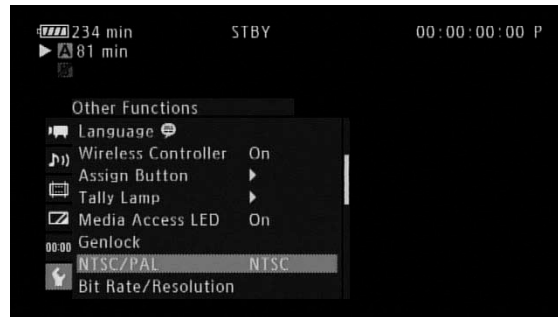


## Switching Between NTSC and PAL Standards

After upgrading the camcorder, you can use the [Other Functions] [NTSC/PAL] function to switch between NTSC and PAL standards. However, make sure in advance that the camcorder is not in pre-recording mode. If the camcorder is in pre-recording mode, it may not switch between standards correctly.



Some settings and functions will differ depending on the selected standard. Those differences are explained below.

### 1 Available bit rate, resolution and frame rate settings

In NTSC standard:

Bit rate	Resolution	Frame rate			
		60i	60P	30P	24P
50 Mbps (CBR 4:2:2)	1920×1080	●	—	●	●
	1280×720	—	●	●	●
35 Mbps (VBR 4:2:0)	1920×1080	●	—	●	●
	1280×720	—	●	●	●
25 Mbps (CBR 4:2:0)	1440×1080	●	—	●	●

In PAL standard:

Bit rate	Resolution	Frame rate		
		50i	50P	25P
50 Mbps (CBR 4:2:2)	1920×1080	●	—	●
	1280×720	—	●	●
35 Mbps (VBR 4:2:0)	1920×1080	●	—	●
	1280×720	—	●	●
25 Mbps (CBR 4:2:0)	1440×1080	●	—	●

## 2 Available shutter speeds

In NTSC standard:

Shutter speed mode	Frame rate		
	60i	30P	24P
OFF <sup>1</sup>	1/60	1/30	1/24
Auto <sup>2</sup>	1/60 to 1/500	1/30 to 1/500	1/24 to 1/500
Speed <sup>3</sup>	1/60, 1/75, 1/90, 1/100, 1/120, 1/150, 1/180, 1/210, 1/250, 1/300, 1/360, 1/420, 1/500, 1/600, 1/720, 1/840, 1/1000, 1/1200, 1/1400, 1/1700, 1/2000	1/30, 1/34, 1/40, 1/48, 1/50, 1/60, 1/75, 1/90, 1/100, 1/120, 1/150, 1/180, 1/210, 1/250, 1/300, 1/360, 1/420, 1/500, 1/600, 1/720, 1/840, 1/1000, 1/1200, 1/1400, 1/1700, 1/2000	1/24, 1/25, 1/30, 1/34, 1/40, 1/48, 1/50, 1/60, 1/75, 1/90, 1/100, 1/120, 1/150, 1/180, 1/210, 1/250, 1/300, 1/360, 1/420, 1/500, 1/600, 1/720, 1/840, 1/1000, 1/1200, 1/1400, 1/1700, 1/2000
Angle <sup>3</sup>	360°, 240°, 216°, 180°, 120°, 90°, 60°, 45°, 30°, 22.5°, 15°, 11.25°	360°, 240°, 216°, 180°, 120°, 108°, 90°, 60°, 45°, 30°, 22.5°, 15°, 11.25°	360°, 345.6°, 288°, 240°, 180°, 172.8°, 144°, 120°, 90°, 86.4°, 72°, 60°, 45°, 30°, 22.5°, 15°, 11.25°
Clear Scan <sup>3</sup>	59.94 Hz to 250.70 Hz	29.97 Hz to 250.70 Hz	23.97 Hz to 250.70 Hz
Slow Shutter <sup>2</sup>	1/4, 1/8, 1/15, 1/30	1/4, 1/8, 1/15	1/3, 1/6, 1/12

<sup>1</sup> During slow & fast motion recording mode, the shutter speed will be based on the selected shooting frame rate.

<sup>2</sup> Not available during slow & fast motion recording mode.

