

GY-HM200/GY-HM170 INSTRUCTIONS Notification of Changes

This is a notification on the addition of new features, feature modifications and onscreen display changes. Please read this together with the "INSTRUCTIONS".

200, 170: Feature available on the model or series name only.

"High-Speed" added to menu item [System]

"High-Speed" is added to [System] → [Record Set] → [Record Format] → [System].

A moving subject can be effectively portrayed by shooting smooth slow motion images.

| System | Format | Resolution | Frame Rate | Bit Rate |
|------------|------------|------------|------------|------------------------|
| High-Speed | Quick Time | 1920x1080 | 120/60p | 50M (XHQ) 35M (UHQ) |
| | | | 100/50p | |
| | | | 120/30p | |
| | | | 60/30p | |
| | | | 100/25p | |
| | | | 50/25p | |
| | | | 120/24p | |
| | | | 60/24p | |

Memo:

- The [Rec Mode] is fixed at "Normal".
- The following functions cannot be used when "High-Speed" is selected. Network, Time Stamp Recording, Flicker Correction, Shading, Face Detection and WDR
- The settings for slot B are fixed at the same as slot A.
- For the "TC Generator" setting, only "Rec Run" and "Regen" can be selected.
- It is not possible to set a shutter speed that is slower than the frame rate. (Example: When 120/60p is selected, 1/120 to 1/10000 can be set.)
- The angle of view shifts to telephoto. (35 mm conversion: [Normal] 29.6 mm to 355 mm → [High-Speed] 49.3 mm to 592 mm)
- The sensitivity of high speed shooting is lower than normal shooting. In order to capture more beautiful images, it is recommended to perform shooting in a lighted environment.
- The remaining space on the media (recordable time to a SD card) runs out faster than usual. (Example: For 120/60p, as the recording speed is twice as fast as usual, the remaining space on the media is reduced by approximately double the speed.)

Bit Rate added to System "4K"

"70M" is added to [System] → [Record Set] → [Record Format] → [Bit Rate].

| System | Format | Resolution | Frame Rate | Bit Rate (new values are in bold) |
|--------|------------|------------|------------|--------------------------------------|
| 4K | Quick Time | 3840x2160 | 30p | 150M |
| | | | 25p | 70M |
| | | | 24p | |

Memo:

- When 4K is set, the network function cannot be used. **(200)**

Usable Cards

Format Setting and Usable SD Card Combinations

| System | Format | Bit Rate | Usable SD Card |
|------------|------------|------------------------------|--------------------|
| High-Speed | Quick Time | 50 M (XHQ), 35 M (UHQ) | UHS-I U3 or higher |
| 4K | | 150M | |
| HD | | 70M | Class 10 or higher |
| | | 50 M (YUV422), 50 M (XHQ) | |
| | | 35 M (UHQ) | Class 6 or higher |
| SD | AVCHD | — | Class 4 or higher |
| Web | — | — | — |

Estimated Recordable Time of SD Cards

- When [System] → [Record Set] → [Record Format] → [Format] is set to "QuickTime".

| System | 4K | | HD | | SD | Web | |
|--------------|------------|-------|-------------|-----------|------|------|------|
| | Resolution | 2160p | 1080i/1080p | 480i/576i | 960p | 480p | |
| Bit Rate | 150M | 70M | XHQ | UHQ | — | HQ | LP |
| 4 GB | 3 | 6 | 9 | 12 | 47 | 130 | 285 |
| 8GB | 6 | 13 | 18 | 25 | 95 | 270 | 580 |
| 16GB | 12 | 26 | 36 | 50 | 190 | 540 | 1160 |
| 32GB | 25 | 52 | 72 | 100 | 380 | 1080 | 2320 |
| 64GB (SDXC) | 50 | 105 | 145 | 200 | 760 | 2160 | 4720 |
| 128GB (SDXC) | 100 | 210 | 290 | 400 | 1520 | 4320 | 9440 |

(Unit: minute)

Histogram feature added

The histogram shows the brightness distribution, and is employed mainly for checking the exposure of the image.

