

NEX-FS700 Hand Book

Full-HD Super Slow Motion NXCAM Camcorder

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NXCAM

AVCHD
Progressive

MPEG2 SD

Exmor
Super35 CMOS

MEMORY STICK

SD XC



Exmor™
Super35 CMOS



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Shooting-related functions and effects

ASSIGN : Can be allocated to one of the ASSIGN buttons.

Using Auto functions for quick-start shooting

When working on wedding videos and music videos, it is sometimes required to use the mobile, handheld style and start shooting at once. The NEX-FS700 offers auto functions in addition to manual functions to help you out in such situations. Please note the AUTO FOCUS, AUTO IRIS and optical image stabilization SteadyShot™ functions can all be used only when an E-mount lens is used.

NOTES: The E 16mm F2.8 (SEL16F28) lens does not support the optical image stabilization SteadyShot™ function.

Comparison Chart for LA-EA1 and LA-EA2 (When used with NEX-FS700)

A-mount Lens Type	LA-EA1						LA-EA2					
	Focus			Iris			Focus			Iris		
	AUTO FOCUS	MANUAL FOCUS	PUSH AUTO	AUTO	MANUAL	IRIS PUSH AUTO	AUTO FOCUS	MANUAL FOCUS	PUSH AUTO	AUTO	MANUAL	IRIS PUSH AUTO
SSM	No	Yes	No	No	Yes	No	Yes* ¹	Yes	Yes* ²	No	Yes	Yes
SAM	No	Yes	No	No	Yes	No	Yes* ¹	Yes	Yes* ²	No	Yes	Yes
Coupler	No	Yes	No	No	Yes	No	Yes* ¹	Yes	Yes* ²	No	Yes	Yes

*1 Iris position moves to either F3.5 or maximum iris in AUTO FOCUS mode.

*2 Iris position moves to either F3.5 or maximum iris in PUSH AUTO focus mode while exposure is adjusted by shutter speed.

Video Settings

AUTO EXPOSURE (AE) function lets you control image brightness automatically

Moving the AUTO/MANUAL switch to AUTO enables automatic adjustments of the iris, gain, shutter speed and white balance settings. You can start shooting right away without checking those settings.

AUTO EXPOSURE (AE) is a camcorder function that controls all or some of the iris, shutter speed and gain parameters automatically to achieve ideal brightness for videos. With the NEX-FS700, the above parameters, as well as white balance, are controlled automatically when the AUTO/MANUAL switch is moved to AUTO. Please note that automatic control of iris is only possible when an E-mount lens is used. When another maker's lens is used, iris remains under manual control, while other parameters are adjusted automatically. When the AUTO/MANUAL switch is in the MANUAL position, pressing the specific button for a particular parameter, such as the GAIN button, lets you switch between the AUTO and MANUAL modes just for that parameter (gain in the case of the button). The [A] icon next to a parameter indicates it is being controlled automatically.

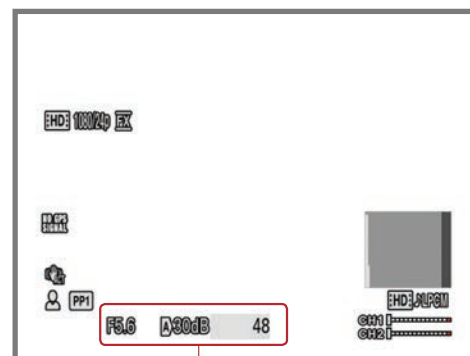
Even when the AE function is used, it cannot produce perfect results under all lighting conditions. But by also utilizing support functions, you can use the AE function effectively.



AUTO/MANUAL switch



GAIN button



AUTO/MANUAL control display



AE SHIFT for automatically shooting video a little brighter or darker ASSIGN

The AE SHIFT function enables you to shoot at an exposure level that is a little higher or lower than the AE function normally selects.

Usage examples

- When the subject is darker than the background, such as when shooting person against light, a snowfield or another bright background using the AE function. If you want to capture the subject brightly even if the background becomes extremely bright, you can shift AE toward the + (plus) side.
- When the subject is too bright compared to the brightness of the background. If you want to tone down the subject's brightness even if the background becomes darker, you can shift AE toward the - (minus) side.



LEVEL = +2.0EV



LEVEL = 0EV



LEVEL = -2.0EV

How to set/operate

1. MENU → CAMERA SET → ON The currently selected level value is displayed.
2. MENU → CAMERA SET → LEVEL You can adjust the brightness level from -2.0 (Dark) through 0 (Normal) to +2.0 (Bright).
3. You can allocate [ON/OFF] for the AE SHIFT function to one of the ASSIGN buttons.

NOTE: This is an effective function when at least one of the iris, shutter speed or gain parameters are controlled automatically.

AUTO FOCUS function lets you control focus adjustment automatically

With focus, automatic adjustments kick in when the FOCUS switch is moved to AUTO.



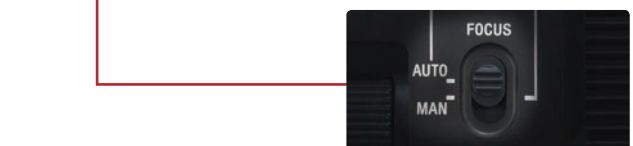
FOCUS switch

Using Manual functions for purposeful shooting

Moving the AUTO/MANUAL switch to MANUAL enables manual adjustments of the iris, gain, shutter speed and white balance settings. Please note using this switch will change the settings for all these exposure settings. Regarding focus adjustment, moving the FOCUS switch to MANUAL enables manual adjustment.



AUTO/MANUAL switch for iris, gain, shutter speed and white balance





FOCUS switch

Shooting-related functions and effects






White Balance (WB)

To shoot images in correct colors, you need to adjust your camera so that it can capture a white object as white under lighting conditions with different color temperatures. At the same time, white balance is sometimes used to shoot something that is not white as white for dramatic effects.

One Push White Balance lets you capture white subjects as white

Selecting WHITE BALANCE MEMORY switch A ( A) saves a white balance adjustment value in memory A. Choosing switch B ( B) enables you to store another white balance adjustment value separately in memory B. Unless you readjust, the saved adjustment values will be held in memory even when the power is turned off. We recommend using this feature when you use ND filters.

How to use/operate

1. Push the WHT BAL button on the camera body.
2. Select A ( A) or B ( B) with the WHITE BALANCE MEMORY switch located on the camera body.
3. Set the correct exposure under the same lighting conditions as the subject, capture the white subject as large as possible in the screen, and push the  (one push) button.
4. The adjustment value is stored in  A or  B. The saved color temperature is displayed on the LCD screen for about three seconds.



WB TEMP SET (white balance temperature set) lets you directly set color temperature

This function enables you to specify the color temperature in numbers, such as 3,200K and 6,500K.

Usage examples

- When you want to match white balance with other broadcasting/professional camcorders whose color temperatures can be configured by entering numbers.
- When you want to keep the numerical values of color temperatures as shooting data when the shooting assignment extends over multiple days, for example.

TIPS



There are times when the correct white balance cannot be obtained by designating a color temperature alone, such as when you are shooting under fluorescent or LED light. In such cases, we recommend you also use the WB SHIFT function under the Picture Profile menu.

For details on WB SHIFT function settings, please check [Chapter 4: PICTURE PROFILE].

How to use/operate

1. Move the WHITE BALANCE MEMORY switch to the PRESET position.
2. **MENU → CAMERA SET → WB PRESET → MANU WB TEMP**
3. **WB TEMP SET → 2,300K ~ 15,000K** in 100K increments.

Or

Push the  (one push) button and highlight the color temperature in reversed display. Change the color temperature. Push the  (one push) button again.








WB OUTDOOR LEVEL (white balance outdoor level) for controlling an image's color tone with white balance

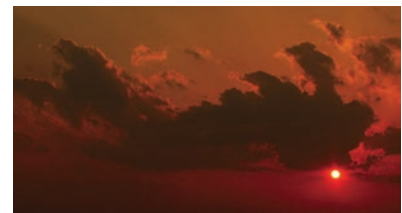
This function lets you change the color temperature (default value at roughly 5,800K) for the OUTDOOR white-balance preset.

Usage examples

- When you do not have a white subject for setting white balance.
- When you want to match the white balance of multiple cameras as much as possible.
- When you want your image to have an orange tone like during sunsets or a bluish tone like at night and under shade.

How to set/operate

1. Move the WHITE BALANCE MEMORY switch to PRESET.
2. **MENU → CAMERA SET → WB PRESET → OUTDOOR**
3. **MENU → CAMERA SET → WB OUTDOOR LEVEL → -7 ~ +7** (Roughly 500K change per single step -7 (Bluish) ~ 0 (Normal) ~ +7 (Reddish))
Or
Push the  (one push) button and display the WB OUTDOOR LEVEL next to the OUTDOOR icon . Change the level. Pushing the  (one push) button again confirms the change.

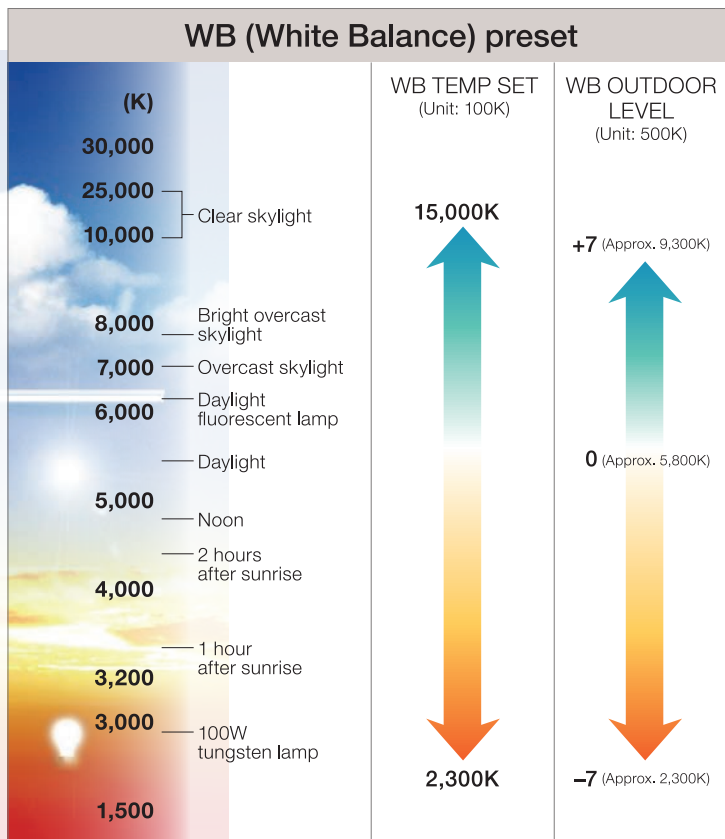


WB OUTDOOR LEVEL = +7



WB OUTDOOR LEVEL = -7

Reference: WB preset and color temperature



TIPS

Some camcorders in the HDV and NXCAM series are equipped with the same function. You can roughly match their color temperatures by setting their WB OUTDOOR LEVEL at the same level.

