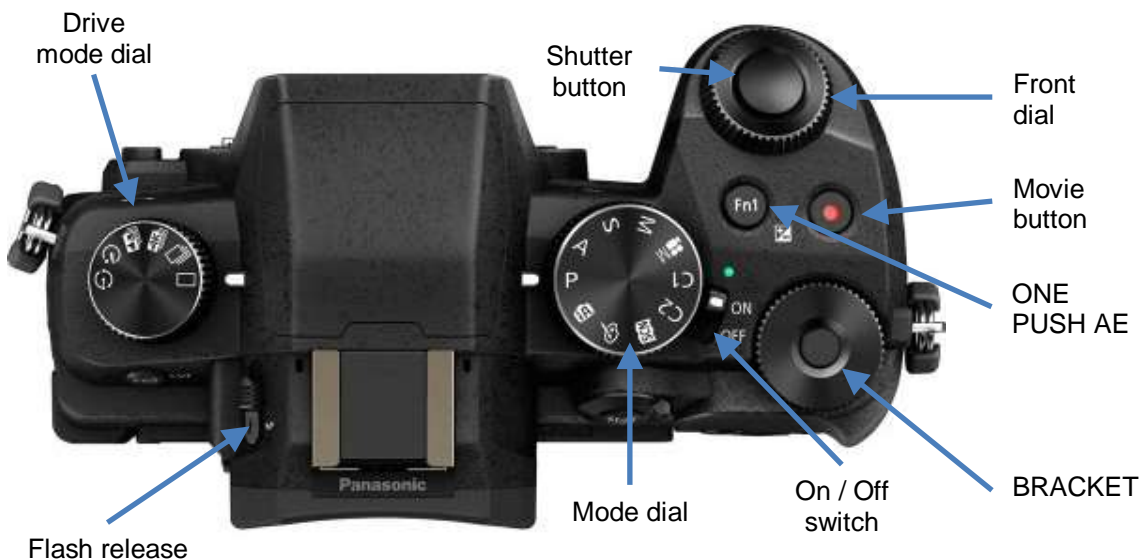
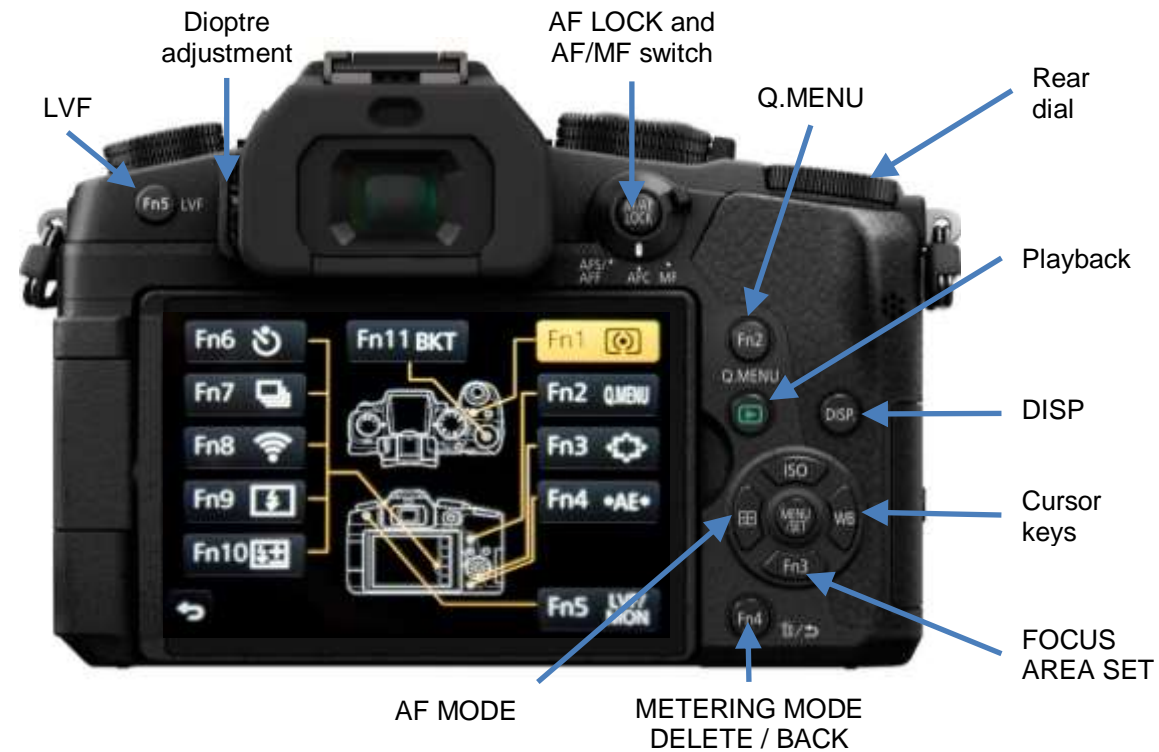
The next most frequently-used functions are put on the Q.MENU, where they can be quickly accessed. Access other functions through the full MENU system.

When using the viewfinder, use the buttons and dials to control most functionality, including using the cursor keys to move the AF area after pressing the FOCUS AREA SET button. When viewing the screen, you can use either the buttons and dials or the touch screen.

¹ The screen icon functions are accessed (and hidden) by touching the small tabs to the right of the screen. They are not available using the viewfinder.

Use the dioptre adjustment, beside the viewfinder, to focus the viewfinder image.

With the LCD screen open, press the LVF button to toggle through the MONITOR SWITCH settings: LVF on; LCD screen on; and automatic switching between the two. [I leave it in the last of these all the time, so you could free up the Fn5 button, if you have a need for it.] When you turn the camera on it will use the setting you were using when you last switched it off.



Press the DISP button to cycle through alternative displays on the screen or viewfinder (whichever is in use): with info; no info; level and info; level and no info; control screen; and off. The last two only apply to the screen. The control screen shows a number of function settings and allows you to change them.

The Mode dial lets you choose an exposure mode (Panasonic calls them 'shooting' modes, but I find this confusing). The four exposure modes are Program (P mode), Aperture priority (A mode), Shutter speed priority (S mode) and Manual (M mode). It also lets you access 4 custom modes (stored sets of camera settings), an 'intelligent auto mode, a movie mode and a number of scene and filter modes.

Switching between shooting and playback

- Press the playback button (▶) to view photographs and videos you have taken, in playback mode.
- Half-press the shutter button, or press the playback button again, to return to shooting mode.

The Q.MENU

Other important functions for stills photography are programmed on the Q.MENU. I recommend programming the functions shown in Table 1 on the Q.MENU, following the instructions in chapter 4, section 3.

Each row in Table 1 appears on a separate page at the bottom of the Q.MENU. Scroll beyond the end of the row to access the other page.

| | | | | |
|------------|----------|---------------|------------|--------------|
| STABILIZER | AFS/AFF | ZEBRA PATTERN | QUALITY | SHUTTER TYPE |
| BURST RATE | 4K PHOTO | SELF-TIMER | FLASH MODE | FLASH ADJUST |

Table 1: Setup of the Q.MENU

To change one of these function settings, press the Q.MENU button. Then:

- Select the function to change, using the front dial, left/right-cursor keys or touch screen.
- Change the setting for the function using the rear dial or touch screen. Alternatively, press the up-cursor key to change the function setting with the left/right-cursor keys.
- Press SET (or Q.MENU or BACK) or half-press the shutter button to exit and save the setting.

The MENU system

All functions (except for some with dedicated controls) can be accessed by pressing MENU. The menu system has tabs for REC (still photographs), MOTION PICTURE, CUSTOM, SETUP and PLAYBACK.

- Use the front dial or touch screen to move between tabs.
- Press DISP to move to the next page for a tab.
- Use the rear dial, cursor keys or touch screen to move between functions on a tab.
- Press SET (or the right-cursor key) to edit a function.
- Change the function setting with the rear dial, cursor keys or touch screen.
- Press SET to accept an edit. Press BACK (or the left-cursor key) to leave the setting unchanged.
- Press BACK again (or half-press the shutter button at any time) to exit the menu system.