<sup>3</sup> The available settings depend on the frame rate.

In PAL standard:

Shutter speed mode	Frame rate	
	50i	25P
OFF <sup>1</sup>	1/50	1/25
Auto <sup>2</sup>	1/50 to 1/500	1/25 to 1/500
Speed <sup>3</sup>	1/50, 1/60, 1/75, 1/90, 1/100, 1/120, 1/150, 1/180, 1/210, 1/250, 1/300, 1/350, 1/400, 1/500, 1/600, 1/700, 1/800, 1/1000, 1/1200, 1/1400, 1/1600, 1/2000	1/25, 1/29, 1/30, 1/33, 1/40, 1/50, 1/60, 1/75, 1/90, 1/100, 1/120, 1/150, 1/180, 1/210, 1/250, 1/300, 1/350, 1/400, 1/500, 1/600, 1/700, 1/800, 1/1000, 1/1200, 1/1400, 1/1600, 1/2000
Angle <sup>3</sup>	360°, 300°, 240°, 180°, 150°, 120°, 90°, 60°, 45°, 30°, 22.5°, 15°, 11.25°	360°, 300°, 240°, 180°, 150°, 120°, 90°, 75°, 60°, 45°, 30°, 22.5°, 15°, 11.25°
Clear Scan <sup>3</sup>	50 Hz to 251.15 Hz	25 Hz to 251.15 Hz
Slow Shutter <sup>2</sup>	1/3, 1/6, 1/12, 1/25	1/3, 1/6, 1/12

<sup>1</sup> During slow & fast motion recording mode, the shutter speed will be based on the selected shooting frame rate.

<sup>2</sup> Not available during slow & fast motion recording mode.

<sup>3</sup> The available settings depend on the frame rate.

### 3 Time code

In NTSC standard:

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 [ Other Functions] [Frame Rate] function is set to [24P], the time code will be set to non-drop frame.

1 Open the [DF/NDF] submenu.

[00:00 TC/UB Setup] [Time Code] [DF/NDF]

2 Select [DF] or [NDF] and then press SET.

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

In PAL standard:

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

### 4 User bit (**XF305** only)

In NTSC standard:

When the camcorder is set to mode, the [00:00 User Bit Setup] menu will be available (between the [ LCD/VF Setup] menu and [ Other Functions] menu). This menu contains the [Output Mode] function, which is the same as that found in the [00:00 TC/UB Setup] menu.

In PAL standard:

When the time code signal is output from the camcorder, 2:3 pulldown data will not be output in the user bit. Also, the [00:00 User Bit Setup] menu in mode will not be available.

### 5 Color bars

In NTSC standard:

You can choose between SMPTE standard-definition color bars ([Type 1]) and ARIB multi-format HDTV color bars ([Type 2]).

In PAL standard:

You can choose between EBU ([Type 1]) and SMPTE color bars ([Type 2]).

### 6 Interval recording and frame recording modes

In NTSC standard:

Available options for the number of frames are 1, 3, 6 and 9 (2, 6 and 12 if [ Other Functions] [Frame Rate] is set to [24P] or [60P]).



In PAL standard:

Available options for the number of frames are 2, 6 and 12.

## 7 Slow & fast recording mode – available shooting frame rates



In NTSC standard:

12	15	18	20	21	22	24	25	26	27
28	30	32*	34*	36*	40*	44*	48*	54*	60*

\* Available only when [ Other Functions]  [Bit Rate/Resolution] is set to [50 Mbps 1280x720] or [35 Mbps 1280x720].

In PAL standard:

12	15	18	20	21	22	23	24	25	26*
27*	28*	30*	32*	34*	37*	42*	45*	48*	50*

\* Available only when [ Other Functions]  [Bit Rate/Resolution] is set to [50 Mbps 1280x720] or [35 Mbps 1280x720].