NOTE: INDOOR color temperature is 3,200K and OUTDOOR color temperature is 5,800K in WB PRESET setting.

Shooting-related functions and effects

What is bokeh effect?

The bokeh effect creates beautifully defocused images with a shallow focus look. The major features of the NXCAM Super 35mm Sensor Camcorder NEX-FS700 are **1. bokeh effect**, **2. lens interchangeability** and **3. sensitivity**.

Most video camcorders that have been released so far do not support interchangeable lenses. Even the models that do let users change lenses cannot produce dramatic bokeh effects due to their small image sensor sizes. As a result, the bokeh effect has not been regarded as very important among video shooting techniques.

However, by utilizing the bokeh effect and highlighting the subject against a blurred background, it becomes possible to clearly communicate to viewers where in the image they should be focusing. It is also possible to produce a very good atmosphere by using the bokeh effect and creating some blurred sections in the image. In other words, having the bokeh effect in your arsenal expands the range of your expressions.

In this section, we will explain the bokeh effect, one of the NEX-FS700's unique offerings. By mastering the bokeh effect, you will be able to create new images that were not possible with conventional video camcorders.

How to control and use bokeh effect

The bokeh effect can be controlled by the following methods.

To increase bokeh effect

- Choose the brightest lens possible.
- Select a lens with a long focal length.
- Open the iris. (Reduce the F-value.)
- Shoot the image with the lens set more toward the telephoto side.

To reduce bokeh effect

- Select a lens with a short focal length.
- Close the iris.
- Shoot the image with the lens set more toward the wide-angle side.

Usage examples

High-level bokeh effect

- Highlighting the main subject against the background.
- Preventing a cluttered background from taking the focus away from the subject, such as when shooting in a small room.



Image with blurred background



Image with clear background



■ Shifting viewers' attention

By shifting the camera's focus to different parts of the image, it is possible to make the viewer focus on the main subject of each scene. This technique is known as rack focus. It involves focusing on the main subject of the scene and shifting focus in the image to the next subject. This technique has been used with conventional video camcorders as well. But with a stronger bokeh effect, the NEX-FS700 lets you create more effective rack focus.



Focus is on the candle in front



Focus is on the candle in back

■ Creating a softer atmosphere

It is possible to emphasize soft qualities of the subject, such as human or animal hairs, birds' feathers, flowers or grass, by blurring most of the image.



Soft image

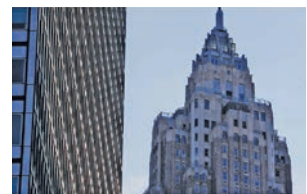


Hard image with clear outlines

Low-level bokeh effect

■ Capturing details throughout the screen

This technique, known as pan focus, puts the entire image, from near to far, in focus. It is an effective tool when capturing nature and landscapes from afar or creating hard images, with clear outlines, of sharply shaped objects such as architectural structures.



Shooting-related functions and effects

What is depth of field?

An image that highlights the in-focus main subject against a blurred background, or an image in which everything — from the subject in front to the background — appears to be in focus: The depth of field plays a major part in both of these examples. Strictly speaking, only the area of the image that is parallel to the image-capturing elements can be said to be precisely in focus. But there is a zone near the in-focus area in terms of the distance from the camera that also appears to be in focus. This zone is called the depth of field. When the zone is large, it is described as having a deep or wide depth of field.

If the zone is small, it can be said to have a shallow depth of field. The iris plays an important role in controlling exposure along with the shutter. But it also has another key role of adjusting the depth of field, as a change in the iris results in a shift in the depth of field. With a lens whose f stops range from F1.4 to F22, F1.4 is its maximum iris and F22 is the minimum iris. Shifting the iris toward the minimum iris is described as closing the iris. Conversely, moving toward the maximum iris is called opening the iris.

The depth of field gets deeper as the iris becomes more closed. This expands the area that appears to be in focus, resulting in a larger area near the subject (in terms of the distance from the camera) looking sharp. On the other hand, the depth of field becomes shallower as the iris is being opened. This boosts

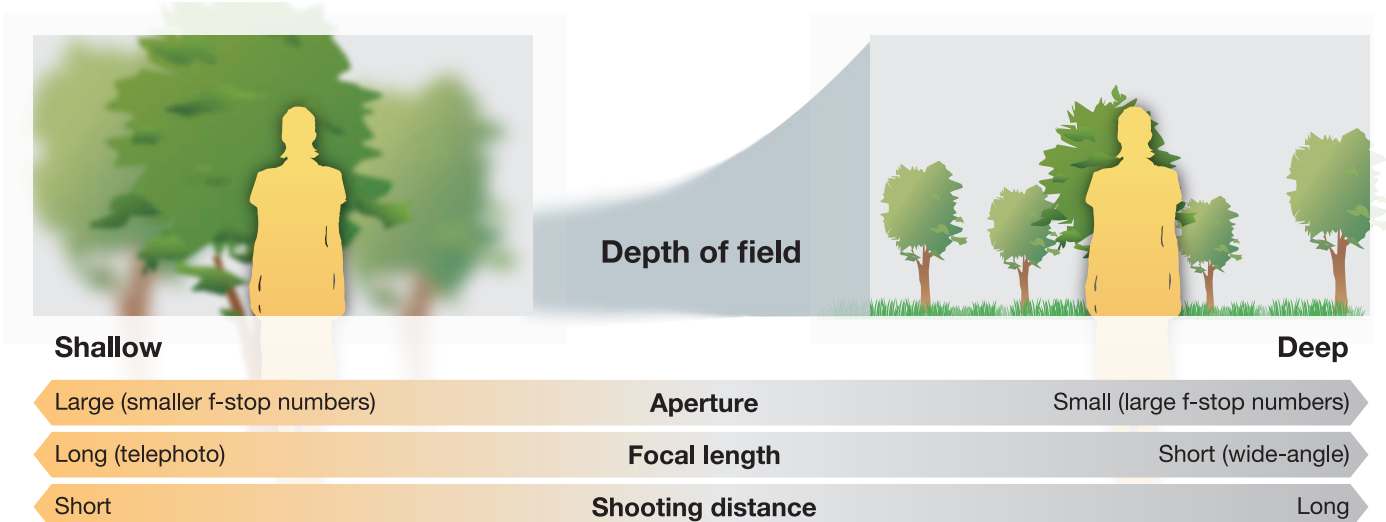
blurring of the area around the subject, making the subject that remains in focus jump out. So, the iris has important roles, controlling not only exposure, but also the depth of field (amount of bokeh effect).

Even when the iris value is identical, the depth of field gets deeper as the shooting distance becomes longer. The opposite will occur as the shooting distance becomes shorter. The shorter the focal length of the lens, the deeper its depth of field becomes. A longer focal length will result in a shallower depth of field.

Understanding these characteristics of the depth of field will equip you with the knowledge that it is more effective to select a lens with a shorter focal length (wide-angle lens), close the iris and keep the shooting distance long in order to capture the entire image — from the foreground to background — sharply. It is also better to pick a lens with a long focal length (telephoto lens), open the iris and shoot the subject from nearby if the desired effect is to emphasize the subject by blurring the background or the rest of the image. The depth of field is determined by three factors - iris value, focal length and shooting distance. But in actual shooting, you should also take into account the distance between the subject and background.

Depth of field vs. aperture / focal length / shooting distance

Aperture, focal length, and shooting distance can all affect depth of field significantly. By understanding the role these factors play, you can control the extent to which various elements in the frame are in or out of focus.





Relationship between depth of field and iris value

The depth of field becomes shallowest at the maximum iris and deepest at the minimum iris. In addition, the depth of field is deeper on the background side of the image than in the foreground of the in-focus area. The two images below were shot from the same location, using the same focal length, varying only the iris value. To attract viewers' attention to a guitar, you can highlight it by using as large an iris as possible

to make the depth of field shallow and blur the background. Conversely, you can use as small an iris as possible to deepen the depth of field and also put the background in focus. As you can see, you can create different visual expressions even when using exactly identical framing by changing the iris value and shifting the depth of field.



Shot using maximum iris at F1.4 (35mm F1.4G (SAL35F14G))



Shot using minimum iris at F22 (35mm F1.4G (SAL35F14G))

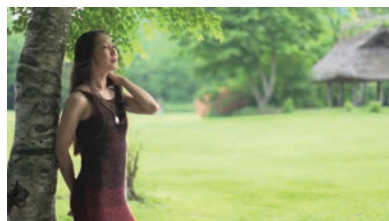
Relationship between depth of field and iris setting

Even when an identical iris setting is used, the depth of field becomes shallower as the focal length gets longer, while a shorter focal length results in a deeper depth of field. The three images below were shot using the same iris value and different focal lengths. Their shooting distances were also changed to make the subject appear in a similar size. Due to their different focal lengths, the size of the area that

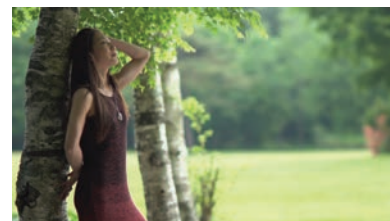
is captured in those images as a background also differs dramatically. Their depth of field and the resulting bokeh effect are also very different. These images show how the focal length changes the depth of field and other image expressions even when the subject is captured at an identical size. This variety of image expression is a reason why there are so many interchangeable lenses with differing focal lengths.



