

Dear Customer

◆ About the Upgrade of the Firmware

The following functions were added or changed from Ver. 2.5 of the firmware.

Please read this in conjunction with the owner's manual for the camera.

- The firmware version can be checked from the [Version Disp.] of the [Setup] menu.

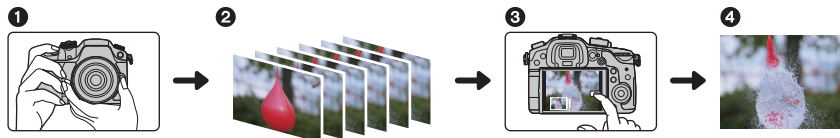
[4K PHOTO] has been added to the [Rec] menu.

[4K PHOTO] in the [Motion Picture] menu has been renamed to [4K PHOTO(Creative Video)].

Applicable modes:



Use [4K PHOTO] in the [Rec] menu to perform burst recording of pictures with the 4K Photo function. After the recording, you can select the desired moment from a burst of pictures taken at 30 frames/second and save that moment as a picture of 8 million pixels (approx.).



- 1** Record a 4K photo.
- 2** Save a 4K burst file. (A motion picture in [MP4] format will be saved.)
- 3** Select pictures from the 4K burst file and save them.
- 4** The pictures are complete. (A picture in JPEG format will be created.)

- Regardless of the [System Frequency] setting, 4K burst files are recorded with [4K/100M/30p].
- Regardless of the [System Frequency] setting, 4K burst files can be played back on the camera.
- Selecting [Aspect Ratio] in the [Rec] menu allows you to change the aspect ratio for 4K photos.
- You can use [4K PHOTO] using Quick Menu ([CUSTOM]) or a function button.
- The drive mode is canceled when [4K PHOTO] is in use. To use it, set [Rec Method] in [4K PHOTO] to [OFF].

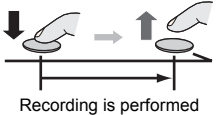
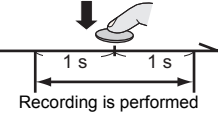
Recording with [4K PHOTO]

- Use a UHS Speed Class 3 card to record 4K photos.
- When recording 4K photos, the angle of view is narrower.

1 Select the menu.

MENU → **[Rec]** → **[4K PHOTO]** → **[Rec Method]**

2 Select the recording method with ▲/▼, and then press [MENU/SET].

 [4K Burst]	For capturing the best shot of a fast-moving subject (e.g., sports, aeroplanes, trains) Burst recording is performed while the shutter button is pressed and held. • Audio will not be recorded.	
 [4K Burst(S/S)] "S/S" is an abbreviation of "Start/Stop".	For capturing unpredictable photo opportunities (e.g., plants, animals, children) Burst recording starts when the shutter button is pressed (1) and stops when pressed again (2). • Audio will be recorded. Audio is not played back when you perform playback with the camera.	
 [4K Pre-Burst]	For recording as needed whenever a photo opportunity arises (e.g., the moment when a ball is thrown) Burst recording is performed for approximately 1 second before and after the moment that the shutter button is pressed. • Recording length: Approximately 2 seconds • Audio will not be recorded. • The battery drains faster when [4K PHOTO] is set to [] ([4K Pre-Burst]).	

3 Press the shutter button halfway to exit the menu.

4 Press the shutter button to perform recording.



 [4K Burst]	1 Press the shutter button halfway. 2 Press and hold the shutter button fully for as long as you want to perform recording. • Press the button fully slightly in advance. Recording starts approximately 0.5 seconds after it has been pressed fully. • If you are using Auto Focus, [Continuous AF] will work during recording. Focus will be adjusted continuously.
 [4K Burst(S/S)]	1 Press the shutter button fully to start recording. 2 Press the shutter button fully again to stop recording. • If you are using Auto Focus, [Continuous AF] will work during recording. Focus will be adjusted continuously. Adding markers to select and save pictures You can add markers if you press [Fn1] during recording. (Up to 40 markers per recording) When selecting and saving pictures from a 4K burst file, you can skip to the positions where you added markers.
 [4K Pre-Burst]	1 Press the shutter button fully. • Auto Focus adjusts focus continuously, and except in Manual Exposure Mode, it also adjusts exposure continuously. • In situations where you want to lock focus and exposure, such as when the subject is not at the center, use [AF/AE LOCK].

