Sony FX 6

firmware v. 5

Quick Start Guide

Centre for Digital Arts
Concordia University
2024

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Introduction
and
Important Features

Sony FX 6

Introduction

This guide is written by Phil Hawes at the Centre for Digital Arts at Concordia University. Unless noted, all the images are taken by the author.

If you are a Concordia Fine Arts student, please contact me if you require assistance with this camera or any other camera in the EV equipment depot.

If you have any questions, comments or suggestions about this guide, please email:

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Introduction

This guide summarizes key information on the Sony FX 6 in one resource.

Read the section on Custom Shooting mode to learn the camera controls.

Read the section on Cine EI to learn how to shoot Slog 3 video, regardless of what Slog 3 shooting mode you pick.

For absolute beginners, I suggest the Sony Z90 and FS5 cameras in the EV Depot unless you want to shoot in LOG. For LOG shooting, the FX6 is the best choice.

Additional resources are referenced at the end of the guide.

Introduction

The FX 6 has four important improvements over cheaper Sony video cameras. This guide will cover these three aspects in detail.

1. This is a full frame camera so it works better in low light situations.
2. The S Cinetone preset scene (or look) adds extra dynamic range while shooting ”normally” in Custom mode.
3. You can import a LUT into the camera when shooting Slog 3.
4. It is easy to switch between manual and auto focus in mid-shot.

Important Features: Camera Specifications

4.2K Full Frame sensor

Shooting Resolutions:

HD 1920 x 1080, 4K UHD 3840 x 2160, 4K DCI 4096 x 2160

Standard frame rates (called frequency scan):

NTSC: 59.94p, 29.97p, 23.98p PAL: 50p, 25p DCI: 24p

S &Q frame rates:

4K: 1 to 120 fps, HD: 1 to 240 fps

Recording options:

XAVC-I 4:2:2 10 bit (I Frame) for HD and 4K

XAVC-L (long G.O.P) longer recording time/ lower quality, HD: 10 bit, 4K: 8 bit

4K RAW requires an external recorder (4K 16 bit RAW output via SDI and HDMI)

Important Features: Shooting Modes and Dual Sensitivity

Shooting Modes:

In firmware version 5 there are four shooting modes: Custom, Flexible ISO Cine EI Quick, and Cine EI. The two Cine EI modes and Flexible ISO are for shooting Slog 3 images. In this guide, the Custom shooting mode is presented first, as it is the easiest choice.

ISO:

This is a dual sensitivity camera, meaning that the sensor is optimized for two different ISO settings called base sensitivity Low and High. The low and high ISO ratings change according to the shooting mode. See next page.

Important Features: Dual Sensitivity ISO

The FX 6 is optimized for two “Base Sensitivity” ISO settings (higher numbers mean more sensitive to light). The settings change by shooting mode. See the sections on each shooting mode for more information. If you want a clean image, don’t stray too far from these two optimized ISO settings.

Low:

Custom (709): 320 ISO

Cine EI and Flexible ISO: 800 ISO

High:

Custom (709): 5000 ISO

Cine EI and Flexible ISO: 12800 ISO

Important Features: Editing Software Compatibility

At the CDA, and throughout the Concordia Faculty of Fine Arts, there are two video editing software options: Adobe Premiere and DaVinci Resolve.

The XAVC video files from the FX 6 can be read by Adobe Premiere in Adobe CC 2021 and up. DaVinci Resolve **Studio** version 17 and up will also read these files.

The free version of DaVinci Resolve running on an Apple Intel computer will **not be able** to read the XAVC video files. You will have to convert the files to Apple Pro Res HQ. But the free version of Resolve version 17 and up running on an Apple Silicon Mac can read the files. All the CDA AV suites have Apple Silicon Mac Studio computers.

Important Features: APR warning

When you first power up the camera, it may ask you to “execute APR”.

This is the automatic pixel restoration feature that minimizes noise in the LCD when lighting conditions change.

Put the lens cap on and press OK. It only takes 5 seconds.

If you cancel this option, do it next time. It should be performed on a regular basis.

Important Features: Power and Batteries

Power button on side of camera.

AC power on the back right side of camera (bottom connector).

Smaller battery (BP-U35): 150 minutes

Larger battery: (BP-U100): 400 minutes

Shooting high frame rates will diminish the battery time.

