



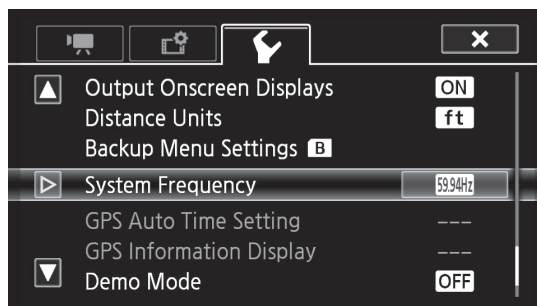


## Switching the System Frequency

After upgrading the camcorder, you can use the   [System Frequency] setting to switch the camcorder's system frequency to  59.94 Hz or  50.00 Hz].






Some settings and functions will differ depending on the selected system frequency. The major differences are explained below.

### 1 Selecting the Frame Rate

Refer to the procedure below that applies to the system frequency your camcorder is set to.


#### For a system frequency of 59.94 Hz

You can change the frame rate of AVCHD or MP4 movies. When the recording mode is set to 28 Mbps LPCM (59.94P) or 28 Mbps (59.94P) for AVCHD movies or 35 Mbps (59.94P) for MP4 movies, the frame rate will automatically be set to 59.94P so you will not be able to select the frame rate.

- 1 Open the [Frame Rate] screen.  
[FUNC.]  [MENU]  [Frame Rate]
- 2 Touch the desired frame rate and then touch .

#### **Options for AVCHD movies** (\* Default value)

 **59.94i**\* 59.94 fields per second, interlaced. Standard frame rate of NTSC analog TV signals.

 **PF29.97** 29.97 frames per second, progressive\*. Use this frame rate to easily edit your recordings, for example, to post them on the Web.

 **23.98P** 23.98 frames per second, progressive.

\* Recorded as 60.00i.


#### **Options for MP4 movies** (\* Default value)

 **29.97P**\* 29.97 frames per second, progressive\*.

 **23.98P** 23.98 frames per second, progressive.

#### For a system frequency of 50.00 Hz

You can change the frame rate of AVCHD movies. When the recording mode is set to 28 Mbps LPCM (50.00P) or 28 Mbps (50.00P) for AVCHD movies or 35 Mbps (50.00P) for MP4 movies, the frame rate will automatically be set to 50.00P so you will not be able to select the frame rate. In addition, the frame rate for MP4 movies recorded with other recording modes will automatically be set to 25.00P.

- 1 Open the [Frame Rate] screen.  
[FUNC.] ➤ [MENU] ➤  ➤ [Frame Rate]
- 2 Touch the desired frame rate and then touch [X].

### Options <sup>(<sup>\*</sup> Default value)</sup>

**[50.00] 50.00i<sup>\*</sup>** 50.00 fields per second, interlaced. Standard frame rate of PAL analog TV signals.

**[PF25.00] PF25.00** 25.00 frames per second, progressive\*. Using this frame rate will give your recordings a cinematic look.


Recording in **CINEMA** mode will further enhance the effect.

\* Recorded as 50.00i.

## 2 Slow & Fast Motion Recording


Refer to the procedure below that applies to the system frequency your camcorder is set to.

For a system frequency of 59.94 Hz

- 1 Open the [Slow & Fast Motion] screen.  
[FUNC.] ➤ [MENU] ➤  ➤ [Slow & Fast Motion]
- 2 Select the desired frame rate.
  - Available frame rates depend on the recording mode and frame rate. Refer to the following table.
- 3 Touch [X].

Recording mode	Frame rate	Available shooting frame rates
35 Mbps (59.94P)	-	29.97P, 23.98P
24 Mbps, 17 Mbps	29.97P	59.94P, 23.98P
	23.98P	59.94P, 29.97P

For a system frequency of 50.00 Hz

- 1 Open the [Slow & Fast Motion] screen.  
[FUNC.] ➤ [MENU] ➤  ➤ [Slow & Fast Motion]
- 2 Select [**ON** On] and then touch [X].
  - Available frame rates depend on the recording mode and frame rate. Refer to the following table.