- In [E-Shutter Vol] in [Beep] in the [Setup] menu, or in [Silent Mode] in the [Custom] menu, you can turn off the electronic shutter sound that is heard during recording.
- After the 4K burst photo recording, a 4K burst file will be saved.
- Recording will continue without interruption even when the file size exceeds 4 GB, but the file will be divided and saved/played back separately.
- When [Auto Review] is enabled, the picture selection screen will be displayed automatically.

■ Setting Loop Recording ([4K Burst(S/S)] only)

The camera performs recording while deleting the data of the preceding part so that you can continue recording while waiting for a photo opportunity, without replacing the card.

- Once you start recording, the 4K burst file will be recorded and divided approximately every 2 minutes.

Approximately the last 10 minutes (up to approximately 12 minutes) will be saved. The preceding part will be deleted.

MENU → **[Rec]** → **[4K PHOTO]** → **[Loop Recording]**

Settings: [ON]/[OFF]

- Up to 12 hours of continuous recording is possible.
- **[C]** is displayed during recording.
- The available recording time and elapsed recording time are not displayed during recording.
- [Loop Recording] is not possible when there is insufficient free space on the card.

Selecting pictures from 4K burst file and saving

- The picture will be saved in JPEG format.
- The picture will be saved with recording information (Exif information), including its shutter speed, aperture and ISO sensitivity information.

1 Select a 4K burst file on the playback screen, and press **▲**.

- 4K burst files are displayed with **[4K]**.

2 Touch and drag the frames to select the frame you want to save as a picture.



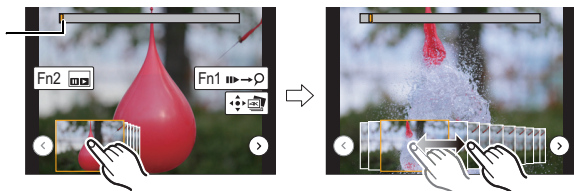
When you select pictures from any 4K burst file with long burst time, we recommend that you make a rough selection of scenes using the 4K burst playback screen, and then select the desired frame which you want to save as a picture by using the slide view screen.

- The 4K burst playback screen is not available for 4K photos recorded with **[4K]** ([4K Pre-Burst]).

<Slide view screen>

Position of the displayed frame

The frame of the position you touch will appear.

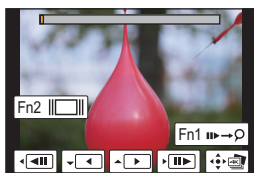


Button operation	Touch operation	Description of operation
	Touching → Dragging	Selects a frame you want to save as a picture
→ [MENU/SET]		Displays the previous or next frames in slide view
	Pinching out/in	Enlarges/reduces the display
	Dragging	Moves the enlarged area (during enlarged display)
[Fn2]		Displays the 4K burst playback screen.
[Fn1]		Switches to marker operation ([] ([4K Burst(S/S)]) only)
[MENU/SET]		Saves the picture

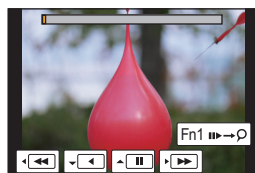
- During marker operation, you can skip to the markers that you added or the beginning or end of the 4K burst file. Press [Fn1] again to return to the original operation.

Button operation	Touch operation	Description of operation
		Moves to the next marker.
		Moves to the previous marker.

<4K burst playback screen>



During pause



During continuous playback

Button operation	Touch operation	Description of operation
	/	Continuous playback/Pause (during continuous playback)
	/	Continuous rewind/Pause (during continuous rewind)
	/	Fast forward/Frame-by-frame forward (during pause)
	/	Fast rewind/Frame-by-frame rewind (during pause)
	Pinching out/in	Enlarges/reduces the display (during pause)
	Dragging	Moves the enlarged area (during enlarged display)
[Fn2]		Displays the slide view screen (during pause)
[Fn1]		Switches to marker operation ([] ([4K Burst(S/S)]) only)
[MENU/SET]		Saves the picture (during pause)

3 Press [MENU/SET] to save the picture.

- Pause the playback to perform this operation when using the 4K burst playback screen.

