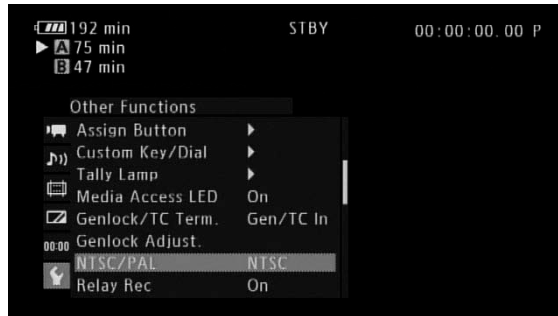


Switching Between NTSC and PAL Standards

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 ¹	1/60	1/30	1/24
Auto ²	1/60 to 1/500	1/30 to 1/500	1/24 to 1/500
Speed	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	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	59.94 Hz to 251.13 Hz	29.97 Hz to 251.13 Hz	23.97 Hz to 251.13 Hz
Slow Shutter ²	1/4, 1/8, 1/15, 1/30	1/4, 1/8, 1/15	1/3, 1/6, 1/12
Infrared mode	1/60 to 1/100	1/30 to 1/100	1/24 to 1/100
Slow Shutter during Infrared mode ²	1/30 to 1/100	1/15 to 1/100	1/12 to 1/100

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

² Not available during slow & fast motion recording mode.

In PAL standard:

Shutter speed mode	Frame rate	
	50i	25P
OFF ¹	1/50	1/25
Auto ²	1/50 to 1/500	1/25 to 1/500
Speed	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	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	50 Hz to 249.46 Hz	25 Hz to 249.46 Hz
Slow Shutter ²	1/3, 1/6, 1/12, 1/25	1/3, 1/6, 1/12
Infrared mode	1/50 to 1/120	1/25 to 1/120
Slow Shutter during Infrared mode ²	1/25 to 1/120	1/12 to 1/120

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

² Not available during slow & fast motion recording mode.

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 (**XF105** 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 ^{1,2} (XF105 only)		HDMI OUT ^{2,3}		HD/SD COMPONENT OUT ^{2,4}		AV
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 ⁵	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 ⁵	720/60P	480/60P	720/60P	480/60i	480/60i
720/30P							
720/24P							
720/slow or fast motion							

¹ Set [Video Setup] [SDI Output] to [HD], [SD] or [Off].

² 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 (**XF105** only) and HD/SD COMPONENT OUT terminal will be in HD, regardless of their setting.

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

⁴ Set [Video Setup] [Component Output] to [HD] or [SD].

⁵ When output from the HDMI OUT terminal is SD (480/60P), the output of the HD/SD SDI terminal will also be 480/60P.

In PAL standard:

Terminal →	HD/SD SDI ^{1,2} (XF105 only)		HDMI OUT ^{2,3}		HD/SD COMPONENT OUT ^{2,4}		AV
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 ⁵	1080/50i	576/50i	1080/50i	576/50i	576/50i
1080/25P							
1080/slow or fast motion							
720/60P	720/50P	576/50i ⁵	720/50P	576/50P	720/50P	576/50i	576/50i
720/25P							
720/slow or fast motion							

¹ Set [Video Setup] [SDI Output] to [HD], [SD] or [Off].

² 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 (**XF105** only) and HD/SD COMPONENT OUT terminal will be in HD, regardless of their setting.

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

⁴ Set [Video Setup] [Component Output] to [HD] or [SD].

⁵ 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:

XF105

Bit rate	Usage Time		Battery Pack				
			BP-925	BP-955	BP-950G	BP-970G	BP-975
50 Mbps	Recording (maximum)	Viewfinder	165 min.	340 min.	345 min.	480 min.	510 min.
		LCD screen	160 min.	335 min.	340 min.	475 min.	500 min.
	Recording (typical)	Viewfinder	105 min.	215 min.	215 min.	300 min.	315 min.
		LCD screen	100 min.	210 min.	210 min.	295 min.	310 min.
	Playback	LCD screen	220 min.	450 min.	460 min.	640 min.	680 min.
35 Mbps	Recording (maximum)	Viewfinder	165 min.	340 min.	345 min.	485 min.	510 min.
		LCD screen	160 min.	335 min.	340 min.	475 min.	505 min.
	Recording (typical)	Viewfinder	105 min.	215 min.	215 min.	300 min.	315 min.
		LCD screen	100 min.	210 min.	215 min.	295 min.	310 min.
	Playback	LCD screen	220 min.	450 min.	460 min.	660 min.	680 min.
25 Mbps	Recording (maximum)	Viewfinder	165 min.	345 min.	350 min.	495 min.	520 min.
		LCD screen	165 min.	340 min.	345 min.	485 min.	510 min.
	Recording (typical)	Viewfinder	105 min.	220 min.	220 min.	310 min.	320 min.
		LCD screen	105 min.	215 min.	215 min.	305 min.	315 min.
	Playback	LCD screen	225 min.	465 min.	475 min.	665 min.	700 min.