Functions icons on the screen

You can also allocate functions to function icons on the screen, which are accessed through the tabs to the right of the screen.

I use Fn8 for the Wi-Fi function, which can't be put on the Q.MENU and I don't want to allocate to a physical button.

I also duplicate four functions from the Q.MENU, for no good reason.

You might want to use them for functions you use when using the screen for video or for settings such as the histogram, level and grid.

I'd have liked to be able to turn wireless flash on and off from here.



2. Taking stills photographs

Custom Modes – a change in approach

Those of you who have used my earlier manuals for Lumix G cameras will find that I've changed approach in this manual. I used to set up a custom mode for each useful combination of AF mode and metering mode, and that worked well.

For some time, I've allocated FOCUS AREA SET to a button² and I've since remembered that, whilst in FACE DETECTION AF mode, pressing FOCUS AREA SET switches to 1-AREA AF mode. This avoids the need for a separate custom mode for 1-AREA AF mode. I now use only FACE DETECTION AF mode for **stationary** subjects. This switches to 49-AREA AF mode if no faces are detected (it always did) and I get immediate access to 1-AREA AF mode simply by pressing the FOCUS AREA SET button.

Instead of having three custom modes for FACE DETECTION, 49-AREA and 1-AREA AF modes, a single custom mode can support all three. The freed-up custom modes let me use 3 custom modes for stationary subjects, only differing in the exposure mode used, as shown in Table 2.

I set up the fourth custom mode to photograph moving subjects.

| Custom mode | Description | Exposure mode | Metering mode | Quality | AF mode | AF/MF switch (2) | Drive mode dial |
|------------------------|---------------------|---------------|---------------|-----------|--------------------------|------------------|-----------------|
| C₁ | Stationary subjects | P | MULTI | RAW | FACE (49-AREA or 1-AREA) | AFS | SINGLE |
| C₂₋₁ | | A | | | | AFS / MF (3) | |
| C₂₋₂ | | M | | | | | |
| C₂₋₃ | Moving subjects | S | SPOT | JPEG Fine | 1-AREA | AFC | BURST (1) |

Table 2: Key settings for the four custom modes³

- (1) Select BURST mode on the DRIVE MODE dial when switching to the C₂₋₃ custom mode. Remember to switch back to SINGLE on leaving the custom mode.
- (2) Set FOCUS MODE on the AF/MF switch.
- (3) If you are using a fully-manual lens (without electronic contacts) there is no need to set the AF/MF switch to MF as the camera will operate in MF mode. SHOOT W/O LENS is set to ON for these two custom modes.

I like to have P mode available because it is so good on Lumix cameras. On some other cameras you may have to lock the exposure before you can adjust the balance between aperture and exposure, so I prefer aperture-priority. But on Lumix G cameras you just turn the front dial to adjust the balance and the cameras do a good job of choosing an appropriate shutter speed.

I use aperture priority when depth of field is key (such as for portrait photography) and it is also needed for fully manual lenses. I therefore have a custom mode for that, with SHOOT W/O LENS set to ON.

Finally, I use manual exposure mode for stitching panoramas and for astrophotography (often with a fully manual lens) so I set up a third custom mode for that, also with SHOOT W/O LENS set to ON.

² So that the touch screen could be disabled, but then enabled by pressing FOCUS AREA SET.

³ See Table 11 in chapter 4 for the full set of programmed settings for each custom mode.

Stationary subjects using electronically-controlled lenses

The three custom modes for stationary subjects work identically to each other when using **electronically-controlled lenses**, except for how you control the exposure. All three use FACE DETECTION AF mode, which is very flexible as the 49-AREA AF mode is used if no faces are detected and you can switch to 1-AREA AF mode if you want to specify the location of your subject.

Proceed as follows:

1. Select the P (C₁), A (C₂₋₁) or M (C₂₋₂) stationary subject custom mode

Also ensure that the MF/AF switch is set to AFS/AFF.

The first two custom modes use Program and Aperture-priority automatic exposure modes with MULTI metering mode. Automatic exposure takes into account where focus is taken. I use Program exposure mode (C₁) for opportunistic photography and Aperture-priority mode (C₂₋₁) for portraits and when I am concerned about depth of field.

The third custom mode (C₂₋₂) uses Manual exposure mode with manual exposure being taken in the same locations as for the automatic exposure modes. I use this custom mode when I want to maintain a specific exposure, such as when taking a set of images to be stitched into a panorama in post.

2. Compose the image and consider focus

Before you half-press the shutter button, any face detected in the scene will be outlined with a frame. The face on which exposure will be taken will be outlined in yellow with a white cross over the (nearest) eye on which focus will be taken. Other faces at the same distance will be outlined in white.

If there are no faces detected the camera will use 49-AREA AF mode.

If you want to specify where the camera should focus, press the FOCUS AREA SET button. The camera will switch to 1-AREA AF mode and a yellow AF frame will appear. Move this over your subject (using the cursor keys or touch screen) and adjust its size with the front and rear dials. Half press the shutter button or press SET to accept. The camera will remain in 1-AREA AF mode (even when you take a photograph) until you press the SET button again, when it will revert to FACE DETECTION AF mode.

3. Half-press the shutter button to lock focus and exposure:

- If a face is outlined in yellow the frame will turn green if focus has been achieved.
- If no face is detected, then 49-AREA AF mode will be used and green AF frames will indicate if and where focus has been achieved.
- If you have switched to 1-AREA AF mode, the yellow AF frame will turn green if focus has been achieved.

In each case, exposure will be taken in or around the area in focus.

4. Check (and adjust) the focus

If focus has not been achieved where you want it, then you can simply try again and, if you have not done so already, press the FOCUS AREA SET button and tell the camera where to focus, as described above.

If this fails, press and release the AF LOCK button and focus manually: see the section 'Manual Focus' on page x.

5. Check (and adjust) the exposure

Adjust the exposure as necessary, as described in the section 'Exposure modes' on page 9. See the box 'Exposure: depth of field, image sharpness and noise' on page 6.

6. Fully-press the shutter button to take the photo

Review the photo and, if you don't want to keep it, press DELETE. Return to shooting mode by half-pressing the shutter button.

Note that the built-in flash or a hot-shoe mounted flash can be used, for a subject in range: see the section on 'Flash photography' in chapter 3.

Exposure: depth of field, image sharpness and noise

You should be asking the following questions as you take a photo:

- **Do I want to influence the depth of field?** Use a larger aperture (smaller f number) to obtain a shallower depth of field, typically to blur the background in a portrait and make the subject stand out. Use a smaller aperture (larger f number) for a larger depth of field.

Digital cameras operate with the aperture fully open (to make focusing easier and to optimise the display). As a result, you cannot see the final depth of field of the captured image in the display. Simply take the photo and review it. If necessary, adjust the aperture and take the photograph again. (But see the section on depth of field preview in chapter 3.)

- **What aperture will give the sharpest image?** Most lenses are not at their sharpest when at their widest aperture, especially at the edges of the frame. They are often sharpest when stopped down a stop or two. However, too small an aperture will reduce sharpness due to diffraction. When sharpness really matters, refer to reviews of your lenses, or obtain MTF (Modulation Transfer Function) charts, to find the aperture which gives the best sharpness for each lens.

For many tasks ultimate sharpness may not matter, and softer edges may even be an advantage. For example, in portrait photography you often want a shallow depth of field and softer edges in the image can enhance the effect of a blurred background. For other tasks, such as landscape photography, you will want a sharp image and, as a general rule, should avoid the widest apertures on your lens.