Shot with 35mm focal length and maximum iris F1.4 (35mm F1.4G (SAL35F14G))



Shot with 50mm focal length and maximum iris F1.4 (50mm F1.4 (SAL50F14))



Shot with 85mm focal length and maximum iris F1.4 (Planar T * 85mm F1.4 ZA (SAL85F14Z))

Shooting-related functions and effects

Relationship between depth of field and shooting distance

Even if the same iris value and focal length are used, the depth of field can vary depending on the shooting distance (the length between the camcorder and the point at which focus is targeted). The more distant the shooting distance is, the deeper the depth of field becomes. And the depth of field gets shallower as the shooting distance becomes smaller. This tells

you that more accurate focusing is required when you shoot the subject from a close distance, and the iris must be closed if you need a certain level of depth of field. It also tells you that you can shoot an image with a deeper depth of field using a telephoto-type lens if you keep the shooting distance long.

Controlling depth of field

We have already learned the depth of field changes depending on three factors — iris value, focal length and shooting distance. We will now look into changes in the depth of field more closely so that you can use the knowledge in actual shooting.

First, we will examine the control that the iris has over depth of field. The iris plays a significant role in determining the depth of field almost to the point that we can regard the iris as being equal to the depth of field. But in real situations, the focal length of the lens and the shooting distance dictate the depth of field a certain degree. For example, even if you use a telephoto lens which has a shallow depth of field, shooting a subject at a distance will not produce much blurring because the resulting depth of field is deep. By the same token, even if you use a wide-angle lens, you will have an image with a shallow depth of field and significantly blurred background if you shoot the subject from close by. Also, because the depth of field centers around the in-focus point, the background will not be blurred much — even when you use a telephoto lens and open the iris — if the distance between the subject and the background is small. Since the depth of field is determined mostly by factors other than the iris, it can be said that the iris is mostly used to fine-tune the depth of field after the framing is fixed. On the other hand, it can be said that the iris is very important in controlling the depth of field since you only have the iris to change the depth of field once you lock in on the framing.

The depth of field has a close relationship with the bokeh effect. The deeper the depth of field, the smaller the bokeh effect becomes. Conversely, the larger the bokeh effect becomes, the shallower the depth of field gets. Let's look at the way you can use various lenses by taking into account this knowledge and what type of perspective you want to achieve in your image. When you use a wide-angle-type lens, position the

camera close to the subject to create perspective. If you want to make the most of the deep depth of field that is available to you, you can close the iris. If you want the bokeh effect, you should open the iris.

With a telephoto-type lens, you will pay attention to the overlapping of the subject and the background to make the most of the blurring of the background. (The larger the distance between the subject and background, the bigger the bokeh effect you will get.) If you want significant blurring, you will get close to the subject to some degree and open the iris. If you want blurring to be modest, you keep a distance from the subject and close the iris.

When you use a macro lens, the depth of field can become extremely shallow depending on the shooting distance. Unless you want to take advantage of this, you should close the iris as much as possible.





Controlling brightness

We have looked at conditions for shooting videos with a shallow depth of field. We will now examine how we should control brightness (exposure) to actually record videos with a beautiful bokeh effect. Unless you have a special plan or intention, overexposed videos with whiteout are not considered desirable.

Thanks to its Super 35mm sensor developed specifically for handling moving images, the NEX-FS700 can shoot images at extremely high sensitivity without supplemental lighting even in a dark room or at nighttime. But when shooting outdoors under bright light, controlling brightness is a very important shooting technique for recording videos with a bokeh effect without causing whiteout. The iris, shutter speed and gain are the three major factors that determine brightness. To shoot videos with a bokeh effect in a bright location, it is also necessary to use an ND filter to control the light volume. Let's master this light volume adjustment technique as well.

Using the iris ring

Even when you are in the MANUAL IRIS mode, you can switch to the AUTO IRIS mode temporarily by holding down the IRIS PUSH AUTO button. So, please use this button when the situation calls for the AUTO IRIS mode. But please note, however, the IRIS PUSH AUTO function can only be used when the video camera is equipped with an E-mount lens or the combination of the LA-EA2 lens mount adaptor and an A-mount lens. Some still and cinema lenses come equipped with a manual focus ring and a manual iris ring. With these rings, you adjust brightness by using the iris ring. Some lens-mount adaptors are also equipped with a manual iris ring.



NOTES: If an A-mount lens is used in combination with a Sony mount adaptor LA-EA1 or LA-EA2, the iris can be adjusted by using the MANUAL IRIS ring. Please note that shifting the iris using the MANUAL IRIS ring generates a noise. When the iris is moved toward the open side, in particular, the movement may not be smooth and noise can be heard. This is because the iris shifts to the fully open position first before moving to the selected value, and it does not mean there is any problem.

Controlling shutter speed

Shutter speed refers to the duration of time for which the shutter is opened and imaging elements are exposed to the light that passed through the lens. (It is sometimes abbreviated to SS, and is also called exposure time.) If this duration of time is short, the shutter speed is described as fast. And the shutter speed is said to be slow if the duration of time is long. Because video camcorders deal with moving subjects, changing the shutter speed drastically from an appropriate level is not recommended unless you have a special plan or intention. If you increase the shutter speed too much, the subject's movement often appears pattering and unnatural. If you slow down the shutter speed too much, the movement becomes jumpy and camera shake blur increases, resulting in unsmooth images. With still images, you can control the amount of light that passes through the lens by changing not only the iris but also the shutter speed. With video camcorders,

some techniques are required. For example, when you are shooting a video outdoors under bright light, you end up shooting overexposed images if you open the iris to produce the bokeh effect, unless you use a very fast shutter speed. Especially in the 24p mode, you often have no choice but to set a fast shutter speed, such as 1/1,000 second, when you open the iris to create the bokeh effect, despite the fact that around 1/48 second is the appropriate shutter speed. To open the iris and use a shallow depth of field under bright conditions, we recommend you reduce the light volume by using an ND filter. We will cover the use of ND filters later.

NOTE: If you use a slow shutter speed, automatic focusing becomes less reliable. We recommend you stabilize the camcorder by using a tripod or other equipment and focus manually.

Shooting-related functions and effects

Gain functions

Obtaining appropriate exposure using gain adjustment

Gain is a method of adjusting brightness. It electrically boosts the image signal level and makes the image appear bright. When the brightness of the subject and shooting environment changes beyond what can be compensated for by using the iris and ND filters, you can shift the gain value to respond to the change in brightness.

When you are shooting a dark stage with the NEX-FS700, for example, you can adjust gain to a value that cannot be used with normal video camcorders and still shoot a video with little noise because the NEX-FS700's noise level is low. It may depend on personal preference, but increasing gain up to 9dB would not normally cause any problems. We recommend you experiment with different gain values under various situations.

GAIN SET for adjusting gain value

You can assign a value between 0dB and 30dB to each of the H, M, and L positions of the Gain switch located at the side of the body.



How to set/operate

MENU → CAMERA SET → GAIN SET → H, M, L → 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30dB

AGC (automatic gain control) LIMIT lets you set maximum auto gain to the value of your choice

You can set the maximum gain value for the AUTO GAIN function. The more you increase the gain value, the more noise the video will contain. By using the AGC LIMIT function, you can prevent unintended gain increases.

How to set/operate

MENU → CAMERA SET → AGC LIMIT → OFF, 27, 24, 21, 18, 15, 12, 9, 6, 3, 0dB

Using support functions for obtaining the correct brightness (exposure) level

ZEBRA ASSIGN lets you check whether the brightness level for the subject is appropriate

This function overlaps a zebra-stripe pattern on image areas that match the preselected brightness level to provide a gauge for adjusting brightness. The zebra-stripe pattern will not be recorded in the memory card or the flash memory unit (HXR-FMU128). When you want to monitor overexposed areas on screen, set the ZEBRA value to 100+. Then carry out brightness adjustments to reduce the zebra-stripe pattern as much as possible.

If you want to capture a person's face at around 75% brightness level, set the brightness level at 75 and adjust brightness so that a zebra-stripe pattern is displayed over the person's skin.

How to set/operate

1. MENU → DISPLAY SET → ZEBRA → ON
2. LEVEL → 70, 75, 80, 85, 90, 95, 100, 100+
3. Zebra stripes and the brightness level are displayed on the LCD screen.
4. You can assign [ON/OFF] for the ZEBRA ASSIGN function to one of the ASSIGN buttons.
(It is allocated to ASSIGN button No. 1 in the factory setting.)

NOTE: Even when the [ALL OUTPUT] option is selected for the [DISPLAY OUTPUT] setting, Peaking, Zebra, and Maker displays will not be output through the HDMI and component video terminals.



[ASSIGN]: Can be allocated to one of the ASSIGN buttons.

HISTOGRAM lets you know your image's overall brightness balance [ASSIGN]

A histogram shows the brightness levels of the entire image in a bar-graph format. The horizontal axis indicates the brightness level, while the vertical axis represents the number of pixels at the given brightness level. By looking at a histogram, you can assess the image's brightness balance. For example, if you see more bars on the right-hand side, it indicates the image has many bright sections. A gray line is displayed at the 100% brightness level. The brightness levels exceeding 100% are shown in a different background color, making it easy for you to look out for whiteout.

Histograms also display a yellow line at the brightness level set in the ZEBRA assign function. By using the yellow line, you can visually grasp how much adjustment would be needed to bring the subject's brightness to the desired level.

How to set/operate

1. **MENU → DISPLAY SET → HISTOGRAM → ON**
A histogram with a gray line at the 100% brightness level is displayed on the LCD screen.
2. When you select **ON [ZEBRA POINT]**, a yellow line that depicts the brightness level selected under the ZEBRA assign function is also displayed on the LCD screen.
3. You can assign [ON/OFF] for the HISTOGRAM function to one of the ASSIGN buttons. (It is allocated to ASSIGN button No. 2 in the factory setting.)



ZEBRA

Focus operations

PUSH AUTO enables temporary use of autofocus

While remaining in MANUAL FOCUS mode, you can adjust focus automatically by pressing down the PUSH AUTO button. You can return to the MANUAL FOCUS mode by simply removing your finger from the button. This function help realize smoother transitions from one subject to another in manual-focus shooting.

Examples

When shooting stage performances, certain color tones and brightness levels make it difficult to check focus in the LCD screen or the large LCD viewfinder. The PUSH AUTO function is useful for ensuring correct focus in such situations.

Even when you're shooting music videos and wedding videos using manual focus, you can switch the operation mode without taking your eye away from the large LCD viewfinder by using the PUSH AUTO button when your subject is either approaching or moving away from the camera. This feature allows you to make focusing adjustments without losing concentration on framing and composition of your subject in the large LCD viewfinder.