XF100

Bit rate	Usage Time		Battery Pack				
			BP-925	BP-955	BP-950G	BP-970G	BP-975
50 Mbps	Recording (maximum)	Viewfinder	195 min.	405 min.	415 min.	580 min.	620 min.
		LCD screen	195 min.	400 min.	410 min.	570 min.	605 min.
	Recording (typical)	Viewfinder	125 min.	260 min.	265 min.	370 min.	385 min.
		LCD screen	120 min.	255 min.	260 min.	365 min.	380 min.
	Playback	LCD screen	280 min.	580 min.	595 min.	830 min.	880 min.
35 Mbps	Recording (maximum)	Viewfinder	195 min.	405 min.	415 min.	580 min.	620 min.
		LCD screen	195 min.	400 min.	410 min.	570 min.	605 min.
	Recording (typical)	Viewfinder	125 min.	260 min.	265 min.	370 min.	390 min.
		LCD screen	120 min.	255 min.	260 min.	365 min.	380 min.
	Playback	LCD screen	280 min.	580 min.	595 min.	830 min.	885 min.
25 Mbps	Recording (maximum)	Viewfinder	200 min.	415 min.	425 min.	595 min.	635 min.
		LCD screen	195 min.	410 min.	420 min.	585 min.	620 min.
	Recording (typical)	Viewfinder	125 min.	265 min.	270 min.	380 min.	395 min.
		LCD screen	125 min.	260 min.	265 min.	375 min.	390 min.
	Playback	LCD screen	290 min.	600 min.	615 min.	860 min.	915 min.

In PAL standard:

XF105

Bit rate	Usage Time		Battery Pack				
			BP-925	BP-955	BP-950G	BP-970G	BP-975
50 Mbps	Recording (maximum)	Viewfinder	165 min.	345 min.	350 min.	490 min.	520 min.
		LCD screen	165 min.	340 min.	345 min.	485 min.	510 min.
	Recording (typical)	Viewfinder	105 min.	220 min.	220 min.	310 min.	320 min.
		LCD screen	105 min.	215 min.	215 min.	305 min.	315 min.
	Playback	LCD screen	225 min.	460 min.	470 min.	655 min.	695 min.
35 Mbps	Recording (maximum)	Viewfinder	165 min.	345 min.	350 min.	490 min.	520 min.
		LCD screen	165 min.	340 min.	345 min.	485 min.	510 min.
	Recording (typical)	Viewfinder	105 min.	220 min.	220 min.	310 min.	320 min.
		LCD screen	105 min.	215 min.	215 min.	305 min.	315 min.
	Playback	LCD screen	225 min.	465 min.	470 min.	675 min.	695 min.
25 Mbps	Recording (maximum)	Viewfinder	170 min.	355 min.	360 min.	505 min.	530 min.
		LCD screen	170 min.	345 min.	355 min.	495 min.	525 min.
	Recording (typical)	Viewfinder	105 min.	225 min.	225 min.	315 min.	325 min.
		LCD screen	105 min.	220 min.	220 min.	310 min.	320 min.
	Playback	LCD screen	230 min.	475 min.	485 min.	680 min.	715 min.

XF100

Bit rate	Usage Time		Battery Pack				
			BP-925	BP-955	BP-950G	BP-970G	BP-975
50 Mbps	Recording (maximum)	Viewfinder	205 min.	420 min.	430 min.	600 min.	635 min.
		LCD screen	200 min.	410 min.	420 min.	585 min.	625 min.
	Recording (typical)	Viewfinder	130 min.	265 min.	275 min.	380 min.	400 min.
		LCD screen	125 min.	260 min.	270 min.	375 min.	390 min.
	Playback	LCD screen	290 min.	595 min.	610 min.	850 min.	905 min.
35 Mbps	Recording (maximum)	Viewfinder	205 min.	420 min.	430 min.	600 min.	640 min.
		LCD screen	200 min.	410 min.	420 min.	590 min.	625 min.
	Recording (typical)	Viewfinder	130 min.	265 min.	275 min.	385 min.	400 min.
		LCD screen	125 min.	260 min.	270 min.	375 min.	390 min.
	Playback	LCD screen	290 min.	600 min.	615 min.	855 min.	910 min.
25 Mbps	Recording (maximum)	Viewfinder	210 min.	430 min.	440 min.	615 min.	655 min.
		LCD screen	205 min.	420 min.	430 min.	605 min.	640 min.
	Recording (typical)	Viewfinder	130 min.	275 min.	280 min.	390 min.	410 min.
		LCD screen	130 min.	270 min.	275 min.	385 min.	400 min.
	Playback	LCD screen	300 min.	620 min.	635 min.	885 min.	940 min.