- To select and save pictures when the camera is connected to a TV with an HDMI micro cable, set [VIERA Link] in [TV Connection] to [OFF].
- If you connect the camera to a TV with an HDMI micro cable or AV cable (optional) and display 4K burst files on the TV, they will be displayed only on the 4K burst playback screen.
- Even if you insert the card to a 4K-compatible TV with an SD card slot, you cannot play back 4K burst files recorded with [Aspect Ratio] set to an option other than [16:9]. To play them back, connect the camera and a 4K-compatible TV with an HDMI micro cable. (As of March 2016)
- When you set [Playback Mode] in the [Playback] menu to [4K PHOTO], you can play back only the images recorded with or pictures saved with [4K PHOTO] or [4K PHOTO(Creative Video)].

Notes on the 4K Photo function

When you set [4K PHOTO], the camera automatically selects the optimal settings for 4K photo recording.

- The following items are fixed to the settings indicated below:

[Picture Size]	[4K] (8M)	[Quality]	
	[4:3]: (3328×2496)	[Electronic Shutter]	[ON]
	[3:2]: (3504×2336)		
	[16:9]: (3840×2160)		
	[1:1]: (2880×2880)		

- 4K burst files are recorded with the settings indicated below:

[Rec Format]	[MP4]	[Luminance Level]	[0—255]
[Rec Quality]	[4K/100M/30p]	[Continuous AF]	[ON]

* Settings in the [Motion Picture] menu are not applied to 4K burst files recorded with the 4K Photo function.

- When recording with the 4K Photo function, the ranges for the following functions differ from the ones available for taking pictures:
 - Shutter speed: 1/30th to 1/16000th
 - Exposure Compensation: –3 EV to +3 EV
 - ISO sensitivity: [AUTO], 200 to 6400
- When recording with the 4K Photo function, the following functions are disabled:
 - Flash
 - [AF Mode] ()
 - Drive Mode
 - [MF Assist] ([4K Pre-Burst] only)
 - Program Shift
 - White Balance ()
 - Focus mode (AFF)
 - White Balance Bracket
- When recording with the 4K Photo function, the camera uses the motion picture function and electronic shutter. As a result, certain menu items are disabled.
- When recording with the 4K Photo function, it is not possible to use the HDMI output.
- The 4K Photo function is disabled when using the following settings:
 - [Rough Monochrome]/[Silky Monochrome]/[Miniature Effect]/[Soft Focus]/[Star Filter]/[Sunshine] (Creative Control Mode)
 - When recording motion pictures
 - When using [Post Focus]
 - When using [Time Lapse Shot]
 - When using [Multi Exp.]
 - When using [Stop Motion Animation]

■ Scenes not suitable for the 4K Photo function

Recording in extremely bright locations or indoors

When subjects are recorded in an extremely bright place or under fluorescent/LED lighting, the color tone or brightness of the image may change, or horizontal stripes may appear on the screen. Lowering the shutter speed may reduce the effect of the horizontal stripes.

Subjects that are moving fast in the horizontal direction

If you record a subject moving fast in the horizontal direction, the subject in the recorded pictures may appear distorted.

[4K PHOTO] in the [Motion Picture] menu has been renamed to [4K PHOTO(Creative Video)].

You can now select pictures from motion pictures using the slide view screen.

- For information on this operation, refer to “Selecting pictures from 4K burst file and saving” on page 3 of this leaflet.

[Post Focus] has been added to the [Rec] menu.

Applicable modes:



The camera can perform Burst recording in the same picture quality as 4K photo recording while automatically shifting the focus to different areas. After the recording, you can select the desired area on the screen and save a picture in which the selected area is in focus. This function is suited for recording still objects.

Focus areas are detected.



The focus shifts automatically during recording.



Select an area and save a picture.



Burst recording with the 4K Photo function

- Regardless of the [System Frequency] setting, motion pictures are recorded with [4K/100M/30p] and [MP4].
- Regardless of the [System Frequency] setting, recorded motion pictures can be played back on the camera.

Recording with [Post Focus]

- Use a UHS Speed Class 3 card.
- When using [Post Focus], the angle of view is narrower.

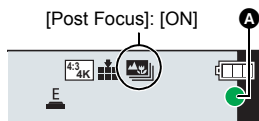
1 Select the menu.

MENU → **[Rec]** → **[Post Focus]**

- 2 Press **▲/▼** to select **[ON]** and then press **[MENU/SET]**.
- 3 Press the shutter button halfway to exit the menu.