How to set/operate

1. Shoot while holding down the PUSH AUTO button.
2. Return to the MANUAL FOCUS mode by removing your finger from the button.



PUSH AUTO button



Shooting-related functions and effects

EXPANDED FOCUS makes it easier to check focus in the LCD screen/ large LCD viewfinder

You can check focus more easily by zooming the center of the high-resolution large LCD viewfinder or LCD screen by about 200%. The EXPANDED FOCUS function can be accessed easily for frequent use since the dedicated button for this convenient function is located near the lens mount, right next to the focus mode switch button near the lens mount.

How to set/operate

1. Push the EXPANDED FOCUS button. [EXPANDED FOCUS] appears and the center of the screen is magnified by roughly 2.0 times.
2. The function can be canceled by pushing the button again.



EXPANDED FOCUS button

NOTES: The image appears larger only in the screen. It will not affect recording.



PEAKING also lets you check focus more easily in the LCD screen/ large LCD viewfinder

The PEAKING function offers a way to easily check focus in the high-resolution large LCD viewfinder or LCD screen by emphasizing the image outline. Turning up the PEAKING level to HIGH will result in easier focus checking. But, more signal noise also becomes visible in the LCD or large LCD viewfinder. Please decide whether to use the PEAKING function or not (and at what level) by monitoring the image in the screen. Using the EXPANDED FOCUS and PEAKING functions together will make it even easier to check focus.

How to set/operate

→ → → Or designate the PEAKING function to one of the ASSIGN buttons.

(Under the factory setting, the PEAKING function is allocated to ASSIGN 4.)

Select level from → → → →

Select color from → → → →

Checking focus may be difficult depending on the subject's color. By choosing red or yellow, you may be able to lessen the difficulty.

NOTES: The emphasized image outline in the PEAKING display will not be recorded.

Even when the [ALL OUTPUT] option is selected for the [DISPLAY OUTPUT] setting, Peaking, Zebra, and Maker displays will not be output through the HDMI and component video terminals.



Reference: Mount and lens

E-mount lens

The NEX-FS700 features the E-mount Interchangeable lens system. You can directly attach an E-mount lens from Sony and other lens makers. When you use a Sony E-mount lens, you can grab the NEX-FS700 and start shooting easily because you will have access to electronically controlled AUTO FOCUS, AUTO IRIS and optical image stabilization SteadyShot™ functions.

NOTE: The E 16mm F2.8 (SEL16F28) lens does not support the optical image stabilization SteadyShot™ function.

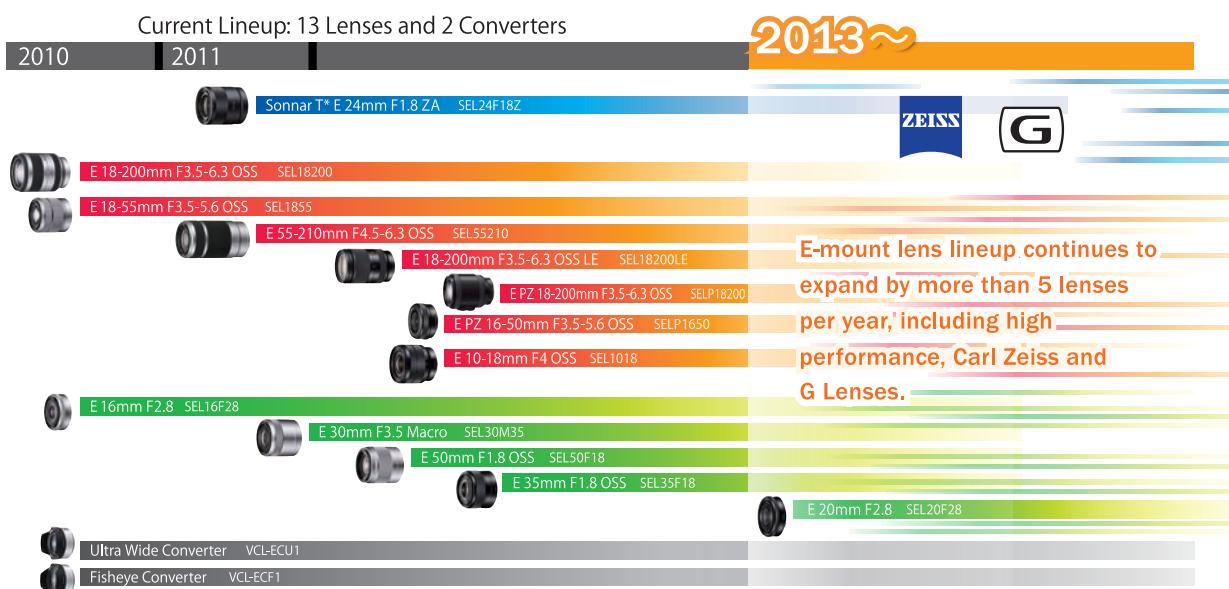


E-mount lenses

■ E-mount lens lineup

Sony will broaden the E-mount lens lineup while also expanding the “NEX” series camera lineup. The E 18-200mm F3.5-6.3 OSS (SEL18200) comes bundled with the NEX-FS700.

E-mount Lens Expansion



1 Shooting-related functions and effects

2 Special shooting/playback functions

3 Using with external devices

4 PICTURE PROFILE

Shooting-related functions and effects

A-mount lens

By using a Sony lens mount adaptor, you can use A-mount lenses originally designed for α series DSLR cameras. The LA-EA2 lens mount adaptor lets you use functions such as AUTO FOCUS and IRIS PUSH AUTO (temporarily activates AUTO IRIS when shooting in the manual mode) even when an A-mount lens is attached.



LA-EA2



A-mount lenses

Third-party lenses

Various third-party lens mount adaptors have been released. By mounting them, you may be able to use most of the lenses you already own. Please note, however, that you can only control those third-party lenses manually because third-party lens mount adaptors do not have electrical contacts for electronic control like the ones on Sony's LA-EA2 lens mount adaptor.

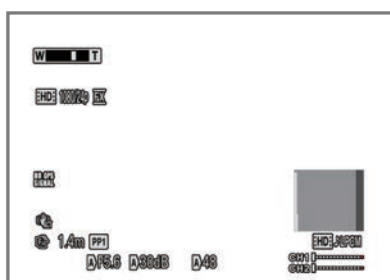
NOTE: Some third-party converters make auto focus and iris control possible with third-party lenses.



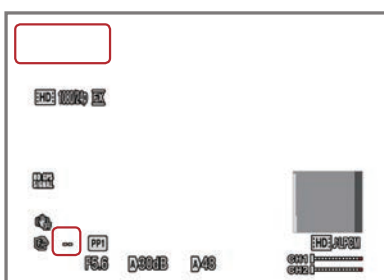


Parameter	E-mount lens	LA-EA1 or LA-EA2+ A-mount lens	Third-party lens
Focal distance information	Shown	“---” is displayed.	“---” is displayed.
Zoom position information (zoom bar or number)	Shown	Blank	Blank
Iris value	Shown	Shown	“---” is displayed.
Gain value	Shown	Shown	Shown
Shutter speed value	Shown	Shown	Shown
White balance value	Shown	Shown	Shown

NOTE: Camera parameters that appear on the LCD screen will differ depending on the mounted lens.



With E-mount lens



With LA-EA1 or LA-EA2 & A-mount lens



With third-party lens

Flange back distance

The flange back is the length from the sensor surface to the mount surface. It differs from one mount type to another, but is strictly observed within the same mount type. For E-mount lenses, the flange back distance is set at a mere 18mm. Relatively long flange backs are designated for DSLR cameras. Lens mount adaptors are designed to bridge the gap in the flange back distance. For example, you should attach a 28.5mm distance adaptor with E-mount lenses that have a 18.5mm flange back distance in order to use Nikon F-mount lenses. In other words, they make it possible to mount a lot of lenses with a shorter flange back distance. As a result, the shorter the flange back distance of a lens mount is, the more variety of lenses you can use. As more than 100 types of E-mount lens adaptors are on sale, it can be said that NEX-FS700 allows the use of the largest range of lenses among video cameras in the world.

NOTES: There are some E-mount lens adaptors that cannot be attached to the NEX-FS700. Please make sure you try the adaptor or ask sellers about compatibility before making a purchase.

Manufacturer	Mount name	Flange back distance
Sony	E	18.0mm
Canon	EF	44.0mm
	FD	42.0mm
Nikon	F	46.5mm
	S	31.95mm
Leica	R	47.0mm
	M	27.8mm
CONTAX	CONTAX	31.75mm
Panasonic	Micro Four-Thirds	19.3mm
Cinema	PL	52.0mm

S&Q MOTION (Slow & Quick motion) for shooting smooth slow/ quick motion video

By shooting at a frame rate that is different than the intended frame rate for playback, you can record slow-motion images at up to 1/2.5 the normal speed (40% Slow) or quick-motion images up to 60 times faster than the normal speed (6,000% Quick). Because you can record the image in Full HD (high-definition image quality), the image quality will not deteriorate as when using the SMOOTH SLOW REC function. For this reason, images shot using the S&Q MOTION function will not look out of place even if they are inserted into normally shot videos on the NLE software timeline and have their playback speeds changed via speed control.

NTSC model

Frame Rate (fps)	1080/ 24p	1080/ 30p	1080/ 60p
60	40% Slow	50% Slow	100% Standard
30	80% Slow	100% Standard	200% Quick
15	160% Quick	200% Quick	400% Quick
8	300% Quick	375% Quick	750% Quick
4	600% Quick	750% Quick	1,500% Quick
2	1,200% Quick	1,500% Quick	3,000% Quick
1	2,400% Quick	3,000% Quick	6,000% Quick

PAL model

Frame Rate (fps)	1080/ 25p	1080/ 50p
50	50% Slow	100% Standard
25	100% Standard	200% Quick
12	208% Quick	417% Quick
6	417% Quick	833% Quick
3	833% Quick	1,667% Quick
2	1,250% Quick	2,500% Quick
1	2,500% Quick	5,000% Quick

Usage examples

Slow motion

Effective when you want to express a person's movement in a sensual, smooth way.

Quick motion

When expressing the passing of time by showing the flow of people and cars at an intersection.