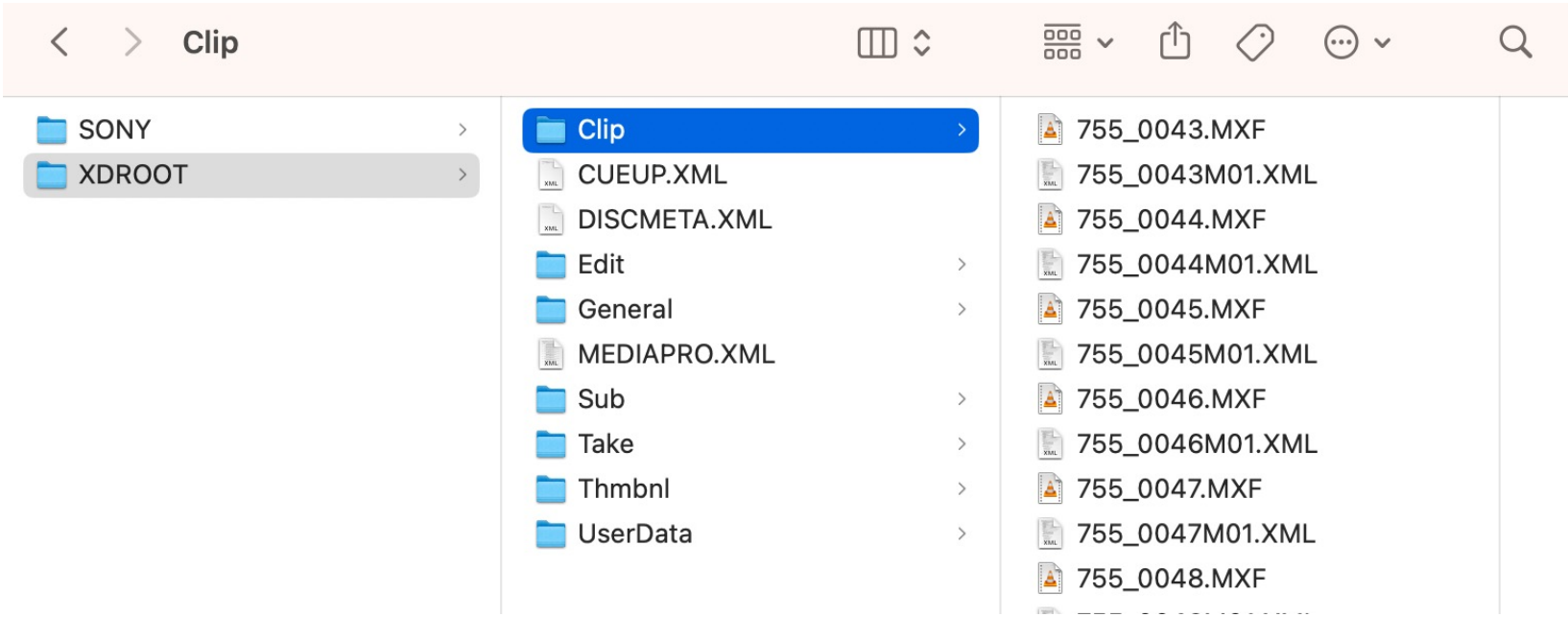
The batteries take several hours to charge. Charge them overnight.

Recording Media

Sony FX 6

Recording Media: saving files

Connect the card reader to the computer. There is a USB cable in the bag. The .MXF video files are contained in the XDROOT/Clip folder on the CF card. Backing up the whole card to save all the additional metadata is recommended.



Recording Media: Two Codecs

The camera comes with two **160 GB CF Express A cards.**
These can record XAVC I 4K up to 120 fps.

The camera has two internal codecs:
XAVC I (I Frame)
XAVC L (Long G.O.P)

Always use the XAVC I codec unless you need the extra recording time.
XAVC I is a 4:2:2 10 bit codec in HD and 4K.

Both codecs are in the cross platform .mxf container.

Recording Media: XAVC I Recording time per card

XAVC I recording times per card:

XAVC I HD	24p:	207 min.
	30p:	168 min.
XAVC I 4K	24p:	83 min.
	30p:	66 min.

XAVC I File sizes:

XAVC I HD 30p:	950 MB per minute
XAVC I 4K UHD 24p:	1.8 GB per minute

Higher frame rates will have shorter recording times and larger file sizes.

Recording Media: XAVC L Recording time per card

Only use **XAVC L** if you require a longer recording time.

The 10 bit HD 50 Mbps image quality is very good.

The 8 bit 4K image will be noisier in low light.

XAVC L recording times per card:

XAVC L HD (35 Mbps):	500 min. (approx.)
XAVC L HD (50 Mbps):	340 min. (approx.)
XAVC L 4K (150 Mbps):	200 min. (approx.)

XAVC L file sizes are much smaller than XAVC I.

Recording Media: Codec Bit Rates

XAVC I files are easier to play back than XAVC L. However, older computers may struggle with the XAVC I 4K higher frame rate bit rates.

XAVC I bit rates:

HD and 4K 24-30p: 240-300 Mbps

HD and 4K 50-60p: 500-600 Mbps

HD and 4K UHD 120 fps: 1200 Mbps

XAVC L bit rates:

4K UHD 24-30p XAVC L (8 bit): 150 Mbps

HD 24-30p: 50 Mbps or 35 Mbps options

Recording Media: Proxy recording and Simultaneous Record

Proxy Recording:

Proxy recording creates compressed .mp4 duplicate video files while you record. I don't recommend it. The proxy files are not useful in an online/offline workflow as they do not have the identical file names of the full resolution files. I recommend creating offline files using Adobe Media Encoder and the Pro Res 422 Proxy codec.

You can turn on proxy recording in the status pages and menu if you wish.

Simultaneous Record:

If you want to have copies of the video files recording to each card simultaneously, one copy per card, turn on simultaneous record:

Menu/Project/Simul Rec/Setting/ON

The kit zoom lens

Sony FX 6

About the lens

The included lens is a Sony FE 24-105mm F4 G OSS Lens (E-mount).

F stop 4 is available throughout the range from wide to telephoto.

This lens is designed for full frame cameras.

The zoom is manual. **The zoom rockers on the camera will not work with this lens.**

This is not a parfocal lens, the focus will change when zooming. So, it’s best to use autofocus when zooming or tracking an object. See the section on focus.

About the lens

There is an Autofocus button on the side of the lens in addition to an auto or manual focus switch on the front of the camera (see the section on focusing on how to operate the camera in hybrid focus mode).