- **Are any bright areas of the scene being over-exposed?** This would result in the brightest areas being recorded as fully white and you would lose detail in the bright areas of the scene. If so, turn the rear dial to apply exposure compensation to darken the image somewhat. The exposure histogram will help you judge this. As a rule, it is easier in post-processing an image to retrieve detail from underexposed areas than from fully saturated areas of an image.
- **Is my subject a dark one, against a bright background?** In this case, you may wish to use exposure compensation to brighten the image and reveal the detail in your subject. The background may be over-exposed, but this may be acceptable or even desirable.
- **Do I need to minimise noise in the image?** If you are working in dim light, at small apertures or at fast shutter speeds (or a combination of the three) the camera will increase the ISO of the sensor (its sensitivity) to compensate; but this may result in noise, especially in dark areas of the image. To control noise, you may want to set the ISO value by pressing the ISO button and adjusting the setting. You can adjust the ISO LIMIT for AUTO ISO and iISO with the front dial whilst in the ISO menu. Of course, a slower ISO will require a wider aperture and / or a slower shutter speed, possibly to the point where you need a tripod or other support.
- **Is there any movement in the scene** and, if so, is my shutter speed fast enough to avoid motion blur, or slow enough to create motion blur if it is wanted? See the section on 'Moving subjects' below.

Stationary subjects using fully-manual lenses

Only the Aperture priority (C₂₋₁) and Manual (C₂₋₂) custom modes can be used with **fully-manual lenses** (with no electronic contacts). The camera cannot control the lens aperture so Program and Shutter-speed priority exposure modes cannot work. The two custom modes work identically to each other except that you control the exposure differently. They both use MULTI metering mode and exposure considers where focus is taken. Obviously, you have to focus manually.

Proceed as follows:

1. Select the A (C₂₋₁) or M (C₂₋₂) custom mode

There is no need to set the AF/MF switch as the camera will operate as though MF has been selected.

The two custom modes use Aperture priority and Manual exposure mode respectively. I use Aperture-priority except for applications, such as astrophotography and stitched panoramas, where manual exposure is required.

2. Compose the image

3. Focus

Focus using the focus ring on the lens. Edges in focus will be highlighted in blue by focus peaking. If necessary, press the AF MODE button to enlarge the centre of the image to assist focusing. You can move the enlarged AF ASSIST area around with the cursor buttons (or touch screen) and change the magnification using the front and rear dials.

4. Adjust and lock the exposure

Adjust the exposure as necessary, as described in the section 'Exposure modes' on page 9. See the box 'Exposure: depth of field, image sharpness and noise' on page 6.

Half-press the shutter button, which will lock the exposure.

5. Fully-press the shutter button to take the photo

Review the photo and, if you don't want to keep it, press DELETE. Return to shooting mode by half-pressing the shutter button.

Note that the built-in flash or a hot-shoe mounted flash can be used, for a subject in range: see the section on 'Flash photography' in chapter 3.

Taking panoramas

You can use one of two approaches to taking panoramas and 'grids' of images:

Using manual exposure and stitching in post

For the highest quality panoramas, I use MANUAL (C₂₋₂) custom mode and set the exposure for the centre of the area to be covered (pressing ONE PUSH AE locks the exposure automatically). I then capture a number of overlapping images that can be stitched together in post (I use Lightroom). I find that this approach gives very good results and produces a high-resolution output.

Using the in-camera Panorama Shot scene mode

Turn the mode dial to SCN and select 25: PANORAMIC SHOT. Access the settings for the Panorama mode through the PANORAMA SETTINGS sub menu on the REC menu. Set the direction to scan and whether you want a STANDARD or WIDE panorama.

To take a panorama, aim the camera at one end of the scene, press and hold the shutter button, and scan the scene slowly and steadily in the intended direction. If you are having problems, try moving to a shorter focal length, slowing down your scan rate, and / or using a lens that focuses more quickly.

Astrophotography

Astrophotography requires you to use manual focus as you need to fix the lens focus at infinity. You will also be using manual exposure, so this is a perfect situation in which to use a fully manual lens. Use a lens with a wide maximum aperture, say f/2 or f/2.8. I find that the Laowa 7.5mm f/2 rectilinear lens fits the bill for an ultra-wide lens, as well as being a good landscape and architectural lens.

- Mount the camera on a tripod.
- Select the MANUAL (C₂₋₂) custom mode. If using an automatic lens then set the AF/MF switch to MF.
- Press the ISO and turn the front dial to increase or remove the ISO LIMIT and switch off image stabilisation. (I suggest that you overwrite the MANUAL custom mode with these settings for your astrophotography session and change them back later for normal manual operation.)
- Set the widest aperture on the lens and focus on infinity.
- Take a series of photos, experimenting with the trade-off between shutter speed, ISO setting, image brightness and noise. Start with an exposure of about 20 seconds. (You could try exposure bracketing.)

Moving subjects (custom mode C₂₋₃)

A different approach is required to photograph moving subjects. This requires a fast shutter speed to avoid motion blur (enabled by a wide aperture lens and/or higher ISO) and you (and your camera) need the ability to track the motion of your subject. The wider aperture implies a shallower depth of field, which can make focusing harder. You usually don't have time to manually adjust focus or exposure whilst taking the shot or burst of shots. You either have to set up focus in advance or rely on automatic focus, both of which are supported in the following process:

1. Select the C₂₋₃ custom mode

This uses:

- S exposure mode – you set the shutter speed.
- 1-AREA AF⁴ mode and SPOT metering (taking exposure in the AF frame).
- AF/AE LOCK is set to AF-ON and SHUTTER AF is set to OFF so that **AF is only activated whilst the AF/AE LOCK button is pressed** (referred to as 'back button AF').
- Image stabilisation is set to OFF, as you usually want to freeze motion with a fast shutter speed⁵.
- ISO LIMIT is set to OFF to allow faster shutter speeds, at the expense of more image noise.
- QUALITY is set to JPEG FINE resolution, to enable longer bursts of images to be captured.

2. Select AFC and BURST mode

Set the AF/MF switch to continuous auto-focus (AFC). If you want to use it, turn the drive mode dial to BURST mode (burst rate is set to M, leaving the display active to allow you to track your subject⁶).

3. Set the shutter speed using the front dial

The rule of thumb is that your shutter speed should be at least the inverse of the (35mm sensor equivalent) focal length. For example, for a 300mm lens on a micro four thirds camera (a 600mm equivalent focal length) you would look for a shutter speed of 1/600 second or faster. The camera will set the aperture (and ISO if on AUTO) for correct exposure.

4. Position the AF frame

Usually, you would leave the AF frame in the centre of the scene. To move it, press FOCUS AREA SET and use the cursor keys or touch screen. Change its size with the front and rear dials. Half press the shutter button or press SET to accept.

5. Take a burst of photos with focus locked or tracking focus

Centre the subject (or something at the distance the subject will be at) in the AF frame and either:

- **Lock focus:** Press and release the AF-ON (AF/AE LOCK) button to lock the focus. Fully depress and hold the shutter button to take a sequence of photos with the focus locked at the set distance. You will obtain a higher frame rate, as the camera is not continually checking for focus, and there is no risk of the focus jumping to another object. Of course, your subject must remain at, or pass through, the focused distance.
- **Track focus:** Press and hold the AF-ON (AF/AE LOCK) button to start focus tracking. Fully depress and hold the shutter button to take a sequence of photos, keeping the subject in the AF frame. The camera will (attempt to) track focus on the subject.

⁴ The G80 also has a TRACKING AF mode. I've not had a lot of success with it.

⁵ If you are tracking a moving object, try setting image stabilisation to PANNING and use a somewhat slower shutter speed.

⁶ The G80 does offer higher burst rates, but these blank out the viewfinder.

3. Summary of camera controls and capabilities

Exposure (Metering) Controls

Exposure modes

The exposure (PASM) modes determine how you control the exposure. Panasonic refers to them as 'shooting' modes. Turn the mode dial to select an exposure mode:

- In program exposure mode (P mode) the camera selects a combination of aperture and shutter speed. Turn the front dial to adjust the balance between them: the aperture and shutter speed values will change in the display and a yellow indicator will appear to the left of the aperture value. Adjusting the exposure in this way is referred to as 'Program Shift'.