S&Q button

How to set/operate

1. **MENU → CAMERA SET → S&Q MOTION → REC FORMAT**
2. Choose the recording format from **1080/60p PS, 1080/30p FX, 1080/30p FH, 1080/24p FX, 1080/24p FH** or **1080/50p PS, 1080/25p FX, 1080/25p FH**
3. **FRAME RATE**
Select the frame rate from **60fps, 30fps, 15fps, 8fps, 4fps, 2fps, 1fps** or **50fps, 25fps, 12fps, 6fps, 3fps, 2fps, 1fps**
4. Start recording by first pushing the S&Q button on the left side of the camera body, then pressing the START/STOP button.
5. To change the frame rate, stop recording, push the S&Q button for about 1 second and change the value.

NOTES: Only effective in the high-definition image quality (HD) recording mode. Sound is recorded only when the shooting speed is at 100% (normal). Simultaneous recording on the memory card and flash memory unit HXR-FMU128 is not possible. The image will be recorded only on the recording medium that is selected under the [REC MEDIA SETTING] menu at that time. For a recording medium, please use Memory Stick PRO-HG Duo, Class 10 or higher SD Card, or flash memory unit HXR-FMU128.





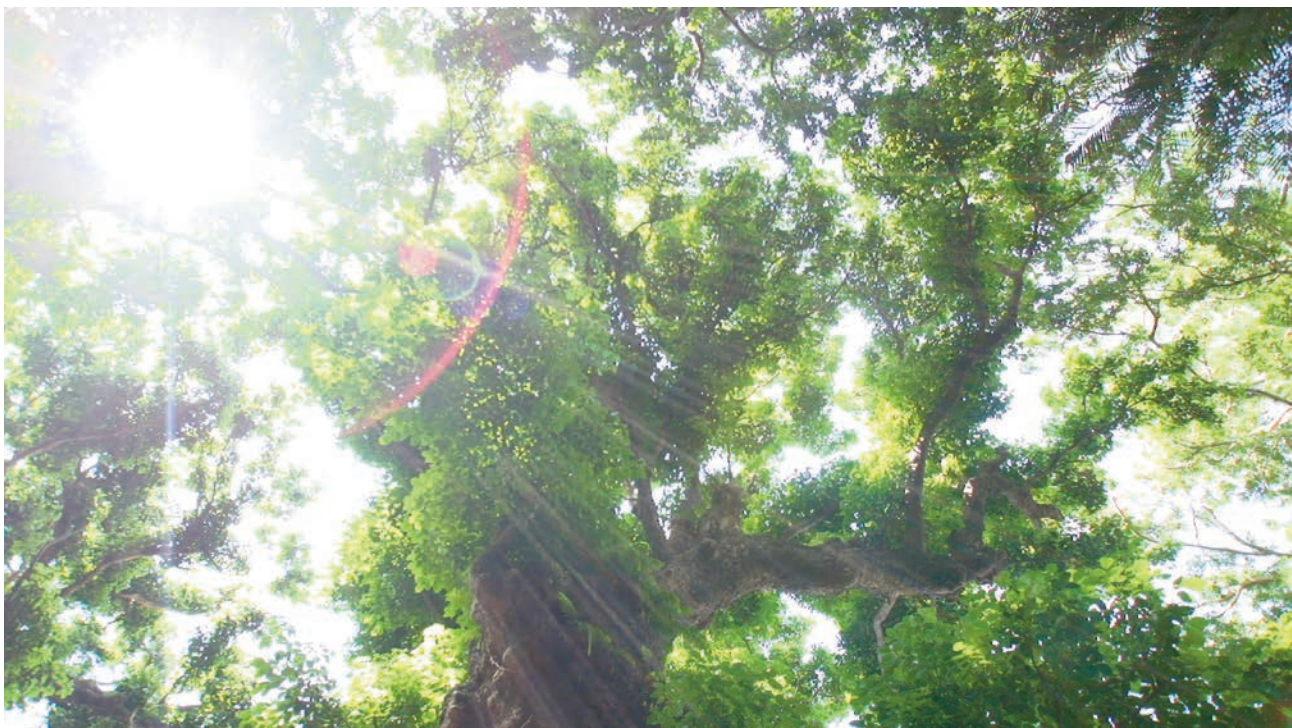
Super Slow Motion Video (High Frame Rate Shooting)

How to make Super Slow Motion Movie? Slow motion movie is to change the playback speed slower than normal speed. For example, if you playback one second movie clip in two seconds, you will get the two times slow motion movie. At that time, the moving object's transition smoothness will be degraded. Because, each frame in the movie playbacks two times longer period.

In using 24p clip, normally each frame has to be played back in $1/24$ second. If you playback it in two times slower, each frame will be played back in $1/12$ second. In this case, you see the same frame in twice time. The moving object moves intermittently. At the same time, the dynamic resolution is also degraded. But, this is kind of motion effect to create some emotional feeling.

In using 48p clip, normally each frame has to be played back in $1/48$ second. This clip itself has smoother object moving transition than the one taken by 24fps. If you playback it in two times slower, each frame will be played back in $1/24$ second. In this case, you see the every frame change in $1/24$ second. The moving object moves as smooth as 24p clip. At the same time, the dynamic resolution is not degraded. It is same as normal playback in 24 fps. You can get beautiful two times slow motion!

Recently, there are some 60p movie recordable camcorders in affordable price range. Historically, such camcorders can record the movie in 720/60p at the beginning. In this case, the resolution is not enough for 1080 HD. Currently, some camcorders can record the movie in 1080/60p. In using 60p clip, you can get 2.5 time slow motion at playback in 24 fps.



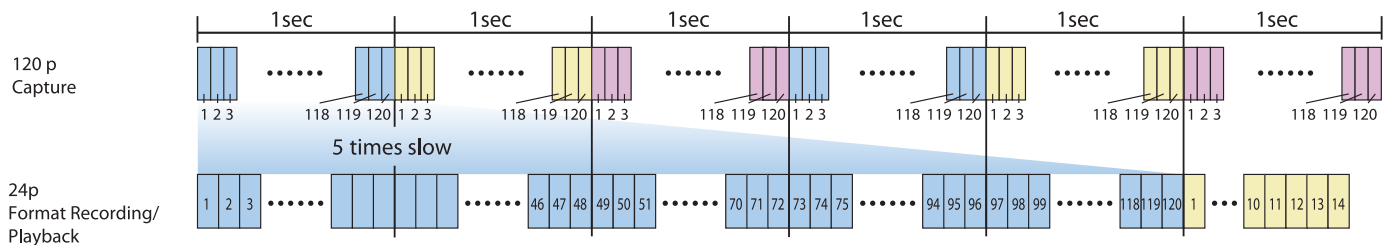
Special shooting/ playback functions



10 times Super Slow Motion Video by shooting NEX-FS700 series

The NEX-FS700 series can record the movie in high frame rate up to 240 fps at full HD 1920x1080 quality. If you playback the movie recorded in 120 fps by 24 fps, you will get 5 times high quality Super Slow Motion movie in full HD!

Slow Motion Mechanism



In the same manner, if you playback the movie recorded in 240 fps by 24 fps, you will get 10 times Super Slow Motion movie.

The maximum capturing time depends on the shooting frame rate.

Frame rate (60 Hz)	120 fps	240 fps	480 fps	960 fps
Recording time	16 sec	8 sec	9 sec	19 sec
Frame rate (50 Hz)	100 fps	200 fps	400 fps	800 fps
Recording time	19 sec	9 sec	12 sec	23 sec

The NEX-FS700 also has 480 fps and 960 fps movie recording capability in lower resolution. The output format is HD 1920x1080, but interpolated quality. In 480 fps recording, vertical resolution of the movie is lower than 240 fps recording. In 960 fps recording, both vertical and horizontal resolution of the movie is lower than 240 fps recording.

These higher frame rate recordings are useful for shooting faster moving object scenes, such as dance, sports, bicycle, car and etc...

The Super Slow Motion recording time varies by the frame rate due to the picture quality.

If you shoot the movie in 480 fps, you will get the 20 time Super Slow Motion movie in using playback at 24 fps.

Its maximum recording time is 9 seconds.

If you shoot the movie in 960 fps, you will get the 40 time Super Slow Motion movie in using playback at 24 fps.

Its maximum recording time is 19 seconds.

The NEX-FS700 can record in 50i based frame rate also. In this case, basic playback frame rate is 25 fps.

If you shoot the high frame rate movie in 100 fps, you will get the 8 time Super Slow Motion movie in using playback at 25 fps. Its maximum recording time is 19 second.

In 50i based frame rate shooting, high frame rate is selectable as 100 fps, 200 fps, 400 fps and 800 fps.



High Frame Rate Shooting Remarks

When you shoot in higher frame rate, the exposure time is shorter. In shooting at 24 fps, each frame picture is taken by 1/24 second exposure time. If you shoot at 48 fps, exposure time will be half, 1/48 second. It means the picture will be darker. Therefore, when you shoot in higher frame rate, you will need additional lighting basically.



24 fps 1/24 second exposed



960 fps 1/960 second exposed

Thanks to its high sensitivity and high signal to noise ratio by Exmor technology, the NEX-FS700 can create the clean and low noise movie even in the dark situation. Of course, the NEX-FS700 has gain control up to 30dB. Therefore, the NEX-FS700 is able to shoot at high frame rate in wide range of lighting condition without additional lighting system.

Exmor™
Super35 CMOS



Special shooting/ playback functions



24fps / ISO500 / 18-200 F3.5-6.3 OSS(SEL18200)



480fps / ISO500 / Century Precision S2000 17-35mm T3



Easy Setup for High Frame Rate Shooting

To shoot the movie in High Frame Rate with the NEX-FS700 is very easy. Just follow the below sequence.

Change the mode into Super Slow Motion

- Select the Scanning Frame Rate
- S & Q mode is also available
 - Same function as NEX-FS100

Set recording frame rate

- Progressive mode is only available

Set Trigger mode

- Select Capturing Timing
 - Start Trigger, End Trigger, End Half Trigger

External recording device

- 3G HD-SDI output provides 60p/50p high speed video
 - Currently, affordable price device is NOT available for 1080:60p/50p recording.



Playback by Visual Index

The NEX-FS700 is so-called “worldcam”. It means it can record both 50i and 60i movie. Therefore, you have to note below tips before shooting.

Two Kinds of Frame Rate Settings

In 50Hz and 60Hz, Frame rates are different

In 60Hz, 120fps, 240fps, 480fps and 960fps.