When in manual focus you can lock the focus with the large button under the ”G”.

Optical steady shot stabilization on the lens is necessary since **there is no in-body camera stabilization.**

Turn off the stabilization when on the camera is on a tripod.

Using other lenses

The camera takes Sony E mount lenses for full frame cameras.

You can use lenses from other manufacturers with a Sony E mount adapter. The EV Depot does not have this adapter.

Always use full frame lenses on this camera when shooting 4K. You can use APS C or Super 35 lenses when shooting HD but then you must change the Imager Scan setting to Super 35 (status page 1).

If you are shooting cinemascope aspect ratio video with an anamorphic lens, there is now an option for “De-Squeezing” the image in the viewfinder and the HDMI input. Menu/Monitoring/De-Squeeze.

The Viewfinder

Sony FX 6

Viewfinder (VF) Specs.

The camera’s viewfinder (VF) is a 720p Rec.709 screen.

It is a touch screen but use this function sparingly. I use it for some focus applications. See the section of Focusing.

The viewfinder cannot show all the highlight detail in uncorrected Slog 3 images. You need to apply a LUT and “normalize” the image to see the highlight details inside the Rec.709 colour space. See the section on Cine EI Shooting Mode on how to apply a LUT.

Viewfinder: Flipping and Rotating Image

On the bottom of the VF there is a switch for rotating and flipping the image (very convenient if you are shooting yourself).

Viewfinder: Buttons and Shade

Three buttons on the side: display focus peaking, display zebra stripes and the custom 9 button by default displays the waveform monitor and other scopes.

Viewfinder: an optional loupe is available

The detachable shade provides sunlight protection in some situations but I recommend attaching the optional loupe in bright situations or when you want to see more detail.

See the section in this guide on how to attach the loupe. The loupe is a separate item from the EV depot it does not come with the camera.

Viewfinder: Cleaning the Screen

The viewfinder (VF) is a 720p touch screen for some functions, however use it sparingly as a touch screen. It is useful for auto focus (see section on focusing).

If the screen becomes dirty, it can be cleaned only with a microfiber cloth. If it is smudged, turn the camera off and clean the LCD screen with a very slightly damp microfiber cloth (water only). Wait until it dries before turning on the camera.

Menu Navigation

Sony FX 6

Menus: Three Options

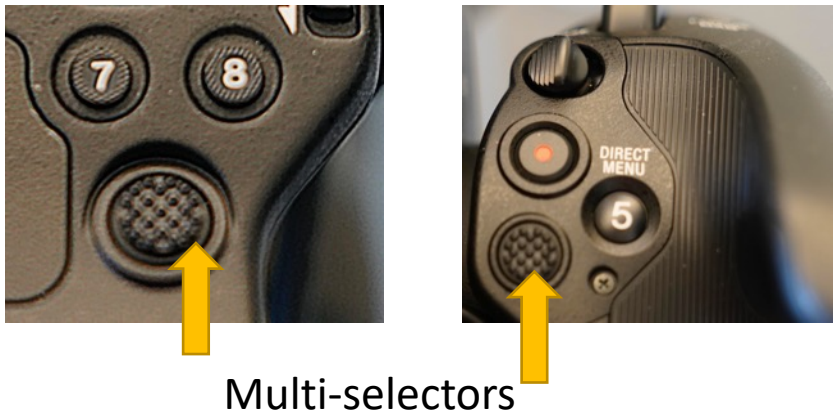
There are three different menu interfaces to change the settings in the camera. There is some redundancy between the interfaces. In this guide I usually refer to one method of changing a setting.

1. The **status pages** give quick access to the most common settings.
2. The **direct menu** gives access to the most frequently used exposure options while shooting. This is the information displayed over the image in the viewfinder.
3. The (full) **menu** gives all the options.

Menu navigation

Once you have pressed the FULL MENU button on the side the camera you can get into two of the three menus (read on).

The easiest way to navigate the camera menus is to use the large dial on the side of the camera. Push the button in and turn the dial. Option two is using the multi-selectors on the top handle or the grip.