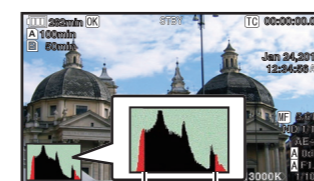
- Set the histogram feature to ON.
 - Set [Main Menu] → [LCD / VF] → [Display Settings] → [Histogram] to "On".
 - You can also press the user button that is assigned with "Histogram".
- Set the upper and lower limits of the histogram display. After setting, the brightness level is displayed in red color.

| Item | Settings | Options |
|--------|--|---|
| Top | Sets the maximum brightness limit for changing the histogram display color | 5% to 110% (in 5% increments) Default value: 80% |
| Bottom | Sets the minimum brightness limit for changing the histogram display color | 0% to 105% (in 5% increments) Default value: 20% |

Example 1) Top 110%, Bottom 0%



Example 2) Top 90%, Bottom 10%



* The area in red is not displayed.

How to read the histogram

- The vertical axis denotes the number of pixels.
- The horizontal axis denotes the pixel brightness.

Icon display added when zebra function is "On"

During zebra pattern display,  (zebra icon) is displayed on the display screen in Camera mode.

"98%" added to [Top] and [Bottom] of menu item [Zebra]

"98%" is added to the setting values for specifying the upper and lower limits of the luminance level in [LCD/VF] → [Shooting Assist] → [Zebra]/[Top] and [Bottom].

This convenient setting is to keep the video level with 100% during the video production for playback, screening and broadcasting on nonlinear devices and PC.

[Top] [Setting Values: 5% to ● 80% to 95%, 98%, 100%, Over]

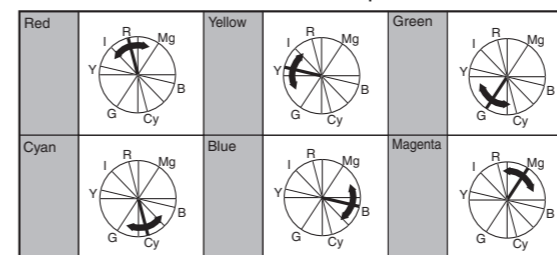
[Bottom] [Setting Values: 0% to ● 70% to 95%, 98%, 100%]

[Adjust] added to menu item [Color Matrix]

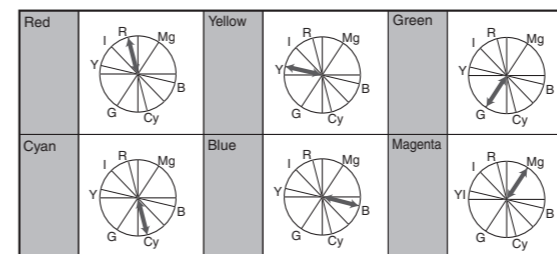
[Adjust] is added to [Camera Process] → [Color Matrix].

- The color matrix of the camera recorder can be adjusted to a color of the user's preference.
 - When shooting is performed using multiple cameras, the colors of the different cameras can be adjusted, and a color of the user's preference can be set on this camera recorder.
 - The saturation, hue and brightness of the primary and complementary colors (6 colors in total) can be set individually.
 - Adjust the color on the vector scope and waveform monitor using the DSC color chart.
- * The adjusted values of "Standard", "Cinema Vivid", and "Cinema Subdued" in [Color Matrix] can be stored individually.

- Select [Camera Process] → [Color Matrix]/[Adjust].
- Adjust the "Hue". [Setting range: -5 to +5] (roughly ± 5%)
 - Select the color using the cross-shaped button (▲▼) and confirm using the cross-shaped button (►). (The cursor moves to "Hue".)
 - Pressing the cross-shaped button (▲) rotates the hue in the clockwise direction on the vector scope.
 - Pressing the cross-shaped button (▼) rotates the hue in the anti-clockwise direction on the vector scope.



- Adjust the "Saturation". [Setting range: -10 to +10] (roughly ± 10%)
 - Press the cross-shaped button (►) to move the cursor to "Saturation".
 - Each of the colors changes in the direction indicated by the arrow on the vector scope.
 - Pressing the cross-shaped button (▲) moves the color outward from the center of the circle on the vector scope.
 - Pressing the cross-shaped button (▼) moves the color toward to the center of the circle on the vector scope.



- Adjust the brightness. [Setting range: -10 to +10] (roughly ± 10%)
 - Pressing the cross-shaped button (▲) brightens; and pressing the cross-shaped button (▼) darkens.
 - Press the cross-shaped button (►) to return the cursor to "Hue".