In 50Hz, 100fps, 200fps, 400fps and 800fps.

Cannot select alternative frequency frame rate

For example, in 50Hz, you cannot select 960fps, only 800fps.

Recording Format selection depends on Base Frequency

In 50Hz, 25p, 50p

In 60Hz, 24p, 30p, 60p

Output signals is followed by Output terminal setting

1080/60p, 1080/60i, 720/60p, 480/60i

1080/50p, 1080/50i, 720/50p, 576/50i



Caution in changing 50Hz/60Hz

Contents recorded in 50Hz cannot be shown in 60Hz mode.

Once you change the frequency, you have to change the media.

Warning message will be appeared to format media

Not only MS/SD but also HXR-FMU128

Special shooting/ playback functions



Super Slow Motion Recording Trigger

The NEX-FS700 records the high frame rate movie into its internal memory first.

After designated duration is lapsed, the movie will be encoded and changed frame rate to record to external memory media.

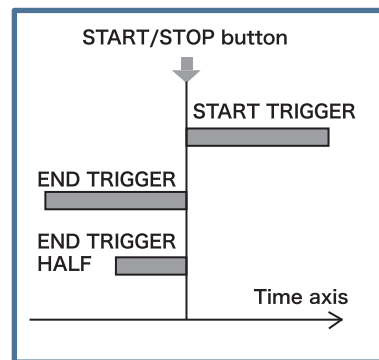
Start, End and End half Trigger

NEX-FS700 has 3 trigger modes.

Recording can be stopped anytime when START TRIGGER is selected.

Recording Time limitation table

During Super Slow Motion shooting, the readout from the image sensor is temporarily stored in the internal high speed cache memory. Then the data is processed into recording format and is recorded to the MS/SD/FMU memory. Thus the shooting clip length is limited by the internal cache memory capacity.



60i

fps	120fps	240fps	480fps	960fps
STAR TRIGGER (max)	approx. 16sec	approx. 8sec	approx. 10sec	approx. 19sec
END TRIGGER	approx. 16sec	approx. 8sec	approx. 10sec	approx. 19sec
END TRIGGER HALF	approx. 8sec	approx. 4sec	approx. 5sec	approx. 9sec

50i

fps	100s	200fps	400fps	800ps
STAR TRIGGER (max)	approx. 19sec	approx. 9sec	approx. 12sec	approx. 23sec
END TRIGGER	approx. 19sec	approx. 9sec	approx. 12sec	approx. 23sec
END TRIGGER HALF	approx. 10sec	approx. 5sec	approx. 6sec	approx. 11sec

• Time Expansion Ratio

Playback time expansion ratio can be set as combination of shooting fps and recording format.

8 seconds may seem short, but when it is played back at normal speeds it will expand into much longer clips. For example, 8 seconds of Super Slow Motion played back in 24p translates to 80 seconds. (8sec x 1000% = 80sec)

60i

fps	120	240	480	960
60p	200%	400%	800%	1600%
30p	400%	800%	1600%	3200%
24p	500%	1000%	2000%	4000%

50i

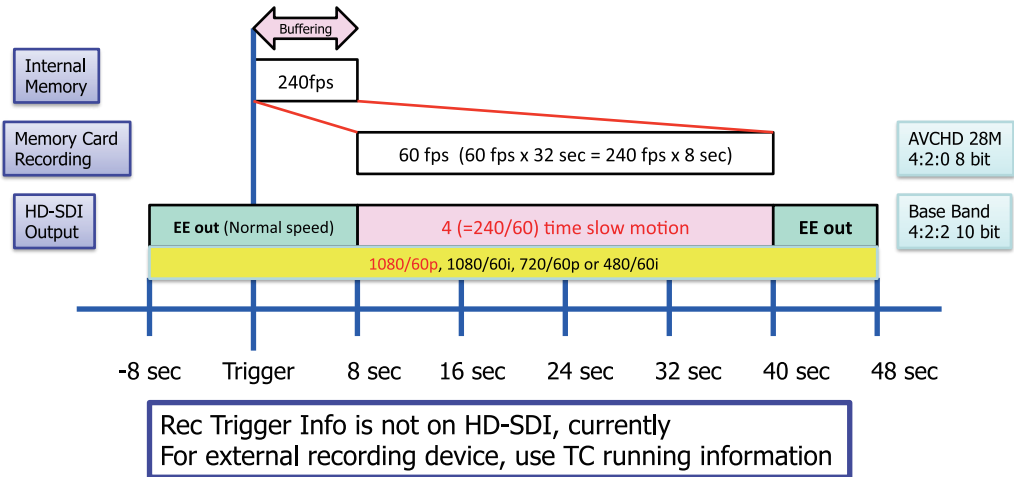
fps	100	200	400	800
50p	200%	400%	800%	1600%
25p	400%	800%	1600%	3200%

Super Slow Motion Mechanism

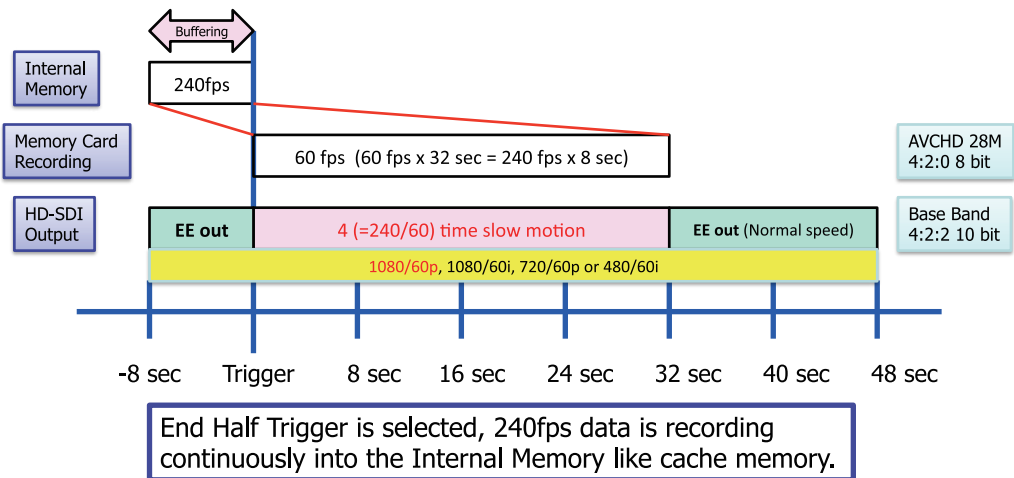
The NEX-FS700 has three types of recording triggers as below.



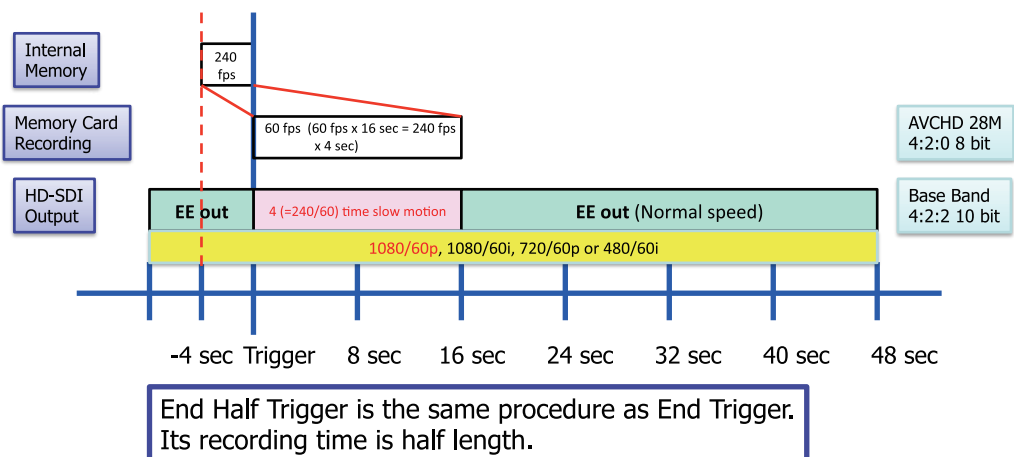
Super Slow Motion Mechanism (240fps:Start Trigger)



Super Slow Motion Mechanism (240fps:End Trigger)



Super Slow Motion Mechanism (240fps:End Half Trigger)



NEX-FS700 as a system camera

The NEX-FS700 Super 35mm sensor camcorder is a system camera. In addition to allowing lens changes, its simple, box-shaped body is designed to facilitate the use of various peripherals and accessories via screw holes at many places and mechanisms for attaching and detaching a grip, top handle and viewfinder.

The NEX-FS700 is also equipped with an HDMI and a 3G HD-SDI signal output terminal that can send an embedded Time Code (TC) signal, two sets of XLR terminals for external audio input, and a remote control terminal (REMOTE jack).

The NEX-FS700 additionally provides features and functions that enable it to serve as a system camera from the electrical standpoint, as it can record signals simultaneously to a memory card, a detachable flash memory unit (HXR-FMU128), and even a third party external recorder. The system nature of the camera lets you use it to record images exactly the way you want in a range of shooting situations.

Connecting a third-party recorder

The NEX-FS700 is equipped with both an HDMI and a 3G HD-SDI output terminals. Because these output terminals send out an uncompressed digital HD (high-definition image quality) or SD (standard-definition image quality) signal at the time of shooting, you can record the high quality base-band video signal by connecting an external recorder to the output terminal via HDMI or HD-SDI cable.

With the addition of a function to embed the Time Code (TC) to HDMI signals, it is now possible to handle HDMI video signals in almost the same way as HD-SDI signals. In addition, HDMI to HD-SDI signal converters are available from AJA, Blackmagic Design, Convergent Design and ATOMOS. You can use those products when your system setup calls for conversion of HDMI signals to HD-SDI signals.

Below, we will introduce some third-party recorders that were available as of March 2013.

Please contact their manufactures for detailed specifications and information on their compatibility with time code and 2-3 pulldown.

AJA Ki Pro Mini

This miniature version of AJA's Ki Pro external recorder writes data to a CF card and an HDD using the Apple ProRes codec. This product offers a wealth of features and functions, including input and output terminals for HD-SDI and HDMI signals, as well as support for external Time Code (TC)* and RS-422 serial control, a standard feature for professional-use VTRs. One drawback is that the product does not include an image monitor.

*Support for Time Code recording will soon become available via firmware update.