Any Program Shift will be retained and applied to the next photograph. To cancel Program Shift, press the ONE PUSH AE button and the yellow indicator will disappear.

- In aperture priority exposure mode (A mode), set the aperture using the front dial. The camera will set the shutter speed for correct exposure.
- In shutter-speed priority exposure mode (S mode), set the shutter speed using the front dial. The camera will set the aperture for correct exposure.
- In manual exposure mode (M mode), set the aperture and shutter speed (and ISO setting) to obtain correct exposure on the exposure indicator (in the location of the exposure compensation indicator) or the larger exposure meter (which you can enable via the CUSTOM menu). Change the aperture with the front dial and the shutter speed with the rear dial.
- The G80 also has Intelligent Auto (iA), SCENE and CREATIVE exposure modes, which are not covered in this manual.

ISO speed

Press the ISO (cursor up) button and select AUTO ISO, intelligent ISO (iISO) or an ISO speed. Intelligent ISO increases the ISO setting when movement is detected in the scene. Adjust the ISO LIMIT for AUTO ISO and iISO with the front dial whilst in the ISO menu. The ISO setting being used is displayed when the shutter is half depressed⁷.

In M mode, you can either set an ISO value or select AUTO ISO, in which case the camera will set ISO (up to the ISO LIMIT⁸) to obtain correct exposure for the selected aperture and shutter speed.

The camera will produce images with the least noise if operated at as low an ISO speed as possible. A higher ISO speed will allow a faster shutter speed (with less motion blur) or operation in lower light.

A lens with a wider maximum aperture will let you use a lower ISO speed, with less noise. Rather than using high ISO settings, use a tripod or other means of supporting the camera if you can,.

Metering modes

The metering modes specify where the camera measures the exposure. Access these via the METERING MODE button:

Multi-metering: The camera sets the exposure, taking into account the variation in brightness over the whole scene, the focus mode and where focus is obtained.

Centre-weighted metering: Takes an average meter reading weighted around the centre of the image.

Spot metering: Sets exposure at a point – a blue cross is shown at the point where exposure is metered. The location of the exposure point depends on the focus mode in use.

⁷ Except in Intelligent ISO, when the ISO setting is selected dynamically.

⁸ Beware: If ISO LIMIT is set to OFF in M mode then Auto ISO will only use ISO settings up to 3200!

Exposure compensation

If your intended subject appears to be over- or under-exposed look at the exposure histogram to see if values are all to one side or the other. One option is to adjust the exposure compensation so that your subject appears correctly exposed in the display and the histogram is more 'balanced'.

Rotate the rear dial to adjust the exposure compensation, increasing or decreasing the light reaching the sensor. Note that exposure compensation is not used in M mode.

Exposure lock

When using auto-metering, the exposure is taken and locked when you half-press the shutter button⁹ when using AFS focusing mode. It is not locked using AFF and AFC focusing modes, except when using the higher speed burst modes.

Beware, as once the exposure is locked the brightness of the display will vary as you recompose the image. Its brightness is always set for the whole of the image. So don't be confused – the exposure really has been locked!

Exposure bracketing

You can take a series of photos with a range of exposures. Press the BRACKET button¹⁰ and press it again to select EXPOSURE BRACKETING. Press DISP to select the number of shots, EV separation, the sequence in which the exposures are taken and whether a single press or multiple presses of the shutter button is required.

White balance and colour

Our eyes adjust to what we see depending on the light source illuminating the scene. Film is terrible at this but digital cameras are now good at determining the light source.

Press the WB (cursor right) button and select the white balance setting you require. Leave it on auto white balance (AWB) unless it fails to cope with specific lighting. If necessary, specify the type of lighting or program one of the four custom white balance options by:

- Selecting one of WHITE SET 1 to WHITE SET 4 and then pressing WHITE SET.
- Fill the frame in the display with something white (such as a test card or sheet of paper) and then press SET.

You can also adjust the colour balance via the PHOTO STYLE menu entry. STANDARD should be fine for most purposes. There is also a Custom photo style.

⁹ You could program the AF/AE LOCK button to function as AE LOCK and press it to lock exposure. You would then half press the shutter button to lock focus before recomposing the image and taking the photo. However, I recommend using AF LOCK to lock the focus and the shutter button to lock the exposure.

¹⁰ If you have owned an earlier Lumix G camera, note that bracketing is no longer located on the DRIVE MODE dial or button.

Focusing Controls

Focus modes

You specify **when** auto-focus is obtained using the AF/MF switch and the AFS/AFF setting on the Q.MENU. The focus modes are:

AFS: (single) focuses when the shutter button is half-depressed. In AFS focus mode, the camera will effectively switch to manual focusing if you press AF LOCK or turn the focus ring with the shutter button half depressed, so you may never need to turn on manual focusing.

AFF: (flexible) focuses when the shutter button is half-depressed and refocuses if the subject then moves, with no prediction. Higher power.

AFC: (continuous) focuses continually whilst the shutter button is half-depressed. Predicts where a moving object will be when the shutter opens. Highest power.

There are also QUICK AF and EYE SENSOR AF functions, which enable focusing **prior** to the shutter being pressed or when you put your eye to the viewfinder respectively. I leave these disabled.

Auto-Focus modes (and hinting at where to focus)

Press the AF MODE (left-cursor) button to select which auto-focus (AF) mode to use:

FACE DETECTION: Detects faces in the scene. If no faces are present 49-AREA mode is used.

AF TRACKING: Allows you to specify a (potentially moving) object to track and then maintains focus on it. Usually used with continuous auto focus (AFC). Centre the target in the centre of the screen on the object to track and half press the shutter button. The target should turn green when the object is accepted and you can release the shutter button. The target will turn yellow and track the object.

49-AREA: The camera chooses where to focus from among 49 areas across the scene.

CUSTOM: You can define which of the 49 areas will be used for focusing.

1-AREA: The camera focuses on a specific area, which is initially located at the centre of the scene, and which you can move and resize.

PINPOINT: The camera focuses on a specific point, which is initially located at the centre of the scene, and which you can move. When you half depress the shutter, an area around the focus point is enlarged for a short period to allow you to check focus. Not available with AFC.

You can provide a hint to the AF system as to where to look for focus. Press FOCUS AREA SET and set the position (and size when relevant) of the AF frame, as described above:

- for FACE DETECTION AF mode, the camera will switch to 1-AREA AF mode. Move the AF frame over the area where you wish to find focus;
- for AF TRACKING AF mode, select the object to track;
- for 49-AREA mode, select a region in the image;
- for CUSTOM AF mode, select or define a pattern from the 49 AF areas;
- for 1-AREA AF mode, move the area (use the rear dial to change its size);
- and for PINPOINT AF mode, move the focus point.

Focusing, focus lock and manual focusing

In AFS focus mode, focus is locked when you half-press the shutter button¹¹. In AFF and AFC focus modes, focus is locked when you fully depress the shutter button.

If AFS focus mode (but not AFF or AFC focus modes) you can adjust the focus, using the focus ring on the lens, without switching to manual focus, in one of two ways:

1. Press and release the AF/AE LOCK button¹² to take and lock focus. You can then turn the focus ring to adjust focus without having to hold a button down. Exposure will subsequently be locked when you half press the shutter button, thereby separating where (and when) focus and exposure are locked.
2. Half press the shutter button to lock focus (and exposure) and keep it half pressed. You can then use the focus ring to adjust focus.

Edges that are in focus will be highlighted: a capability referred to as focus 'peaking'. If necessary, enlarge the focus area by pressing the AF MODE button. The enlarged area can be moved using the cursor keys and its magnification varied using the rear dial. You could press BACK to close the enlarged area.

Turn the focus ring on the lens to bring your subject into sharp focus. An indicator will appear, showing roughly at what distance you are focused (there is no distance scale).

Both of these options use manual focus, without having to switch to MF focus mode explicitly. Of course, you can always select MF on the MF/AF switch and manual focusing will operate in the same way.