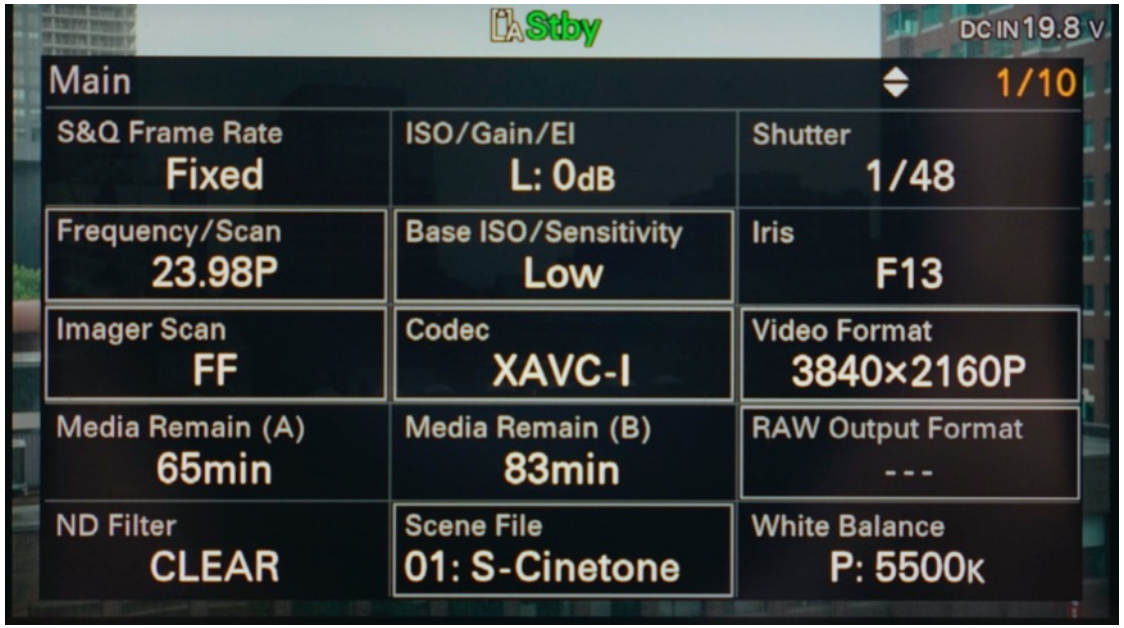
Multi-selectors

Menu dial

Access to status pages and menu.

Three Menu Options: the status pages

The status pages appear when you press the full menu button quickly: they look like this:



This menu is convenient for changing most settings before you start shooting.

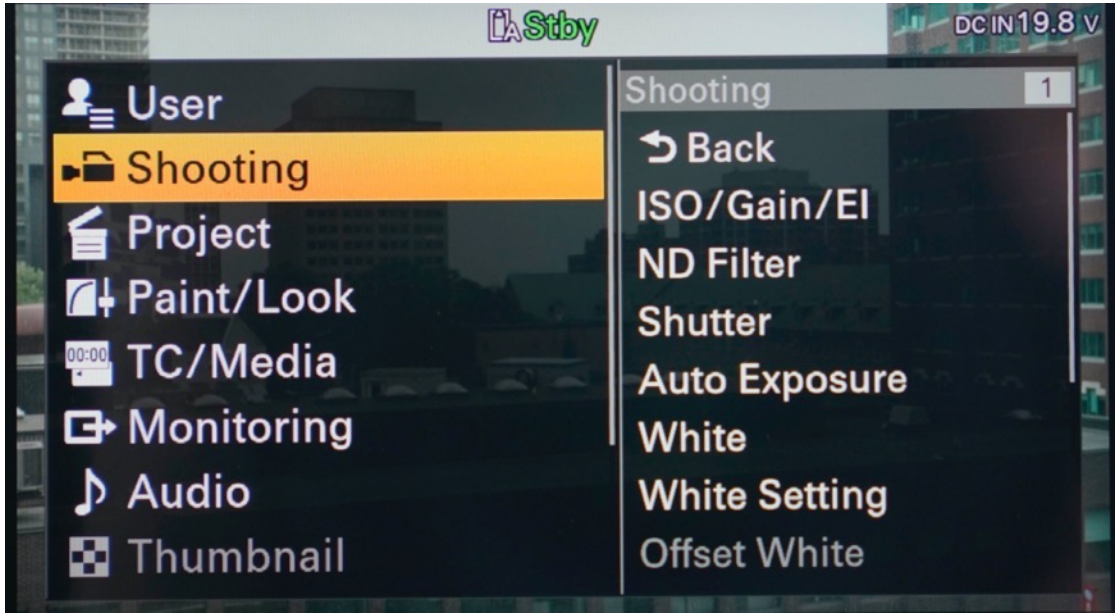
Three Menu Options: the direct menu

Press the display button on the side of the camera. On the grip of the camera, button 5 takes you to the direct menu (or button 8 on the top handle) that allows you to change aperture, shutter speed, ND filter setting, auto exposure, gain, white balance and other things directly on the display with the dial or multi-selectors.

In this image the aperture is highlighted because it is being adjusted. The direct menu is useful once you start shooting.

Three Menu Options: the (full) menu

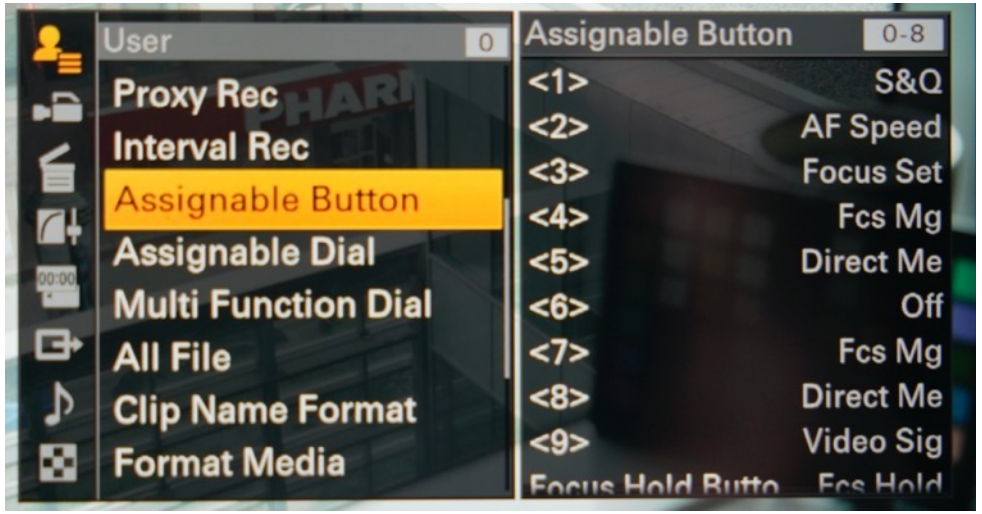
The full menu appears if you keep holding down the full menu button. It looks like this. This menu has all the options. This guide will not present them all.