## 8 Video output configuration by terminal

In NTSC standard:

Terminal →	HD/SD SDI <sup>1,2</sup> ( <b>XF305</b> only)		HDMI OUT <sup>2,3</sup>		HD/SD COMPONENT OUT <sup>2,4</sup>		AV or VIDEO 2
Recording Frame Size / Frame Rate ↓	HD output	SD output	HD output	SD output	HD output	SD output	SD output
1080/60i	1080/60i	480/60i <sup>5</sup>	1080/60i	480/60i	1080/60i	480/60i	480/60i
1080/30P							
1080/24P							
1080/slow or fast motion							
720/60P	720/60P	480/60i <sup>5</sup>	720/60P	480/60P	720/60P	480/60i	480/60i
720/30P							
720/24P							
720/slow or fast motion							

<sup>1</sup> Set [ Video Setup] [SDI Output] to [HD], [SD] or [Off].

<sup>2</sup> When you set [ LCD/VF Setup] [HD Output] (under [Zebra]) to [On], you can display zebra patterns on an external monitor. In such case, output from the HD/SD SDI terminal (**XF305** only) and HD/SD COMPONENT OUT terminal will be in HD, regardless of their setting.

<sup>3</sup> Video output will automatically switch to HD or SD, depending on the capability of the external monitor.

<sup>4</sup> Set [ Video Setup] [Component Output] to [HD] or [SD].

<sup>5</sup> When output from the HDMI OUT terminal is SD (576/50P), the output of the HD/SD SDI terminal will also be 576/50P.

In PAL standard:

Terminal →	HD/SD SDI <sup>1,2</sup> ( <b>XF305</b> only)		HDMI OUT <sup>2,3</sup>		HD/SD COMPONENT OUT <sup>2,4</sup>		AV or VIDEO 2
Recording Frame Size / Frame Rate ↓	HD output	SD output	HD output	SD output	HD output	SD output	SD output
1080/50i	1080/50i	576/50i <sup>5</sup>	1080/50i	576/50i	1080/50i	576/50i	576/50i
1080/25P							
1080/slow or fast motion							
720/60P	720/50P	576/50i <sup>5</sup>	720/50P	576/50P	720/50P	576/50i	576/50i
720/25P							
720/slow or fast motion							

<sup>1</sup> Set [ Video Setup] [SDI Output] to [HD], [SD] or [Off].

<sup>2</sup> When you set [ LCD/VF Setup] [HD Output] (under [Zebra]) to [On], you can display zebra patterns on an external monitor. In such case, output from the HD/SD SDI terminal (**XF305** only) and HD/SD COMPONENT OUT terminal will be in HD, regardless of their setting.

<sup>3</sup> Video output will automatically switch to HD or SD, depending on the capability of the external monitor.

<sup>4</sup> Set [ Video Setup] [Component Output] to [HD] or [SD].

<sup>5</sup> When output from the HDMI OUT terminal is SD (576/50P), the output of the HD/SD SDI terminal will also be 576/50P.

## 9 Recording and playback times

In NTSC standard:

### **XF305**

Bit rate	Usage Time		Battery Pack			
			BP-950G	BP-970G	BP-955	BP-975
50 Mbps	Recording (maximum)	Viewfinder	245 min.	385 min.	255 min.	350 min.
		LCD screen	240 min.	370 min.	255 min.	345 min.
	Recording (typical)	Viewfinder	155 min.	235 min.	155 min.	225 min.
		LCD screen	150 min.	225 min.	150 min.	220 min.
	Playback	LCD screen	310 min.	475 min.	325 min.	440 min.
35 Mbps	Recording (maximum)	Viewfinder	250 min.	385 min.	265 min.	350 min.
		LCD screen	240 min.	370 min.	255 min.	345 min.
	Recording (typical)	Viewfinder	155 min.	235 min.	155 min.	230 min.
		LCD screen	150 min.	225 min.	150 min.	220 min.
	Playback	LCD screen	310 min.	475 min.	325 min.	440 min.
25 Mbps	Recording (maximum)	Viewfinder	250 min.	385 min.	265 min.	350 min.
		LCD screen	240 min.	370 min.	255 min.	345 min.
	Recording (typical)	Viewfinder	155 min.	235 min.	155 min.	230 min.
		LCD screen	150 min.	225 min.	150 min.	220 min.
	Playback	LCD screen	310 min.	475 min.	325 min.	440 min.