Setting items changed or added to menu item [Rec Trigger]

Setting items in [A/V Set] → [Video Set] → [HDMI/SDI Out] → [Rec Trigger] are changed. **(200)**

Setting items are added to [A/V Set] → [Video Set] → [HDMI Out] → [Rec Trigger]. **(170)**

- HDMI (200):** Superimposes the trigger signals in tandem with the [HDMI] terminal as well as the [REC] button on the camera body and outputs the recording/stop control signals to the compatible device.
- On (170):** Superimposes the trigger signals in tandem with the [HDMI] terminal as well as the [REC] button on the camera body and outputs the recording/stop control signals to the compatible device.
- SDI (200):** Superimposes the trigger signals in tandem with the [SDI OUT] terminal as well as the [REC] button on the camera body and outputs the recording/stop control signals to the compatible device.
- HDMI+SDI (200):** Superimposes the trigger signals in tandem with the [HDMI/SDI Out] terminal as well as the [REC] button on the camera body and outputs the recording/stop control signals to the compatible device.

[Setting Values: ●Off, HDMI, SDI, HDMI+SDI] **(200)**

[Setting Values: ●Off, On] **(170)**

Memo:

- When [A/V Set] → [Video Set] → [HDMI/SDI Out] **(200)** or [HDMI Out] **(170)** is set to "Off", [Rec Trigger] is fixed at "Off" and selection is disabled.
- When [System] → [Record Set] → [Rec Mode] is set to "Interval Rec" or "Frame Rec", [Rec Trigger] is fixed at "Off" and selection is disabled.
- Set to "Off" when connecting to a device that does not support record trigger.

Setting Values added to menu item [LCD Backlight]

The brightness is improved by changing the setting value of [LCD/VF] → [LCD Backlight].

A brightness setting that is 2 times the existing brightness setting has been added.

This improves the visibility and allows for more delicate focusing.

Increasing the value increases the brightness.

[Setting Values: -1, ● 0, +1]

Bit Rate added to live streaming **(200)**

Setting values are added to [System] → [Network]/[Settings] → [Live Streaming Set] → [Frame & Bit Rate].

| No. of Frames for Frame & Bit Rate | Resolution | New values are in bold |
|------------------------------------|----------------|--|
| 60i, 60p, 30p | 1920x1080 | 60i (12 Mbps), ● 60i (8 Mbps), 60i (5 Mbps), 60i (3 Mbps), |
| | 1280x720 | 30p (8 Mbps), ● 30p (5 Mbps), 30p (3 Mbps), ● 30p (1.5 Mbps) |
| | 720x480 | 60i (8 Mbps), 60i (5 Mbps), ● 60i (3 Mbps), 60i (1.5 Mbps), 60i (0.8 Mbps), 60i (0.3 Mbps) |
| | 640x360 | 30p (3 Mbps), ● 30p (1.5 Mbps), 30p (0.8 Mbps), ● 30p (0.3 Mbps) |
| 50i, 50p, 25p | 1920x1080 | 50i (12 Mbps), ● 50i (8 Mbps), 50i (5 Mbps), 50i (3 Mbps) |
| | 1280x720 | 25p (8 Mbps), ● 25p (5 Mbps), 25p (3 Mbps), 25p (1.5 Mbps) |
| | 720x576 | 50i (8 Mbps), 50i (5 Mbps), ● 50i (3 Mbps), 50i (1.5 Mbps), 50i (0.8 Mbps), 50i (0.3 Mbps) |
| | 640x360 | 25p (3 Mbps), ● 25p (1.5 Mbps), 25p (0.8 Mbps), 25p (0.3 Mbps) |

SMPTE 2022-1 FEC supported (200)

MPEG2-TS/RTP is added to streaming type and SMPTE2022-1 FEC is supported.

Also, MPEG2-TS/TCP is removed.

■ “MPEG2-TS/RTP” added to menu item [Type]

“MPEG2-TS/RTP” is added to [System] → [Network]/[Settings] → [Live Streaming Set] → [Server]/[Streaming Server] → [Server1] to [Server4] → [Type].

[Setting Values: ● MPEG2-TS/UDP, MPEG2-TS/RTP, RTSP/RTP, ZIXI, RTMP]

Caution :

- With the addition of this setting value, “MPEG2-TS/TCP” is removed from the setting values of [Type].

■ [SMPTE 2022-1 FEC] added to menu item

When “MPEG2-TS/RTP” is selected in [System] → [Network]/[Settings] → [Live Streaming Set] → [Server]/[Streaming Server] → [Server1] to [Server4] → [Type], [SMPTE 2022-1 FEC] can be configured. Set to “On” to use FEC (Forward Error Correction). This is a transmission system that recovers the missing packets in the decoding process without having to retransmit the missing packets.