Menu/ User/Assignable Button

In this guide I refer to the user assignable buttons on the camera. I am using them in their default setup but you can assign different functions to the buttons as you wish. When you get the camera from the depot it is possible that the last user has changed their function.

Go to the **Menu/User/Assignable Button**



Resetting the Camera back to the Factory Settings

You may wish to erase the menu settings left by the previous user. If many settings were changed, it may hinder following this guide. You can go back to the factory settings of the camera by selecting:

Menu/Maintenance/All Reset/Reset

The **Reset without Network** is the other option that resets all menu settings except the network settings.

Audio

Sony FX 6

The Microphone

The camera has a rubber adapter to fit the microphone in the holder. Use it for other hyper cardioid type of microphones as well. The Sennheiser 416 can be used directly on the camera, for example.

Never use the internal camera microphone as your primary source of audio. Use the Sony ECM-VG1 super-cardioid mono condenser microphone. This is a reasonable option for recording if the subject is close to the camera (speaking no more than 6ft to 8ft away and directly at the camera).

The microphone is directional: what the camera is pointing at will be recorded.

Because the microphone is mounted on the camera it will pick up some camera noise and fan noise.

Audio: XLR Audio Inputs

There are four audio channels.

Two mono XLR inputs are on the camera handle. **Make sure the handle is attached firmly as this affects the audio input.**

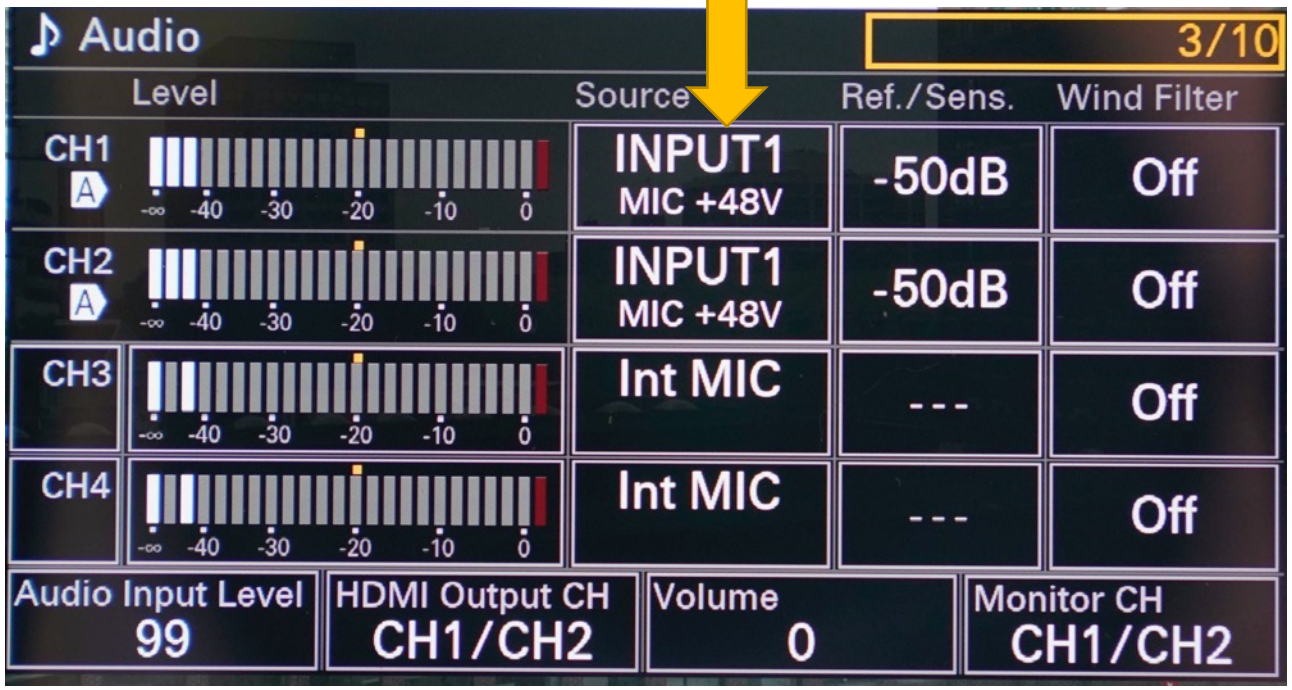
Each XLR input has three options: Line, Mic, Mic +48V.

Mic +48V is for condenser microphones like the Sony ECM- VG1.

Mic is for dynamic microphones and **Line** is for an output from an audio mixer or other line level device (output from an external recorder for example).

Audio: Input

On status page 3, change the input for the channel. In this case, I have XLR input 1 going to channels 1 and 2 for a two channel mono recording (the same sound on each channel).