Recording mode	Frame rate	Available shooting frame rates
35 Mbps (50.00P)	-	25.00P
24 Mbps, 17 Mbps	25.00P	50.00P

### 3 Available shutter speed settings

For a system frequency of 59.94 Hz

[1/8]	[1/15]	[1/30]	[1/60]	[1/100]
[1/250]	[1/500]	[1/1000]	[1/2000]	

Available shutter speed settings when the frame rate is set to 23.98P

[1/6]	[1/12]	[1/24]	[1/48]	[1/60]
[1/100]	[1/250]	[1/500]	[1/1000]	[1/2000]

#### NOTES

- When recording under fluorescent lights and the screen starts to flicker, set the shutter speed to 1/100.

For a system frequency of 50.00 Hz

[1/6]	[1/12]	[1/25]	[1/50]	[1/120]
[1/250]	[1/500]	[1/1000]	[1/2000]	

### 4 Time code

For a system frequency of 59.94 Hz

You can select between a drop frame (DF) or non-drop frame (NDF) time code, depending on how you plan to use your recording. When the frame rate is set to 23.98P, the time code will be set to non-drop frame.

- 1 Open the [DF/NDF] screen.

[FUNC.] ➤ [MENU] ➤  ➤ [DF/NDF]

- 2 Select [**DF** DF] or [**NDF** NDF] and then touch [**X**].

- The time code's display will differ depending on the setting. If you selected [**DF** DF], the time code will appear as [00:00:00.00]; if you select [**NDF** NDF], it will appear as [00:00:00:00].


#### NOTES

- When the frame rate is set to 23.98P, the frames value in the time code runs from 0 to 23. For other settings, it runs from 0 to 29.
- When you mix drop frame and non-drop frame time codes, there might be a discontinuity in the time code at the point where the recordings starts.

For a system frequency of 50.00 Hz

You cannot select between a drop frame or non-drop frame time code.

### 5 User bit

When the frame rate is set to 23.98P and  ➤ [User Bit Output Mode] is set to [Pulldown], the user bit will be 2:3 pulldown data.

## 6 Color bars

For a system frequency of 59.94 Hz

You can choose between SMPTE standard-definition color bars and ARIB multi-format HDTV color bars.

For a system frequency of 50.00 Hz

You can choose between EBU and SMPTE color bars.

## 7 Converting movies to MP4 format

For a system frequency of 59.94 Hz

When converting movies with a frame rate of 23.98P, the converted MP4 movie will also have a frame rate of 23.98P. When converting movies with other frame rates, the converted MP4 movie will have a frame rate of 29.97P.

### NOTES

- Scenes with a frame rate of 23.98P can be joined only with other scenes with a frame rate of 23.98P. They cannot be joined with scenes with other frame rates.

For a system frequency of 50.00 Hz

When converting movies, the converted MP4 movie will have a frame rate of 25.00P

## 8 Output options for the HD/SD-SDI (**XA25** only) and HDMI OUT terminals

For a system frequency of 59.94 Hz

<b>XA25</b> [HD/SD-SDI Output]	[ <b>480i</b> 480i], [ <b>720P</b> 720P], [ <b>1080i</b> 1080i]
[HDMI Output]	[ <b>A</b> Automatic], [ <b>480i</b> 480i], [ <b>480P</b> 480P], [ <b>720P</b> 720P], [ <b>1080i</b> 1080i], [ <b>1080P</b> 1080P]

For a system frequency of 50.00 Hz

<b>XA25</b> [HD/SD-SDI Output]	[ <b>576i</b> 576i], [ <b>720P</b> 720P], [ <b>1080i</b> 1080i]
[HDMI Output]	[ <b>A</b> Automatic], [ <b>576i</b> 576i], [ <b>576P</b> 576P], [ <b>720P</b> 720P], [ <b>1080i</b> 1080i], [ <b>1080P</b> 1080P]

## 9 Error messages

The following error messages may appear while the camcorder is set to a system frequency of 59.94 Hz.

**Cannot join 23.98P and 29.97P scenes to convert them**

**Cannot join 59.94i and 23.98P scenes to convert them**

**Cannot join PF29.97 and 23.98P scenes to convert them**

- The combination of scenes you are trying to convert does not allow for joining scenes due to the scenes' frame rate settings. Convert the scenes to MP4 without joining them.