Focus bracketing

You can take a series of photos at number of focus distances. Press the BRACKET button function on the Q.MENU and press it twice more to select FOCUS BRACKETING. Press DISP to select the distance separation between shots, the number of shots, and where the exposures are taken. They can be taken to either side of the current focus or starting at the current focus and moving further away. Panasonic recommend the latter for use with third-party software.

Where does auto-metering evaluate the exposure?

Where exposure is taken depends on the AF mode and the metering mode used, as shown in Table 3. Note that the combinations shaded in green in Table 3 explicitly link where focus and exposure are taken.

| AF mode | Metering mode | | |
|----------------|--------------------|--|--|
| | Multi-metering | Centre-weighted | Spot metering |
| 49-Area | Evaluative. | Average over the scene, weighted to the centre of the frame. | At the centre of the AF region. |
| Face Detection | On detected face. | | At the centre of the image. |
| Tracking | On tracked object. | | At the centre of the image. |
| 1-Area | Evaluative. | | At the centre of the AF area. |
| Pinpoint | Evaluative. | | At the AF point. |
| Manual | Evaluative. | | At the centre of the MF Assist region. |

Table 3: Where exposure is taken for each combination of AF and metering modes

In practice, I find FACE DETECTION AF mode with MULTI metering mode are an excellent combination for stationary subjects, because it switches to 49-AREA AF mode if no faces are detected and pressing FOCUS AREA SET switches to 1-AREA AF mode with a form of spot metering.

1-AREA AF mode and SPOT metering are a good combination for moving subjects.

¹¹ Unless SHUTTER AF is OFF or you have already pressed AF LOCK to lock focus.

¹² Programmed in the setup to function as AF LOCK. AF/AE LOCK HOLD is set to ON, so that you don't have to keep the AF/AE LOCK button depressed.

Other controls and settings

JPEG / RAW formats and image resolution

Access QUALITY on the Q.MENU to specify whether to capture in JPEG and / or RAW formats and the amount of compression to apply to JPEG files. I usually take RAW images and process them on a computer. However, capturing in JPEG lets you apply many in-camera processing options (or you might say that the processing requires you to capture in JPEG). In addition, you may want to share photographs directly from your camera, in which case JPEG files are smaller. You can choose to capture both RAW and JPEG at the same time.

The PICTURE SIZE and ASPECT RATIO settings on the REC menu set the resolution and aspect ratio of your images. As I usually capture RAW images, I use the full sensor resolution (Large) and native aspect ratio (4:3). Note that when EX. TELE CONV is enabled (requiring JPEG format) reducing the resolution reduces the effective sensor size and thereby narrows the effective field of view (and hence magnification) of the lens.

Drive mode: single shot, burst mode, AEB and self-timer

Turn the DRIVE MODE dial and select one of:

SINGLE: Takes one photograph when the shutter is fully depressed.

BURST: Takes a series of photographs. Access BURST RATE via the Q.MENU. Choose from super-high (SH), high (H), medium (M) or low (L). The last two continue to display the scene between shots but the first two do not. Super high is only available using JPEG. I set M as the default.

4K PHOTO: Access 4K PHOTO via the REC menu and select 4K BURST, 4K BURST S/S or 4K PRE-BURST. See the Panasonic manual for details. All produce an 8M pixel JPEG image.

POST FOCUS: Takes a burst of 4K photos whilst shifting focus. You can then save a photo with a selected area in focus or merge photos to increase depth of focus (Focus Stacking). See the Panasonic manual for more details. Produces an 8M pixel JPEG image.

SELF TIMER: Set the timer delay on the SELF TIMER menu entry on the Q.MENU: 10 seconds (one shot); 10 seconds (3 shots); or 2 seconds.

TIME LAPSE / ANIMATION: Turn the DRIVE MODE dial to TIME LAPSE / ANIMATION and immediately press MENU twice or touch the icon on the screen. The TIME LAPSE / ANIMATION menu will be displayed. Choose time lapse or stop motion animation. The menu entries are self-explanatory.

Image Stabilisation

The G80 has in-body image stabilisation (IBIS). If a lens is attached that has optical image stabilisation (OIS) the camera will use both systems together: DUAL IS mode or, for some more recent lenses, DUAL IS 2 mode. You cannot elect to use only the IBIS or only the OIS.

- If a lens does not have an OIS switch (it may or may not have OIS) then image stabilisation can be set to OFF, NORMAL or PANNING through the STABILIZER menu entry on the Q.MENU.
- If a lens has an OIS switch then image stabilisation can be set to NORMAL or PANNING through the STABILIZER menu entry and you turn image stabilisation on and off using the switch on the lens.


Electronic shutter

Select SHUTTER TYPE on the Q.MENU to control the mechanical and electronic shutters. Options are:

- AUTO: the camera chooses which shutter to use, depending on exposure settings.
- MSHTR: Mechanical shutter.
- EFC (Electronic first curtain): The exposure is started with the electronic shutter and completed by the mechanical shutter closing.
- ESHTR: Electronic shutter. The 'electronic shutter' exposes rows of the image sequentially. Each row is exposed for the same length of time but not at the same time. As a result, images of moving objects can be distorted. On some cameras the electronic shutter readout is faster than on others (leading to less distortion) but has fewer bits of dynamic range. I **think** that the G80 has a "fast" electronic shutter (taking about 1/25 second to scan the image) and only provides 10-bit readout, compared to the 12-bit readout with the mechanical shutter.

Touch shutter

You can fire the shutter by touching your subject on the screen. To do so:

- Display the screen icon buttons, if not already visible, by touching the < tab.
- Enable TOUCH SHUTTER by touching the  icon. The cross on the icon will disappear and the icon will turn yellow.
- Compose the photograph and touch the position on the screen where you want to take focus and exposure.
- The camera will take the photograph.
- When you don't need the icon buttons, close the tab by touching > on the tab.

Previewing depth of field and motion blur

You could program a function button or screen icon to act as a PREVIEW button, which would let you see the effects of aperture and shutter speed on depth of field and motion blur before taking a photograph. This used to be very useful on a film camera to avoid wasting film, but I don't use it much with digital cameras. It's just as fast to take the picture and review the depth of field and motion blur on the display. You can then change the aperture and shutter speed and try again if necessary.

Flash photography

The built-in flash can be raised and switched on using the release button. Alternatively, attach an external flash to the hot shoe. The settings for the flash are shown in Table 9 in chapter 4. I recommend setting FIRING MODE to TTL¹³ (through the lens) and enabling AUTO EXPOSURE COMPENSATION. The camera will control the flash output to try to obtain the correct exposure. The remaining settings for using the flash are:

- FLASH MODE (via the Q. MENU): NORMAL or SYNCHRO. The latter uses a long exposure to expose a dark background and the flash to illuminate a foreground object. You may need OIS or a tripod.
- FLASH SYNCHRO: 1st or 2nd curtain. That is, at the start of the exposure or at the end of the exposure. A classic use of 2nd curtain is to use a long exposure to capture the trails of moving lights and then for the flash to fire to freeze moving objects (such as cars) at the end of the exposure.
- FLASH ADJUST (via the Q. MENU): This allows you to over- or under-expose the flash by up to 3 EV.

Wireless flash

Note that, unfortunately, 'wireless' flash on the G80 uses infra-red communications rather than radio frequency communications. The remote flash therefore needs to be able to 'see' the camera's flash, either directly or by the camera's flash being reflected to the remote flash.

Using a wireless flash or group of flashes is similar to using the internal flash, but more complex to set up. Select FLASH on the REC menu and then, in the sub-menu, set WIRELESS FLASH to ON. This will disable some options the built-in flash and enable some wireless options. See the Panasonic G80 manual and your flash gun manual for more details.

¹³ If you set FIRING MODE to MANUAL you have to vary the flash output using MANUAL FLASH ADJUST and experiment to get the correct exposure.