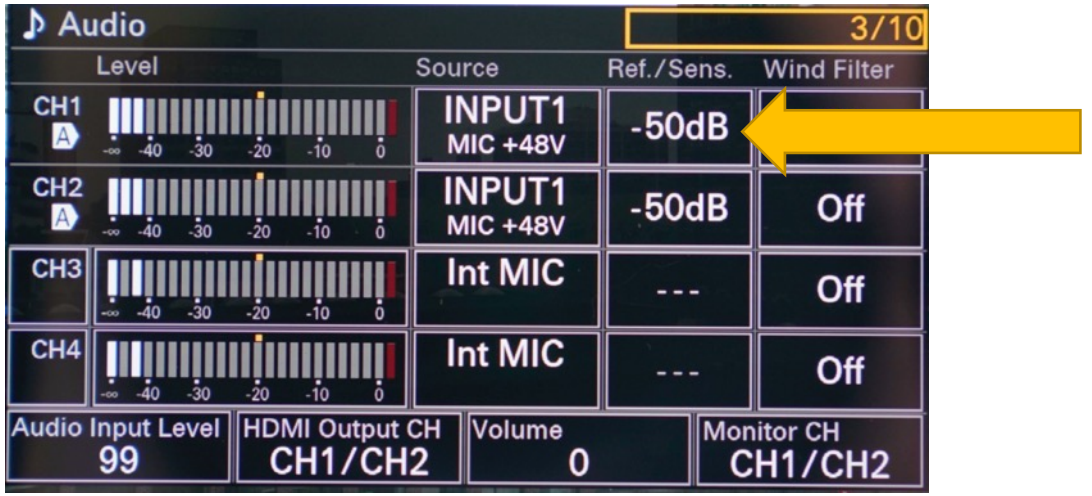


Audio: Volume Level Controls

There is a switch for automatic or manual volume level recording control. Open the door to switch from auto to manual level control and control the level.

Audio: Reference Sensitivity

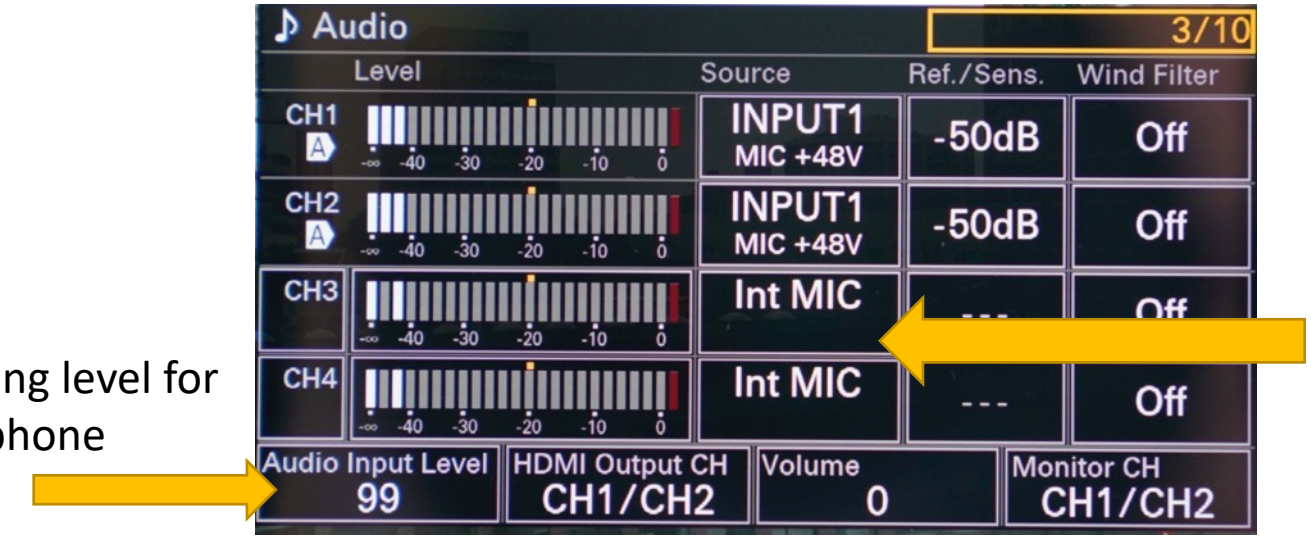
If the recording is too loud or too quiet with either auto or manual control, adjust the reference sensitivity of the channel. The default reference sensitivity is -50 dB. This is generally a good setting. Changing to a higher number like -60 dB will raise the recording level, -40 dB will lower the level. Change it back to -50 dB before you return the camera.



Audio: Internal camera microphone

You can record the internal camera microphone to one or more channels as a reference for synchronizing audio recorded to an external recorder (but it also helps to use a slate). By default the internal microphone level is on AUTO. The Audio Input level is the manual recording level for the internal microphone.

manual recording level for internal microphone



Internal microphone on channels 3 and 4

Audio: Low Cut option

There is a switch on the microphone for a low frequency cut to the signal. This is not necessary unless there is a persistent low hum in the environment that you want to remove.

M is no cut.
V is the low cut.
I could not find any documentation on where the low cut starts. Probably 90 Hz. Otherwise the microphone can pick up sounds as low as 40 Hz.

Audio: Headphone Jack

The headphone jack is placed on the side of the camera. The output level for the headphone jack is in the **menu/ audio/ audio output/ volume**. You can also select in that menu whether this is a stereo or mono output.

The camera kit does not come with headphones.
I recommend reserving the **Sennheiser HD 280 Pro** enclosed headphones from the EV Depot.

Audio: Fan Noise

The sensor is large and requires cooling (or heating).