[Setting Values: On, ● Off]

* The decoder must be compatible with SMPTE 2022-1.

■ [FEC Matrix] added to menu item

For setting the amount of FEC (Forward Error Correction) overhead for configuring SMPTE 2022-1.

Memo :

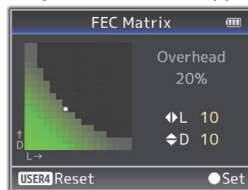
- This item is selectable only when [SMPTE2022-1 FEC] is set to “On”.
- When [Type] is set to “MPEG2-TS/RTP”, only even numbers from 2 to 65530 can be specified as the port number for the transmission destination port.
- When [Type] is set to “MPEG2-TS/RTP” and [SMPTE2022-1 FEC] is set to “On”, N+2 and N+4 port numbers are also used in addition to the port number (N) specified for the transmission destination port.

■ Setting the FEC Matrix

Set the amount of “FEC” (Forward Error Correction) overhead for configuring [SMPTE 2022-1].

1 Select [System] → [Network]/[Settings] → [Live Streaming Set] → [Server]/[Streaming Server] → [Server1] to [Server4] → [Type] → [FEC Matrix], then press the Set button (●).

The FEC adjustment screen appears.



2 Adjust the L and D values.

Use the ◀/▶ buttons to adjust the L value, and the ▲/▼ buttons to adjust the D value.

The amount of FEC overhead changes when the L and D values are changed.

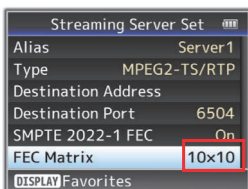
To restore the L and D values to their default values, press the [C.REVIEW/4] button.

Memo :

- Setting range
 - $4 \leq L \leq 20$ (Default value: L = 10)
 - $4 \leq D \leq 20$ (Default value: D = 10)
 - $L \times D \leq 100$ (Default value: LxD = 10x10)

3 Press the Set button (●).

The screen returns to the streaming server setting screen.



Memo :

- Increasing the amount of FEC overhead increases the packet loss resilience but more network bandwidth is used.
- Even with the same amount of overhead, increasing the L value will increase the packet loss (continuous packet loss) resilience.

[Adaptive Bit Rate] and [PCR Jitter] added to menu item (200)

The following items are added to [System] → [Network]/[Settings] → [Live Streaming Set] → [Streaming Server] → [Server1] to [Server4].

● Adaptive Bit Rate

If “On” is selected, the bit rate setting value of live streaming is set to maximum limit, and the bit rate is changed automatically according to changes in the network bandwidth. [Setting Values: On, ● Off]

Memo :

- Adaptive bit rate setting is possible only when [Type] is set to “ZIXI” and [Latency] is set to either “Medium” or “Low”.
 - * The bit rate is displayed on the status screen only when “On” is set.

● PCR Jitter

Setting to “Low” reduces the PCR jitter of live streaming. [Setting Values: ● Normal, Low]

Memo :

- This item is selectable only when [Type] is set to “MPEG2-TS/UDP”.

“High” is added to menu item [Latency] (200)

High latency (high reliability) mode is added to ZIXI.

“High” is added to [System] → [Network]/[Settings] → [Live Streaming Set] → [Server]/[Streaming Server] → [Server1] to [Server4] → [Latency].

[Setting Values: High, Medium, ● Low, Minimum (ZIXI Off)]

[APN] added to menu item (200)

[APN] is added to [System] → [Network]/[Settings] → [Connection Setup].

* APN: Access Point Name

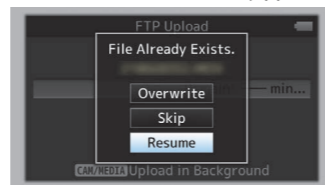
* This item is grayed out and cannot be selected if APN cannot be set for the adapter attached.

Caution :

- The APN setting is written into the cellular adapter, not this camera recorder. Setting a wrong APN may result in communication failure or expensive bills from the telecommunications company. Set the APN correctly.

FTP resume feature added (200)

When FTP transfer starts and there is a file of the same name on the server with a file size smaller than the file to be transferred, the file on the server will be regarded as an interrupted file during a FTP transfer. A confirmation screen to resume transfer (append writing) appears.



If “Resume” is selected, FTP transfer is carried out such that it appends from the position where it was interrupted. When FTP transfer ends normally, “Successfully Completed.” appears on the screen.