4. Configuring your camera

1. Configure the Menu Settings

Set the mode dial to P exposure mode. Press MENU and open each of the following menus in turn. Configure each setting, using the suggested default (you can change settings later). Settings on the SETUP menu rarely need changing. Those on the CUSTOM menu are accessed more and those on the REC menu are accessed most frequently. Settings are shaded as follows:

| | |
|---|-----------------------------|
| Dedicated buttons, dials, Fn buttons or Fn icons. | Q.MENU (see below). |
| Needed – access via full MENU. | Rarely changed after setup. |

The SETUP Menu

| | Options | Comments / instructions |
|---|--|---|
| CLOCK SET | | Set the time, data and format. |
| WORLD TIME | | Set home and destination time zones. |
| TRAVEL DATE | TRAVEL SETUP: LOCATION: | Off, or departure and return dates. Off, or location in text. |
| Wi-Fi | | Wi-Fi settings. |
| BEEP | OFF and 2 levels | Volume of the beep and electronic shutter sound. |
| LIVE VIEW MODE | 30 / 60 fps | Frame rate of display. |
| MONITOR / VIEWFINDER | | Adjusts brightness / colour of the display in use. |
| MONITOR LUMINANCE | A / 1 / 2 / 3 | Auto adjust / bright / standard / dark. |
| ECONOMY (1): SLEEP MODE: AUTO LCD OFF: | OFF, 1, 2 , 5, 10min. OFF, 15, 30sec | Half press shutter button to wake. If not OFF then SLEEP MODE is set to 2 min. |
| USB MODE | PC / Pictbridge / choose | Connect USB to PC or printer. |
| TV CONNECTION (OUTPUT) | NTSC / PAL, 16:9 / 4:3 aspect ratio, AUTO HDMI | |
| | VIERA Link: OFF/ ON | Panasonic's HDMI CEC implementation. |
| | 3D/2D | Play 3D images in 3D or 2D. |
| MENU RESUME | OFF / ON | Opens each menu at last-used item. |
| MENU BACKGROUND | | Set background colour for menus. |
| MENU INFORMATION | OFF / ON | Short help displayed. |
| LANGUAGE | | Choose language. |
| VERSION DISP. | | Displays firmware version of camera and lens. |
| EXPOSURE COMP. RESET | OFF / ON | Resets EC on mode change and power off. |
| NO. RESET | | Resets file no. to 1 and increments folder no. |
| RESET | | Resets REC/SETUP/CUSTOM menu settings. |
| RESET Wi-Fi SETTINGS | | |
| PIXEL REFRESH | | See the Panasonic manual. |
| SENSOR CLEANING | | See the Panasonic manual. |
| FORMAT | | Formats the memory card, deleting all contents. |

Table 4: The SETUP menu – recommended settings in BOLD

Note (1): The ECONOMY function allows you to set the camera to switch off the display and/or enter standby after a period. It can greatly extend battery life. Press any button to restore the display. To return from standby half press the shutter button.

| | Options | Comments / instructions |
|----------------------|---|--|
| ASSIGN DIAL | Front F / Rear SS | Set front dial to F and rear dial to SS. (M mode.) |
| ROTATION | Direction | Change if you don't like the standard direction. |
| EXPOSURE COMP. | Rear dial. | F or SS on front dial in P, A and S modes. |
| DIAL OP SWITCH SETUP | Front: FLASH MODE Rear: FLASH ADJUST | Not used as DIAL OP not allocated to a button. |

Table 5: The Dial Set sub-menu of the CUSTOM menu – recommended settings in BOLD

The CUSTOM Menu

| | Options | Comments / instructions |
|------------------------|---|---|
| CUST. SET MEM | | Stores current setting to one of the custom modes. |
| SILENT MODE | OFF / ON | Disables all sounds and light output. |
| AF/AE LOCK | AE/ AF /AF+AE/AF-ON | AF/AE LOCK locks exposure, focus, both or engages AF. |
| AF/AE LOCK HOLD | OFF / ON | Off: Lock only held whilst Fn1 pressed (if configured). On: Pressing AF/AE LOCK engages / disengages lock. |
| SHUTTER AF | OFF / ON | On: Pressing shutter button halfway locks focus. |
| HALF PRESS RELEASE | OFF / ON | Shutter fires when button pressed halfway. |
| QUICK AF | OFF / ON | Focus continually at all times (before shutter pressed). |
| EYE SENSOR AF | OFF / ON | Focus continually when eye sensor activated. |
| PINPOINT AF TIME | SHORT / MID / LONG | Time enlarged when in pinpoint AF mode. |
| PINPOINT AF DISPLAY | PIP / FULL | Window or full AF assist screen in pinpoint AF mode. |
| AF ASSIST LAMP | OFF / ON | On: Lamp assists AF in low light conditions. |
| DIRECT FOCUS AREA | OFF / ON | Cursor buttons move (and rear dial adjusts size of) the AF area. <i>Standard function of buttons is lost.</i> |
| FOCUS/RELEASE PRIORITY | FOCUS /RELEASE | Picture taken once in focus / even if not in focus. |
| AF Sensitivity | -3 ... 0 ... +3 | Adjusts AF sensitivity to subject movement. |
| AF+MF | OFF / ON | On: Allows manual focus after AF (AFS mode only). |
| MF ASSIST | OFF / AF button / focus ring / either | Enlarges part of image when AF mode button pressed, focus ring turned, or either. |
| MF ASSIST DISPLAY | FULL / PIP . | Full screen or window MF assist. |
| MF GUIDE | OFF / ON | Enables a guide bar showing relative zoom. |
| PEAKING | OFF / ON | In focus regions highlighted during MF. |
| HISTOGRAM | OFF / ON | Display of the histogram. Position it after turning on. |
| GUIDE LINE | OFF / grid choice | Sets the pattern of guide lines displayed when shooting. |
| CENTER MARKER | OFF / ON | Displays a cross in the centre of the screen. |
| HIGHLIGHT | OFF / ON | Clipped areas blink during review and playback. |
| ZEBRA PATTERN | ZEBRA1 | Zebra pattern shows overexposed areas. |
| MONOCHROME LV | OFF / ON | Black and white monitor display. |
| CONSTANT PREVIEW | OFF / ON | Shows effect of aperture / exposure (in M mode). |
| EXPO.METER | OFF / ON | Displays the large exposure meter – underexposed in red. |
| LVF DISP.STYLE | Border on/ off | Choose the icon with no black border and a row of dots at the top and bottom. |
| MONITOR DISP.STYLE | | |
| MONITOR INFO. DISP | OFF / ON | Adds an info screen to those toggled by the DISP button. |
| REC AREA | Still / Video | Crops display to 4:3 for still and 16:9 for video. |
| REMAINING DISP. | Shots / Time | Which to display as remaining on memory card. |
| AUTO REVIEW | Off / time / HOLD | Time that picture is displayed for review. |
| Fn BUTTON SET | | Assign functions to Fn buttons. |
| Q.MENU | PRESET / CUSTOM | Enables customisation of Q.MENU. |
| DIAL SET | Sub-menu | See Table 5. |
| VIDEO BUTTON | OFF / ON | Enables video button. Use movie mode & shutter button. |
| POWER ZOOM LENS | | See Panasonic manual on power zoom lenses. |
| EYE SENSOR | LOW /HIGH, Man/ Auto | |
| TOUCH SETTINGS | Sub-menu | See Table 7. |
| TOUCH SCROLL | H / L | High or Low speed scroll in playback. |
| MENU GUIDE | OFF / ON | Selection screen on switch to SCN/CUSTOM modes. |
| SHOOT W/O LENS | OFF / ON | Switch on with lenses / lens adaptors that have no contacts. |

Table 6: The CUSTOM menu – recommended settings in BOLD

| | Options | Comments / instructions |
|--------------|-----------------------------|---|
| TOUCH SCREEN | OFF / ON | Enables or disables the touch screen. |
| TOUCH TAB | OFF / ON | Enables or disables to tabs to the right of the touch screen. |
| TOUCH AF | OFF / AF+AE / AF | On: AF point or AF and AE points can be set by touching the screen. |
| TOUCH PAD AF | OFF / OFFSET / EXACT | Enables touch on screen to move AF point whilst using the viewfinder. |