Convergent Design nanoFlash

This device records data to a CF card in the MPEG2 i-Frame codec or the Long GOP format. Because the product allows a bit rate above 100Mbps, recording in high image quality is possible. It can also record native 24p footage. The device can be used as a converter as well because it is equipped with input and output terminals for both HD-SDI and HDMI signals and both signals are output simultaneously. It is also a compact, lightweight, power-efficient recorder. But, it does not feature an image monitor.





ATOMOS Ninja2 / Samurai

These compact Ninja2 and Samurai recorders with 4.3-inch monitor can record data to a 2.5-inch HDD or an SSD using the Apple ProRes codec and Avid DNxHD. Ninja2 only supports HDMI signal input, and Samurai only support HD-SDI signal input. Both models support Time Code (TC) , 2-3 pulldown and native 24p recording.



SOUND DEVICES PIX240i

The portable PIX 240i is an essential companion for any production environment. It simplifies any production and post-production environment bringing edit-ready Apple ProRes or Avid DNxHD recording to SD/HD-SDI or HDMI-equipped video cameras. PIX 240i records and plays back Quicktime files to either removable CompactFlash cards or removable 2.5-inch solid-state drives (recording media and PIX-CADDY 2 are optional accessories). Both CompactFlash and SSD media are formatted by PIX recorders as UDF volumes that are directly mountable, readable, and writable in Mac OS and Windows.



1 Shooting-related functions and effects

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3 Using with external devices

4 PICTURE PROFILE

PICTURE PROFILE

What is PICTURE PROFILE?

PICTURE PROFILE is a menu for adjusting and changing parameters that determine image characteristics. There are many parameters that can be adjusted and changed, but they can be grouped into four types — parameters for selecting basic color tone, parameters for adjusting gradation (darkness-brightness tone), parameters for adjusting coloring, and parameters for correcting white balance.

Users can directly enter into the PICTURE PROFILE setting mode by pressing the PICTURE PROFILE button on the NEX-FS700.

Sporting a wide range of adjustable settings that rival ones found on upper-class camcorders, the NEX-FS700's PICTURE PROFILE menu allows users to change a variety of settings, such as Gamma Curve, Color and Detail. Up to six sets of setting combinations can be stored in the internal memory banks from PP1 through PP6.



PICTURE PROFILE button

Using PICTURE PROFILE presets

The NEX-FS700 camcorder comes equipped with multiple PICTURE PROFILE factory presets. By using these presets, you can match the image texture with other types of camcorders, or create an image texture that is similar to that of cinematic film.

- **PP1, PP2:** Standard settings equivalent to PICTURE PROFILE=OFF.
- **PP3:** Setting for simulating image characteristics of Sony broadcast camcorders. Equivalent to PP3 on the HXR-NX5.
- **PP4:** Setting for coloring faithful to ITU-709 standard. A new setting introduced for the first time on the NEX-FS100.
- **PP5:** Setting for image characteristics similar to those of normal cine negative film for shooting. Equivalent to PP5 on the HXR-NX5.
- **PP6:** Setting for image characteristics similar to those of normal cine print film for screening. Equivalent to PP6 on the HXR-NX5.





PICTURE PROFILE Settings

Settings for basic coloring

GAMMA

You can select a gamma curve from the following presets.

- **STANDARD**: Standard gamma curve
- **STILL**: Standard gamma curve for still images like DSLR
- **CINE1**: Make soft color images by decreasing dark area contrast and sharpening bright area tone changes (HG4609G33 equivalent)
- **CINE2**: Almost the same effect as [CINE1]; select this if you want to treat the image in a range within 100% of video signal when editing, etc. (HG4600G30 equivalent)
- **CINE3**: Increases contrast between bright areas and dark areas more than [CINE1] and [CINE2], sharpening dark area tone changes
- **CINE4**: Increases dark area contrast more than that of [CINE3]. The dark area contrast is weaker and the bright area contrast is stronger than that of [STANDARD].
- **ITU709**: Setting for gamma curve equivalent to that of ITU-709 standard. Gain level at 4.5 for low luminance areas.

COLOR MODE

You can change color characteristics.

- **STANDARD**: Suitable colors when [GAMMA] is set to [STANDARD]
- **STILL**: Suitable colors when [GAMMA] is set to [STILL]
- **CINEMA**: Suitable colors when [GAMMA] is set to [CINE1]
- **PRO**: Similar color tones to the standard image quality of Sony professional cameras (when combined with ITU-709)
- **ITU709 MATRIX**: Mode for color characteristics equivalent to those of ITU-709 standard
- **LEVEL**: Sets a color level when you set [TYPE] to the settings other than [STANDARD].
1(close to color settings of [STANDARD]) to 8 (color settings of the selected type)

TIPS

By combining the CINEMATONE1/2, PRO and ITU709 MTX color modes with the CINEMATONE1/2 and ITU709 gamma settings, you can create overall characteristics that are close to those of the referenced film or image types.

Settings for adjusting contrast

BLACK LEVEL

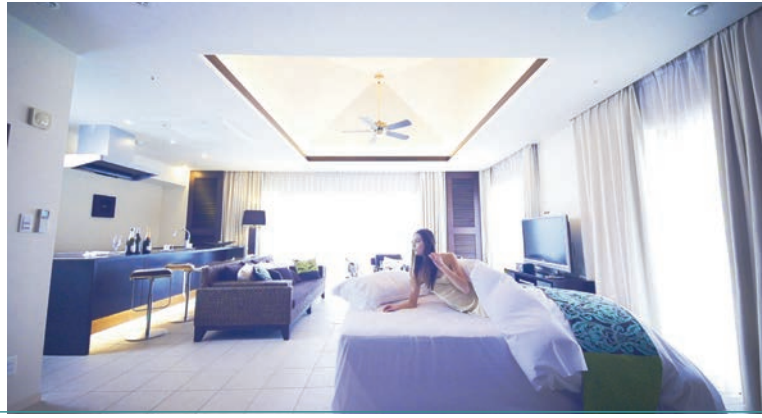
As the name indicates, this setting adjusts the black level of the image. As an image effect, you can emphasize black to create a type of image that would give a hard impression, or you can weaken black to give the image a soft impression. Shifting BLACK LEVEL toward the minus direction emphasizes the black color in the image, while changing the level toward the plus direction would weaken the black color. For example, if you want to simulate an old film, or capture winter morning fog, the black level set value should be increased. If you decrease

the level set value, gradations in dark areas will be discarded, making the areas appear in crisp black.

TIPS

When using multiple fixed camcorders to shoot the same subject from different angles, the balance between subject and background often varies. This balance variation may cause the black color on the subject to appear different when camcorders are switched. But this is an optical illusion. If it occurs, you can correct it by adjusting BLACK LEVEL to make the black color look the same.

PICTURE PROFILE

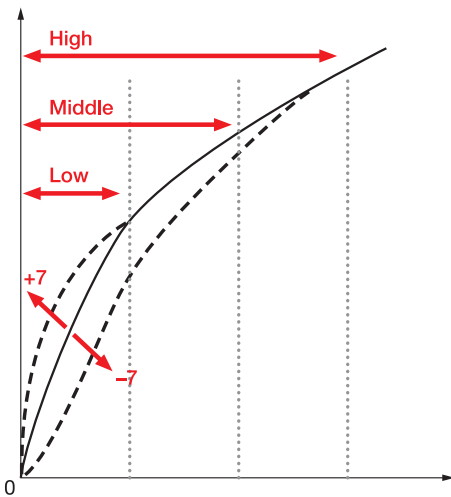


BLACK GAMMA

The BLACK GAMMA setting lets you alter the shape of the gamma curve and adjust gradations in dark areas in the image.

■ **RANGE:** This controls the luminance range that BLACK GAMMA influences. The LOW setting affects the range up to almost black, while the HIGH setting extends the range up to gray. RANGE should be set lower when you want to control the quality of dark areas. If you want to adjust the overall image tone, RANGE should be set higher. At first, it may be a good idea to start from the LOW setting.

■ **LEVEL:** Increasing LEVEL set value brightens the image, whereas decreasing set value makes the image darker. For example, if you set RANGE at LOW and decrease LEVEL set value, you can create an image with dark areas that are similar to the ones seen in films. Unlike BLACK LEVEL, BLACK GAMMA LEVEL adjusts luminance softly.



BLACK GAMMA (+7)



BLACK GAMMA (0)



BLACK GAMMA (-7)



KNEE

This changes the tone expression in high brightness areas.

■ MODE

- **AUTO**: Automatically adjusts the KNEE settings based on what is selected in the following AUTO SET function.
- **MANUAL**: Follows the KNEE settings selected in the following MANUAL SET function.

■ AUTO SET

- **MAX POINT** → 90% → 100%

Determines the maximum knee point level (white level). The knee slope is automatically adjusted according to the MAX POINT setting.

Selecting 100% is ideal under most circumstances. A lower setting will turn white grayish, while a higher setting will discard gradations in high luminance areas. So, the basic choice for AUTO SET is to keep it at 100%.

- **SENSITIVITY** → LOW-MIDDLE-HIGH

Changes the luminance level at which KNEE setting automatic adjustment kicks in.

LOW: KNEE setting automatic adjustment starts at lower input signal levels than normal.

HIGH: KNEE setting automatic adjustment starts at higher input signal levels than normal.

■ MANUAL SET

- **POINT** → 75% ~ 105%

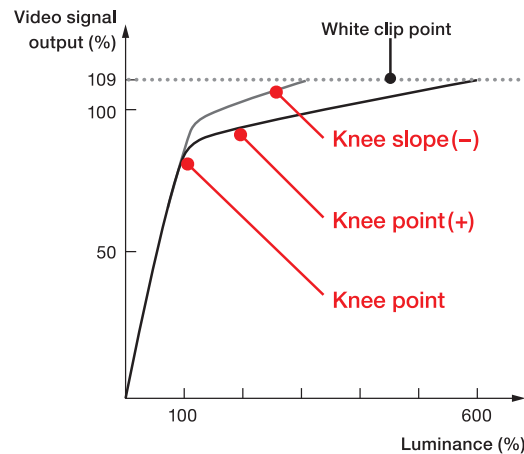
Sets the position of the KNEE point output level.

- **SLOPE** → -5% ~ +5%

Determines the inclination of the KNEE slope.

A negative SLOPE setting results in a milder KNEE slope angle. This boosts the dynamic range, but reduces the ability to reproduce rich gradations.