Menu/Technical/Fan Control:

AUTO mode is the default for the fan. In this mode the fan may run while you are recording. If the microphone is on the camera, or near the fan, it will record this noise.

The two other options are: **MINIMUM** and **OFF IN RECORD**.

I recommend **OFF IN RECORD** if you are shooting in a cinema style with short takes. The camera will have time to cool between takes.

MINIMUM will work better for long takes/documentary/interviews. The noise will be consistent but low. Consistent low fan noise is much easier to remove from an audio track than a noise that varies in volume.

Audio: Other Microphone Options

The microphone wind cover on the Sony ECM- VG1 can help reduce wind noise. In the audio basic menu there is also a wind cut option for each channel.

However, the **CDA field recording kit** is a superior option for recording audio outdoors. It includes a blimped Sennheiser 416.

Wireless microphones can be a better choice for indoor interviews (or outdoors on a calm day) depending on the person and what they are wearing. Reserve the **Sennheiser AVX** wireless microphone kit.

If you need more XLR inputs reserve the **Sony XLR-K3M** adapter and mount it to the hot shoe on the handle.

Shooting Modes: Introduction

Sony FX 6

Shooting Modes: Intro

The shooting mode determines the dynamic range of your video and the controls you will use for exposure. There are four shooting modes: **Custom, Flexible ISO, Cine EI Quick** and **Cine EI**.

This guide covers the shooting modes in three separate sections:

1. Custom (709)
2. Cine EI and Cine EI Quick
3. Flexible ISO

Regardless of what shooting mode interests you, read the Custom shooting mode section to understand the basic exposure controls.

Shooting Modes: Intro

Choose a shooting mode depending on how much dynamic range you require and how much time you want to spend correcting the images.

Custom shooting mode is for shooting lower dynamic range images that do not require normalizing or a lot of work in post-production. The image has contrast and the colours are saturated.

Flexible ISO and **Cine EI** are for shooting high dynamic range images with Sony's Slog 3 that require normalizing. It is easier to control the look of the image in post-production. Slog 3 images look low contrast and desaturated until normalized.

In **Custom** mode you expose the image like any video camera. Using **Flexible ISO** and **Cine EI** modes requires a few more steps.

Shooting Modes: Intro Custom

Custom mode has two variations for different video standards: **Custom (709)** for shooting with the Rec.709 colour gamut and **Custom (HLG)** for shooting exclusively for HDR displays .

Rec.709 is the most widely used colour gamut for HD and 4K video. Because the CDA has no HDR display equipment, I will confine this guide to the **Custom (709)** variation.

In **Custom** mode, you have a choice of preset **scenes**. These are different gamma curves and looks that affect the exposure and colour saturation. In this guide I recommend the **S-Cinetone** scene**.**

Shooting Modes: Intro Cine EI

Cine EI mode is common to all Sony cinema cameras.

Cine EI and Cine EI Quick modes are for shooting **Slog 3**. Shooting in Slog 3 provides an increase in the luminance range of the exposure (15 stops of dynamic range). It has more dynamic range than shooting in Custom shooting mode. This means that you can simultaneously preserve more detail in shadows and highlights.

When working in Cine EI modes you can apply a **LUT** to the viewfinder and on the SDI/HDMI outputs. This makes exposing Slog 3 easier. The same LUT can also be used to normalize and correct the image in postproduction.

Shooting Modes: Intro Flexible ISO

Flexible ISO shooting mode was introduced with firmware update version 5. It is also used for shooting Slog 3 images.

Like Cine EI, you can shoot Slog 3 images while using a LUT to judge exposure but unlike Cine EI mode, with Flexible ISO you have the ability to change ISO or GAIN. This is useful if you want to shoot with Slog 3 in a lower light situation.

Some other options are available in Flexible ISO that are not present in Cine EI mode like: Auto Exposure and Auto White Balance. Flexible ISO is a more familiar way to shoot Slog 3 images, but with the potential of creating noisier images.

Custom Shooting Mode Settings

Sony FX 6

Custom Shooting Mode: Display

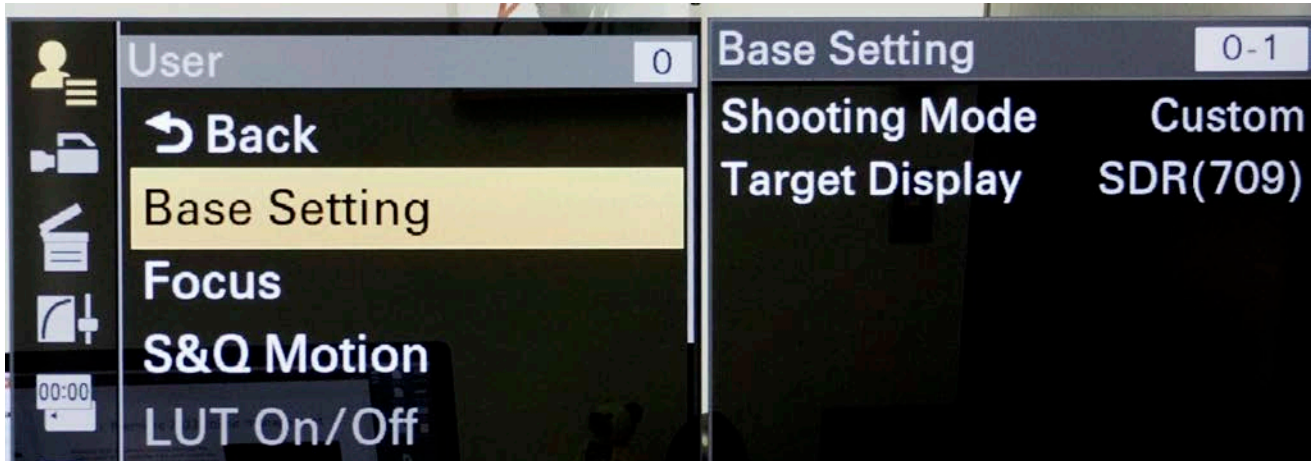
Custom Shooting Mode: Base Settings

In **Menu/User/Base Setting** pick **SDR (BT.709)** for the **Target Display**.