Table 7: The Touch Settings sub-menu – recommended settings in BOLD

The REC (still photography) menu

| | Options | Comments / instructions |
|----------------------|---|--|
| PHOTO STYLE (2) | STANDARD , VIVID ... | Six plus custom to choose from. Use STD and post process. |
| FILTER SETTINGS | | Settings for image effects (filters). |
| ASPECT RATIO (1) | 4:3 , 3:2, 16:9, 1:1 | Set to 4:3 and post process. |
| PICTURE SIZE (1) | L, M, S 4:3 | L: 4592x3448, M: 3232x2424, S: 2272x1704 pixels. (JPEG only) |
| QUALITY | FINE, STD, RAW | FINE and STD are JPEG. Can save both JPEG and RAW. |
| AFS / AFF | AFS / AFF | Standard or fast AF mode. |
| METERING MODE (2) | Multiple: Centre-weighted: Spot: | Camera evaluates the scene – linked to focus AF mode. Whole image, but weighted to centre. At the spot metering cross point. |
| BURST RATE | SH / H / M / L | 20, 4, 3, 2 frames / sec. SH uses JPEG S picture size (via Drive Mode). |
| 4K PHOTO | | See Drive Mode dial description. |
| BRACKET | | Exposure, focus ... bracketing and settings. |
| SELF-TIMER | 10s, 10s x3, 2sec | 10s x3 takes 3 shots after a 10 second delay. |
| TIME LAPSE / ANIM. | Sub menu | Program time-lapse photography and stop motion animation. |
| HIGHLIGHT SHADOW | | Allows adjustment of highlights and shadows |
| I.DYNAMIC (2) | OFF /LOW/STD/HIGH | Adjusts to cope with extreme high / lowlights in the image. |
| I.RESOLUTION | OFF /LOW/STD/HIGH/EXT. | Varies JPEG compression and sharpening depending on the image. |
| iHANDHELD NIGHT SHOT | | Night scenes composed from a burst of photos. (JPEG only) |
| IHDR | | Enable and control automated HDR (iA mode?) |
| HDR | Sub menu | Enable and control HDR. (JPEG only) |
| MULTI EXP. | Sub menu | Enables multiple exposures onto one image. |
| PANORAMA SETTINGS | Sub menu | Only active in Panorama mode – can access settings from tab. |
| SHUTTER TYPE | AUTO/ MSHTR / EFC/ESHTR | Mechanical, Electronic Front Curtain, or Electronic shutter. |
| SHUTTER DELAY | 0 , 1, 2, 4, 8 sec | Delay shutter firing after shutter button pressed. |
| FLASH | Sub menu | See Table 9. |
| RED-EYE REMOVAL | OFF / ON | Corrects red-eye in firmware in camera. |
| ISO LIMIT SET | OFF or value (3200) | Upper ISO limit in ISO AUTO and iISO. (access via ISO button). |
| ISO INCREMENTS | 1/3 EV / 1 EV | User can select ISO in 1/3EV or 1EV steps. |
| EXTENDED ISO | OFF / ON | Extends ISO from 200-25600 to 100-25600. |
| LONG SHTR NR | OFF / ON | Applies more noise reduction at slow shutter speeds. |
| SHADING COMP. | OFF / ON | Corrects lens vignetting (shading in corners). |
| DIFFRACTION COMP. | OFF / AUTO | Attempts to correct for diffraction at small apertures. |
| EX. TELE CONV. | OFF / ZOOM / TELE CONV | JPEG only. Crops pixels from centre of image – use PICTURE SIZE to control the magnification. Also has settings for Video. |
| DIGITAL ZOOM (2) | OFF / 2x / 4x | Uses central pixels and interpolates to upscale. Use ETC. |
| COLOR SPACE | sRGB / AdobeRGB | Smaller / larger colour space. |
| STABILIZER | OFF / ON / PANNING | PANNING only compensates for vertical movement. |
| FACE RECOG. | OFF / ON / MEMORY | Not covered in this manual. |
| PROFILE SETUP | OFF / options | Not covered in this manual. |

Table 8: The REC menu – recommended defaults in BOLD

Note (1): On the Q.MENU, ASPECT RATIO and PICTURE SIZE are combined in PICTURE SETTING.

Note (2): PHOTO STYLE, FOCUS MODE, METERING MODE, I.DYNAMIC and DIGITAL ZOOM are common to the REC and MOTION PICTURE menus. Changes can be made on either menu.

| | Options | Comments / instructions |
|---------------------|-------------------------------|--|
| FIRING MODE | TTL / MANUAL | Through the lens metered or manual control (only if wireless off). |
| FLASH MODE | NORMAL / SYNCHRO / OFF | Synchro uses long exposure for background. Both with or without red eye reduction. |
| FLASH SYNCHRO | 1ST / 2ND CURTAIN | Flash fires at start or end of exposure (only if wireless off). |
| FLASH ADJUST | -3EV to +3EV | Additional adjustment of flash (only in TTL mode and if wireless off). |
| AUTO EXPOSURE COMP | OFF / ON | On: flash output linked to exposure compensation. |
| MANUAL FLASH ADJUST | Fractions of output | Sets flash output to fraction of full output (only in flash manual mode). |
| WIRELESS | OFF / ON | Disables / enables wireless IR flash control. |
| WIRELESS CHANNEL | 1CH, 2HC, 3CH or 4CH | Set camera and flash to same channel (only if wireless on). |
| WIRELESS FP | OFF / ON | Disables / enables using FP flash on gun (only if wireless on). |
| COMMUNICATION LIGHT | LOW/ STANDARD /HIGH | Set output power of IR communication light (only if wireless on). |
| WIRELESS SETUP | Sub menu | Sets operation of flash and wireless flash groups (only if wireless on). |

Table 9: The Flash sub-menu – recommended settings in BOLD

WIRELESS SETUP allows you to set FIRING MODE and FLASH ADJUST (or MANUAL FLASH ADJUST) for the built-in flash and for each of three wireless groups (A, B and C). See your flash gun manual for more details.

2. Configure the Function Buttons

The G80 has seven fixed function buttons (video, AF/AE LOCK, PLAYBACK, DISP, ISO, AF MODE and WHITE BALANCE), an AF/MF switch, six programmable function buttons, three fixed screen icon buttons and five programmable screen icon buttons. To program a function button:

- Choose FN BUTTON SET from the CUSTOM menu (or press Fn on the 'control screen').
- Choose 'Setting in REC mode'.
- Select the function button or screen icon you wish to program using the cursor keys or touch screen.
- Press MENU/SET.

Program the function buttons and icons as follows:

| Button, icon or menu | Function | Comment |
|-----------------------------------|------------------|--|
| Fixed on AE/AF LOCK button | AF LOCK | See section 4. AF-ON for MOTION/SPORT. |
| Fn1 button. | ONE PUSH AE | |
| Fn2 button (marked Q.MENU) | Q.MENU | |
| Fn3 button (cursor down button) | FOCUS AREA SET | Screen and cursor keys move AF area. |
| Fn4 button (lower left) | METERING MODE | |
| Fn5 button (marked LVF) | EVF / LCD toggle | |
| Fn6 screen icon | SELF-TIMER | Also on Q.MENU. |
| Fn7 screen icon | BURST RATE | Also on Q.MENU. |
| Fn8 screen icon | Wi-Fi | |
| Fn9 screen icon | FLASH MODE | Also on Q.MENU. |
| Fn10 screen icon | FLASH ADJUST | Also on Q.MENU. |
| Fn11 button (centre of rear dial) | BRACKET | |
| Fixed screen icon 1 | TOUCH SHUTTER | |
| Fixed screen icon 2 | TOUCH AE | |
| Fixed screen icon 3 | PEAKING | |

Table 10: Setup for function buttons and icons

3. Configure the Q.MENU

To customise the Q.MENU:

- Press Q.MENU to display the quick menu.
- Press the down cursor button or touch the EDIT Q icon at the lower left of the display.
- Accept the instructions, if they are displayed, by pressing SET/MENU or half pressing the shutter.
- Drag functions from those available in the top panel to where you want them in the bottom panel. The top panel has four pages of available functions. The bottom panel has the same three pages as the Q.MENU. If you drop a function over one already present on the bottom panel then the existing one will be moved back to the top panel.
- Drag any function you want to delete from the Q.MENU from the bottom panel and drop it in anywhere on the top panel.
- Press EXIT or half press the shutter button to complete programming the Q.MENU.