Memo :

- FTP server equipped with resume function is required.
- If [System] → [Network]/[Settings] → [Clip Server] → [Clip-FTP1/2/3/4] → [Protocol] is set to “SFTP”, the “Resume” function is disabled.
- If “HTTP” is selected in the [Select FTP Proxy] screen of the network connection setting, the resume function is disabled.

Setting value “ZIXI” added to menu item [Protocol] (200)

“ZIXI” is added to [System] → [Network]/[Settings] → [Clip Server] → [Clip-FTP1/2/3/4] → [Protocol].

If “ZIXI” is selected, [Username] in [System] → [Network]/[Settings] → [Clip Server] → [Clip-FTP1/2/3/4] changes to [Stream ID]. [Setting Values: ● FTP, SFTP, FTPS, FTPES, ZIXI]

Memo :

- To use the “ZIXI” setting, a dedicated server is needed separately.
- If “ZIXI” is set, the “Resume” function is enabled.

Items added to thumbnail screen

The following items are added to the metadata display on the detailed screen of the thumbnail screen.

- Clip Size
- Gamma

Clip Continuous added to recording mode for AVCHD

“Clip Continuous” is added to the setting value for “AVCHD” format in [System] → [Record Set] → [Rec Mode].

Clip Continuous Rec can also be operated in “AVCHD” mode.

Setting value “Side Cut” added to menu item [SD Aspect]

“Side Cut” is added to the setting value for [A/V Set] → [Video Set] → [SD Aspect].

- Letter: Displays as a wide image with the top and bottom blackened.
- Squeeze: Displays image that is squeezed horizontally.
- Side Cut: Displays wide screen with the left and right sides cut off.

[Setting Values: ● Squeeze, Letter, Side Cut]

Memo :

- When “SD” is selected in [System] → [Record Set] → [Record Format] → [System], “Squeeze” and “Letter” can be selected.

2.5x display mode added to Expanded Focus function in 4K mode

An approximately 2.5x display mode is added to the Expanded Focus function when “4K” is selected in [System] → [Record Set] → [Record Format] → [System]. You can use the Set button (●) to switch between the conventional dot by dot equivalent (approximately 5x) display and the 2.5x display.

Memo :

- Upon power on, the display of the initial Expanded Focus is dot by dot equivalent (approximately 5x).

[Camera Data] added to menu item

[Camera Data] is added to [LCD/VF] → [Display Settings].

- Always: The Iris F-number, Gain, Shutter and White Balance values are always displayed. The [A] icon appears on the left side of the gain value in the mode.
- Manual Only: The Iris F-number, Gain, Shutter and White Balance values are displayed only in Manual mode.

[Setting Values: Always, ● Manual Only]

Setting for adjusting Iris/Shutter/AE Level using iris dial added

Setting value “Iris/Shutter/AE Level” are added to [Camera Function] → [Iris Dial].

If “Iris/Shutter/AE Level” is selected, the iris dial that is normally used to adjust the iris will be used to adjust the shutter speed and the AE level when the shutter button and AE button are pressed respectively. After which, the iris dial resumes its iris operation.

[Setting Values: ● Iris, Shutter, AE Level, Iris/Shutter/AE Level]

[HDMI TC] added to menu item

[HDMI TC] is added to [A/V Set] → [Video Set]. For setting whether to superimpose the time code to the HDMI output terminal.

[Setting Values: ● Off, On]

Memo :

- When [A/V Set] → [Video Set] → [HDMI/SDI Out] is set to “SDI” or “Off”, [HDMI TC] is fixed at “Off” and selection is disabled. (200)
- When [A/V Set] → [Video Set] → [HDMI Out] is set to “Off”, [HDMI TC] is fixed at “Off” and selection is disabled. (170)
- Set to “Off” when connecting to a device that does not support HDMI TC.

Setting value changed in [Resolution] under [HDMI/SDI Out] (200) and [HDMI Out] (170)

The video output is changed to native frame rate and setting values are added. For selecting the resolution of video output from the [HDMI] terminal or [SDI OUT] terminal according to the monitor to be connected.

[Setting Values: 576i, 576p, 480i, 480p, 720p, 1080i, 1080p, 1080/30p, 1080/25p, 1080/24p, 2160/24p, 2160/25p, 2160/30p]

Other notes

The “MPEG LA MPEG-2 Patent” described in the “INSTRUCTIONS” of this book is not applicable to this product.

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