### **XF300**

Bit rate	Usage Time		Battery Pack			
			BP-950G	BP-970G	BP-955	BP-975
50 Mbps	Recording (maximum)	Viewfinder	280 min.	425 min.	290 min.	405 min.
		LCD screen	265 min.	405 min.	280 min.	390 min.
	Recording (typical)	Viewfinder	185 min.	260 min.	185 min.	255 min.
		LCD screen	175 min.	250 min.	175 min.	245 min.
	Playback	LCD screen	355 min.	535 min.	370 min.	530 min.
35 Mbps	Recording (maximum)	Viewfinder	280 min.	425 min.	295 min.	405 min.
		LCD screen	265 min.	405 min.	280 min.	390 min.
	Recording (typical)	Viewfinder	185 min.	260 min.	185 min.	255 min.
		LCD screen	175 min.	250 min.	175 min.	245 min.
	Playback	LCD screen	355 min.	540 min.	375 min.	530 min.
25 Mbps	Recording (maximum)	Viewfinder	280 min.	425 min.	295 min.	405 min.
		LCD screen	270 min.	405 min.	280 min.	390 min.
	Recording (typical)	Viewfinder	185 min.	260 min.	185 min.	260 min.
		LCD screen	175 min.	250 min.	175 min.	245 min.
	Playback	LCD screen	355 min.	540 min.	370 min.	530 min.

In PAL standard:

**XF305**

Bit rate	Usage Time		Battery Pack			
			BP-950G	BP-970G	BP-955	BP-975
50 Mbps	Recording (maximum)	Viewfinder	260 min.	405 min.	270 min.	375 min.
		LCD screen	255 min.	385 min.	265 min.	365 min.
	Recording (typical)	Viewfinder	165 min.	250 min.	165 min.	240 min.
		LCD screen	160 min.	235 min.	160 min.	235 min.
Playback	LCD screen	315 min.	480 min.	330 min.	440 min.	
35 Mbps	Recording (maximum)	Viewfinder	265 min.	405 min.	275 min.	375 min.
		LCD screen	255 min.	390 min.	265 min.	365 min.
	Recording (typical)	Viewfinder	165 min.	250 min.	165 min.	245 min.
		LCD screen	160 min.	235 min.	160 min.	235 min.
Playback	LCD screen	315 min.	480 min.	330 min.	445 min.	
25 Mbps	Recording (maximum)	Viewfinder	265 min.	405 min.	275 min.	375 min.
		LCD screen	255 min.	390 min.	265 min.	370 min.
	Recording (typical)	Viewfinder	165 min.	250 min.	165 min.	245 min.
		LCD screen	160 min.	235 min.	160 min.	235 min.
Playback	LCD screen	315 min.	480 min.	330 min.	445 min.	

**XF300**

Bit rate	Usage Time		Battery Pack			
			BP-950G	BP-970G	BP-955	BP-975
50 Mbps	Recording (maximum)	Viewfinder	295 min.	450 min.	310 min.	435 min.
		LCD screen	285 min.	430 min.	295 min.	405 min.
	Recording (typical)	Viewfinder	195 min.	280 min.	195 min.	275 min.
		LCD screen	185 min.	265 min.	185 min.	260 min.
Playback	LCD screen	365 min.	550 min.	380 min.	530 min.	
35 Mbps	Recording (maximum)	Viewfinder	295 min.	450 min.	310 min.	435 min.
		LCD screen	285 min.	430 min.	300 min.	405 min.
	Recording (typical)	Viewfinder	195 min.	280 min.	195 min.	275 min.
		LCD screen	185 min.	265 min.	185 min.	260 min.
Playback	LCD screen	365 min.	555 min.	385 min.	535 min.	
25 Mbps	Recording (maximum)	Viewfinder	295 min.	450 min.	310 min.	435 min.
		LCD screen	285 min.	430 min.	295 min.	405 min.
	Recording (typical)	Viewfinder	195 min.	280 min.	195 min.	275 min.
		LCD screen	185 min.	265 min.	185 min.	260 min.
Playback	LCD screen	365 min.	550 min.	380 min.	535 min.	