I recommend mapping the functions shown in Table 1 to the Q.MENU.

4. Configure the CUSTOM modes

Any changes you make to the function settings for the PASM and iA exposure modes are retained as you switch between these modes and when you turn the camera off. This has the advantage that you don't lose any changes you make. However, it can be hard to remember where you left the settings and you may have a lot of changes to make for a new situation.

You can store 4 sets of function settings away as custom modes on the G80. Changes you make to the function settings of a custom mode are NOT retained as you switch between modes or switch power off. When you return to a custom mode the settings will be as you last saved them for that mode.

One factor that influences how to set up the custom modes is that you cannot change between PASM modes without using the mode dial. That is, you cannot start from, say, a custom mode using aperture priority (A) exposure mode and change to shutter priority (S) exposure mode. Because of this it is worthwhile programming at least one custom mode for each of the PASM modes that you use regularly. Indeed, each of the PASM exposure modes is allocated to one of the four custom modes in the setting recommended in this manual.

| Custom mode: | C ₁ | C ₂₋₁ | C ₂₋₂ | C ₂₋₃ |
|-------------------|--------------------|------------------|------------------|------------------|
| Name: | PROGRAM | APERTURE | MANUAL | MOVING SUBJECT |
| PASM MODE | P | A | M | S |
| METERING MODE | MULTI | | | SPOT |
| ISO | AUTO | | | AUTO |
| ISO LIMIT SET | 3200 | | | OFF |
| QUALITY | RAW | | | JPEG FINE |
| FOCUS MODE (2) | AFS | | | AFC |
| AF MODE | FACE DETECTION (1) | | | 1-AREA |
| AF/AE LOCK BUTTON | AF LOCK | | | AF-ON |
| AF/AE LOCK HOLD | ON | | | OFF |
| SHUTTER AF | ON | | | OFF |
| DRIVE MODE (3) | SINGLE | | | BURST |
| STABILIZER | ON | | | OFF |
| SHOOT W/O LENS | OFF | ON | ON | OFF |

Table 11: Custom mode settings

- (1) FACE DETECTION AF mode reverts to 49-AREA mode if a face is not detected. Press FOCUS AREA SELECT to enter 1-AREA AF mode.
- (2) Set on AF/MF switch.
- (3) Set on DRIVE MODE dial.

Table 11 shows the settings that I recommend of the custom modes. Program them onto the custom modes, as follows:

- Set the mode dial to P exposure mode and make sure that you have set each function to the defaults described in 'Configure the menu settings'. Also check that you have configured the function buttons and Q.MENU as described above.
- Work through the columns in Table 11 one at a time. For each custom mode, set the mode dial to P, A or S and set each function as shown in the table. Store the setup to the chosen custom mode, using the CUST SET MEM entry on the CUSTOM menu.

Note that the APERTURE and MANUAL custom modes have SHOOT W/O LENS set to ON so that they can be used with a fully manual lens. They will work perfectly well with automatic lenses. If you don't have any fully manual lenses you can leave SHOOT W/O LENS set to OFF.

Appendix 1: Target where to focus and meter

This uses a classic approach to specify where to take focus and exposure.

1. **Choose an exposure mode:** Select either the PROGRAM (C₁) or APERTURE (C₂₋₁) custom mode.
2. **Select 1-AREA AF mode and SPOT metering mode:** A white AF frame and a blue spot-metering cross will be shown at the centre of the display. (If you wish to use this approach then store this setup onto a custom mode that you don't use much.)
3. **Lock focus:** Centre the AF frame over where you want to take focus. Press and release the AF LOCK button. If focus is obtained, the AF frame will turn green and focus will be locked. You could adjust the focus manually, as described above.
4. **Lock exposure:** Centre the metering cross over where you want to take the exposure. Half-press the shutter button, which will lock the exposure. This lets you take focus and exposure at different points in the scene. If necessary, you can adjust the exposure, as described above.
5. **Compose the image.**
6. **Take the photo and review:** Fully press the shutter button to take the photograph. Review the photo. If you do not want to keep it press DELETE. Return to shooting mode by half-pressing the shutter button.

Appendix 2: TRACKING AF mode

In TRACKING AF mode, the camera attempts to track a selected moving object and maintain focus on it. I've had more success with the approach described above and this section is included for completeness. It is not programmed to a custom mode.

TRACKING AF mode should be used in conjunction with MULTI-METERING. Focus and exposure will then be taken on the subject as it moves.

1. Set the magnification with the zoom ring if using a zoom lens.
2. Either:
 - Position the AF tracking frame over the object to be tracked and half press the shutter button to lock onto it. The AF frame will turn green when the camera has locked on.
 - Or touch the object to track on the screen. A yellow AF frame will appear when the camera has locked on.

For both cases: if lock fails the AF area will flash red; the AF area will remain yellow while the subject is being tracked; and you can cancel the tracking lock by touching OFF on the screen or pressing the SET button.

3. Half press the shutter button. A green frame will be shown where focusing has been achieved and the frame will track the moving object.
4. Fully press the shutter button to take a burst of photographs with the subject being tracked to maintain focus and exposure.

Appendix 3: Accessing shutter count

1. Insert a fully charged battery and insert a SD memory card.
2. Confirm that the camera is not intelligent auto mode [iA] or intelligent auto plus mode [iA+]. If the unit is in intelligent auto mode [iA] or intelligent auto plus mode [iA+], it does not display the initial settings menu.
3. Select AFS focus mode (not sure this is necessary).
4. Turn the power off.
5. Press the [AF/AE LOCK], [DISP] and [RIGHT-CURSOR] buttons simultaneously and turn the power on. You can check you are in service mode by going to Menu - Setup – if so, page 6 will have a "ROM BACKUP" option.
6. Press the [AF/AE LOCK], [MENU/SET] and [LEFT-CURSOR] buttons simultaneously once. Error codes will start to scroll down the screen.
7. Press the [AF/AE LOCK], [MENU/SET] and [LEFT-CURSOR] buttons simultaneously again. An information page will appear.
8. Then press [DISPLAY] repeatedly to toggle between two information pages. One shows the shutter count and the camera number, etc.
9. Press the ([AF/AE LOCK], [MENU/SET] and [LEFT-CURSOR]) buttons simultaneously again to return to the normal display and turn off the camera.

Appendix 4: Change notes

| Version | Date | Changes |
|---------|-----------|--|
| 4.2 | 17/2/2019 | A number of inconsistencies and typos corrected. |
| 4.1 | 26/1/2019 | Moved to only using FACE DETECTION AF mode for stationary subjects: the AF system switches to 49-AREA AF mode if no faces are detected and pressing FOCUS AREA SET switches to 1-AREA AF mode. Major implications for the text, including dropping the concept of photographic tasks. |
| 3.2 | 16/1/2019 | Swapped METERING MODE and ONE PUSH AE buttons for more logical use. ONE PUSH AE next to front dial for aperture and shutter control. METERING MODE next to AF MODE. Renamed the photographic task MANLENS to APERTURE, to reflect that it can be used with a normal lens in Aperture priority as well as with a fully-manual lens. Changed text to describe this. |
| 3.1 | 8/1/2019 | Correction of errors and cross references. |
| 3.0 | 5/1/2019 | Revised approach, using a simple process and separate details. |