A positive SLOPE setting makes the knee slope inclination steeper. This shrinks the dynamic range, but bolsters the ability to express gradations.



💡 TIPS

In general, the KNEE point is set roughly between 85% and 100%, which is said to match the luminance levels of human skin. The knee point and knee slope should be viewed as a set. In principle, a higher setting for the KNEE point and a milder KNEE slope should be selected for video-like sharp highlights. If softer film-like highlight

expressions are desired, the KNEE point should be set lower in combination with a steeper KNEE slope. In practical terms, you should move the KNEE point and the KNEE slope up and down in opposite directions to each other while checking the gradations in high luminance areas until you find the ideal settings.

PICTURE PROFILE



Settings for adjusting coloring

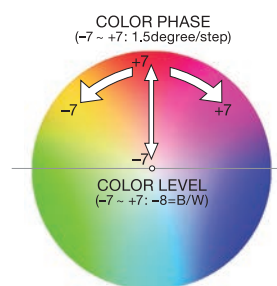
COLOR LEVEL

COLOR LEVEL deals with saturation in the color space and makes washed out colors appear more vivid. Settings can be adjusted between ~ . There is also a setting. A higher set value results in more vivid colors, while a lower set value presents faded colors. COLOR LEVEL should be adjusted in tandem with contrast. Bright and vivid settings produce video-like images, while dark and vivid settings result in film-like images. The combination of bright and light creates pastel tones, whereas dark and light settings create artistic finishes.

COLOR PHASE

COLOR PHASE controls Hue in the color space. A single step in Hue amounts to a roughly 1.5-degree rotation in the color wheel. As you rotate the color wheel to the left or right, the colors shift such as from red to yellow, green, aqua, blue and purple. Because this setting affects all colors, it is difficult to use COLOR PHASE for a particular intention. Please refer to this setting when matching coloring strictly between different cameras.

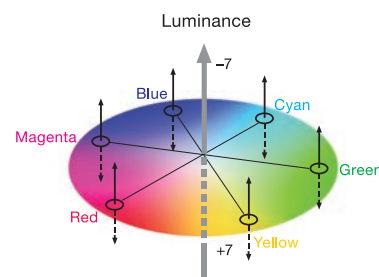
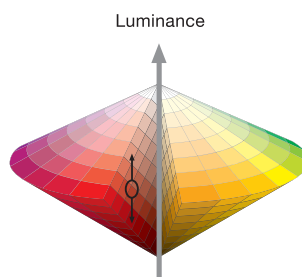
Settings can be adjusted between ~ .



COLOR DEPTH

COLOR DEPTH shifts brightness (luminance) in deep colors (high saturation areas in the color space). A higher set value lowers luminance while deepening the color. A lower set value increases luminance, making the color look paler. The deeper the saturation, the bigger the change will be. Hardly any change can be seen if colors are close to achromatic. You can adjust color depth between -7 and +7 individually for [R (Red)], [G (Green)], [B (Blue)], [C (Cyan)], [M (Magenta)] and [Y (Yellow)].

Color	Range
R	-7 (Shallower red) ~ +7 (Deeper red)
G	-7 (Shallower green) ~ +7 (Deeper green)
B	-7 (Shallower blue) ~ +7 (Deeper blue)
C	-7 (Shallower cyan) ~ +7 (Deeper cyan)
M	-7 (Shallower magenta) ~ +7 (Deeper magenta)
Y	-7 (Shallower yellow) ~ +7 (Deeper yellow)



R+



±0



R-

TIPS

With previous camcorders, the color strength was changed by adjusting the COLOR LEVEL settings (saturation), But this only enhanced apparent vividness of colors. With the NEX-FS700, it is possible to express deep, dark colors by using COLOR DEPTH. Because each of the six colors — R (Red), G (Green), B (Blue), C (Cyan), M (Magenta), Y (Yellow) — can be adjusted individually, you can use COLOR DEPTH to emphasize only the colors you want.



DETAIL

As described in “Information essential for making the most of PICTURE PROFILE,” DETAIL is a function that emphasizes image edges. By altering the following manual settings, image processing can be varied to create different impressions from the same subject. Because settings other than LEVEL are quite complex, we recommend you start by adjusting only the LEVEL setting first.

LEVEL

Determines the strength of DETAIL image processing to be applied.
-7 (Weak) ~ +7 (Strong)



DETAIL / OFF



DETAIL / ON

TIPS

- If you apply too much DETAIL, the subject’s natural atmosphere may be undermined, as its transparency may be lost or its luster may be altered, for example. Excessive DETAIL when shooting shiny leaves, for instance, may result in the leaves looking as if they are made of plastic. It is also advisable to use DETAIL only modestly when shooting paintings. Because DETAIL makes image edges wider, the original texture of a subject consisting of very fine lines may be lost if too much DETAIL processing is applied. (Example: Thin-laced curtains)

- Please also be aware that DETAIL may fatten up the edges of noise particles that appear under a high GAIN setting, and may make such particles highly noticeable. In such cases, however, you can adjust the amount of DETAIL processing on the noise particles by using the later mentioned CRISPENING function.
- The image edges become more visible when viewed on large screens. It may be advisable to ease off on DETAIL if you plan to view the image on large TVs or screens.

MANUAL SET → ON/OFF

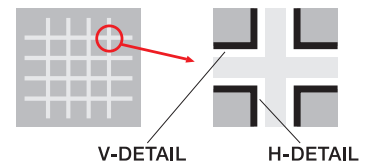
- **ON**: The DETAIL level can be adjusted by using the following settings.
- **OFF**: The DETAIL level will be adjusted automatically depending on camera settings.



PICTURE PROFILE

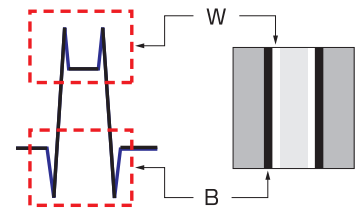
V/H BALANCE

- Changes the balance between Vertical (V) DETAIL and Horizontal (H) DETAIL.
- Vertical (V) DETAIL boosts image edges by expanding them upward and downward. Horizontal (H) DETAIL emphasizes image outlines by thickening them left and right.
- The results of DETAIL processing may appear differently among TVs, computer displays and other types of display monitors. Please adjust V/H BALANCE as needed.
- To emphasize the impression of a subject that has many horizontal elements, such as a human face (with eyes and mouth), you can increase the proportion of Vertical (V) DETAIL by lowering the setting (selecting a lower set value).
- -2: Stronger Vertical (V) DETAIL ~ +2: Stronger Horizontal (H) DETAIL



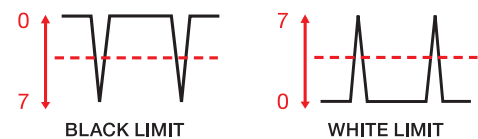
B/W BALANCE

- Changes the balance between the amount of black DETAIL for low-luminance areas and the amount of white DETAIL for high-luminance areas.
- TYPE1 (Higher proportion of black DETAIL) ~ TYPE5 (Higher proportion of white DETAIL).
- B/W BALANCE and LIMIT adjust the amount of black DETAIL and white DETAIL added to image edges.
- Black DETAIL adds such impressions as “power,” “hardness,” and “presence” to the subject. But it may bring undesirable results because it emphasizes wrinkles and pores.
- White DETAIL gives the subject “clean” and “glossy” impressions.
You can increase the proportion of white DETAIL and reduce that of black DETAIL when shooting jewelry and glass objects to stress their clear, transparent nature.



LIMIT

- Restricts the amount of black DETAIL for low-luminance areas and white DETAIL for high-luminance areas by setting a maximum value. The LIMIT setting cannot be set independently for black DETAIL and white DETAIL.
- 0 (Strongly restricted) ~ 7 (No restriction)



CRISPENING

- Reduces DETAIL that is added to visual noise to prevent noise from being emphasized.
- You can use the CRISPENING function when you want to apply DETAIL to the subject while keeping noise as unnoticeable as possible.
- CRISPENING can be adjusted between 0 ~ 7.
A larger set value results in less DETAIL.

HI-LIGHT DTL (High Light DETAIL)

- Adjusts the DETAIL level for bright subjects.
- You can use this to emphasize the edges of a bright subject in front of a high-luminance background.
- 0 (Smaller DETAIL amount) ~ 4 (Larger DETAIL amount)



Settings for correcting white balance

WB SHIFT

Fine-tunes white balance or creates an effect that is similar to using a color filter. Two types of adjustment methods - LB-CC and R-B — are available. We recommend you start with the LB-CC adjustment method. A higher set vale leads to warmer colors, while a lower setting creates colder colors. Please make sure you adjust white balance first.

FILTER TYPE → LB-CC (Light Balancing - Color Correcting)

■ **LB (COL TEMP):** Adds an effect similar to applying a color temperature adjustment filter

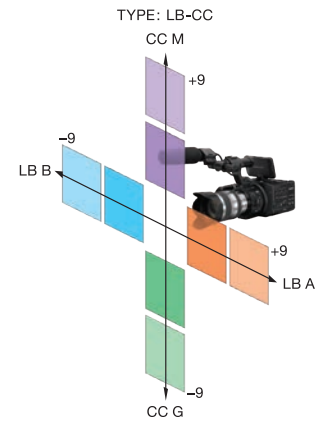
-9 (Blue: Bluish) ~ +9 (Amber: Reddish)

NOTE: Approx. 100K/step

■ **CC (MG/GR):** Adds an effect similar to applying a color correction filter

-9 (CCG: Green) ~ +9(CCM: Magenta)

NOTE: 1 step is equivalent to 2.5 in color correction filter number.



Original



LB-



Original



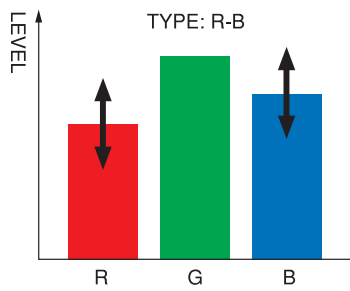
CC+

PICTURE PROFILE



FILTER TYPE → R-B

- Alters the R (Red) or B (Blue) level in the video signal.
-9 (Lowest level) ~ +9 (Highest level)



FILTER TYPE R-B (R=+9)



FILTER TYPE R-B (± 0)



FILTER TYPE R-B (B=+9)



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