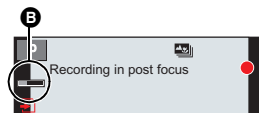
4 Decide on the composition, and press the shutter button halfway.

- Auto Focus will detect focus areas on the screen.
(Excluding the edges of the screen)
- If no areas on the screen can be brought into focus, the focus display (A) will flash. Recording is not possible in this case.



5 Press the shutter button fully to start recording.

- The recording will automatically end. You can monitor its progress from start to end by looking at the icon (B).



From the time you press the shutter button halfway until the end of recording:

- Maintain the same distance to the subject and the same composition.
- Do not operate the zoom. (Otherwise, recording will not be performed or will stop.)
- A motion picture in [MP4] format will be recorded. (Audio will not be recorded.)
- When [Auto Review] is enabled, a screen that lets you select the desired focus area will be displayed.

Selecting the desired focus area and saving a picture

1 Select an image with the [] icon on the playback screen, and press ▲.

- You can also perform the same operation by touching the icon [].



2 Select and touch a focus area.

- A picture in which the selected area is in focus will be displayed.
- If a picture that is in focus is not available for the selected area, a red frame will be displayed. You cannot save a picture in this case.
- You cannot select the edges of the screen.



Button operation	Touch operation	Description of operation
▲/▼/◀/▶/ ⌂ (Focus Area Selection)	Touching	Selects a focus area. • It cannot be selected during enlarged display.
⌂ (Enlarged Display)	[+]	Enlarges the display
⌂ (Reduced Display)	[−]	Reduces the display (during enlarged display)
[Fn2]	[PEAK]	In-focus portions are highlighted with color. ([Peaking]) • Switches in order of [OFF]→[ON] ([LOW]) → [ON] ([HIGH]).
[MENU/SET]	[]	Saves the picture

- You can fine-adjust the focus by dragging the slide bar during enlarged display. (You can also perform the same operation by pressing ◀/▶.)



3 Press [MENU/SET] to save the picture.

- The picture will be saved in JPEG format.
- You cannot select and save pictures using a TV connected to the camera with an HDMI micro cable or AV cable (optional).
- You can use [Post Focus] using Quick Menu ([CUSTOM]) or a function button.
- You can enable [Post Focus] in [Playback Mode] or [Slide Show] in the [Playback] menu.

■ Limitations on recording with [Post Focus]

Since recording is performed in the same picture quality as 4K photo recording, limitations apply to some recording functions and menu settings. In addition, since the camera automatically shifts focus, limitations also apply to functions such as Auto Focus.

• You cannot take pictures with the flash. You cannot record motion pictures.

- [Picture Size] will be fixed to [4K] (8M).
- A drive mode setting other than [Self Timer] will change to [Single].
- [Post Focus] is not available when a lens that does not support Auto Focus or a lens that supports the Four Thirds System standard is attached.

[AUTO] has been added to [Electronic Shutter] in the [Rec] menu.

Selecting [AUTO] allows the camera to automatically switch between the electronic and mechanical shutters according to the recording condition and shutter speed.

- When taking pictures using the flash, pictures will be taken with the mechanical shutter. The mechanical shutter method takes priority. This method places less limitations on the functions that can be used.
- When the ISO sensitivity is set to [4000] or higher, you can set [Electronic Shutter] to [AUTO], but the maximum shutter speed will be a mechanical shutter speed of 1/8000th of a second.

[E-Shutter Tone] has been added to [Beep] in the [Setup] menu.

You can select the type of the shutter sound to be heard when recording with the electronic shutter. In addition, you can set the shutter sound for 4K photo recording.

[Wireless Setup(Flash)] can now be assigned to the function buttons.

[Wireless Setup(Flash)] can now be selected from [Setting in REC mode] of [Fn Button Set] in the [Custom] menu.

AF/AE Lock can now be operated during motion picture recording.

When you operate the [AF/AE LOCK] button or the function button to which [AF-ON] is assigned during motion picture recording, the AF/AE Lock or AF-ON function will work.

Burst recording is now available for recording with an external flash.

When using a compatible external flash, you can perform burst recording at a burst rate of [H], [M] or [L].

- The flash does not fire while being charged. Burst recording will continue with an exposure value that does not require the use of the flash.
- For information on the compatibility of external flashes, refer to the support site below.

<http://panasonic.jp/support/global/cs/dsc/>

(This Site is English only.)

— This site is for consumer products.