This guide only covers shooting in the Rec.709 colour space, called **SDR(BT.709)** in this camera. The majority of display devices in the world are Rec.709 devices.

HDR(HLG) target display is chosen when you are shooting for extra bright HDR TVs. There will be a separate guide on shooting HDR and dealing with HDR in postproduction once CDA has the equipment.

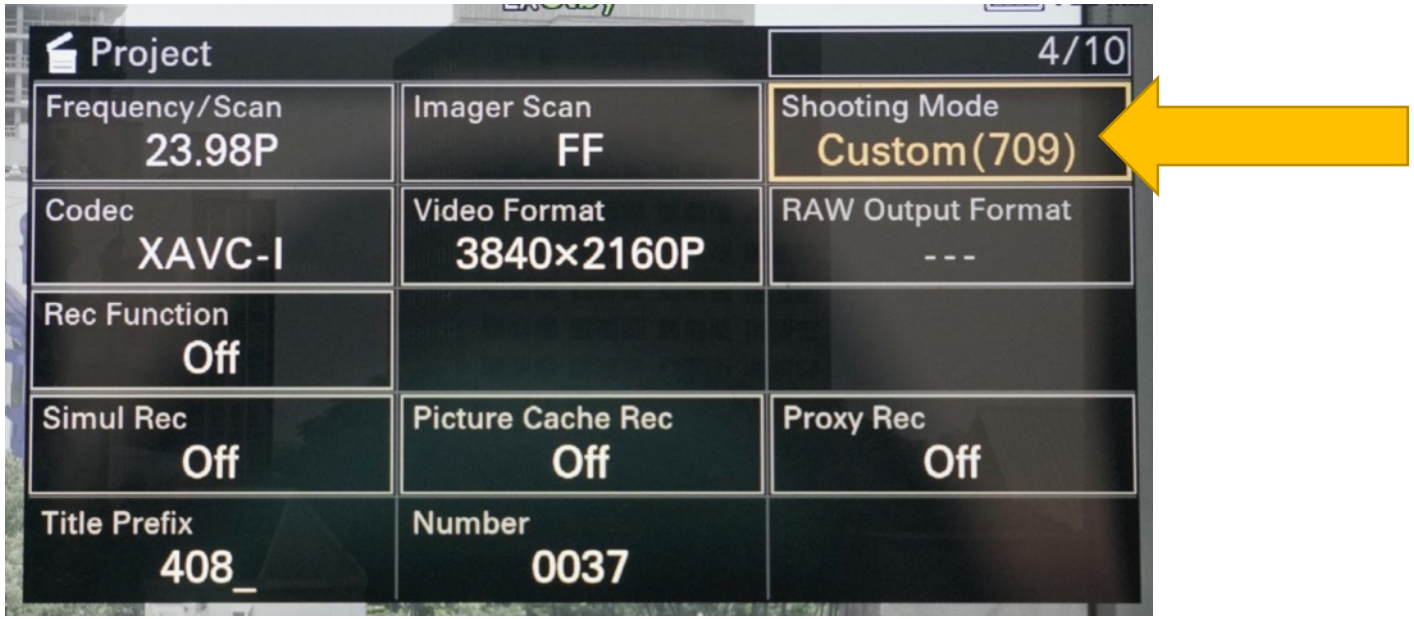
Then in this menu, or in the status pages, pick the **Custom** Shooting Mode.



Custom Shooting Mode: Project Settings

Once the Menu/User/Base Setting/Target Display is set to **SDR(BT.709)** setting, Custom mode will appear as **Custom (709)** in the status pages.

On status page 4, you can also change the Shooting Mode. This is the project page. Look at the other selections on this page: 4K UHD at 23.98p using the full sensor of the camera and the best internal codec (XAVC I). See next page for details.



Custom Shooting Mode: Project Menu

Status page 4/ Project Settings:

Shooting Mode: **CUSTOM (709)** Change this first!

Imager Scan: **FF**

This means full frame: using the full sensor. Always shoot full frame unless you are shooting HD with Super 35 or APS C lenses.

Codec: **XAVC I**

99 percent of the time, choose XAVC I as the codec.

Only choose XAVC-L if you need more recording time.

Only choose RAW if you have an external recorder attached to the camera's HDMI or SDI output. The camera **does not record RAW to the internal CF cards**. Choosing the "RAW and XAVC-I" codec option will record XAVC files to the internal CF cards while simultaneously sending a RAW signal out to an external recorder.

Custom Shooting Mode: Project Menu

Video Format: this is the image resolution. Set it according to your project.

Frequency/Scan: this is the frame rate

See next page for details on image resolutions and frame rates.

Image Resolutions: three options

1. **4K UHD 3840 x 1080** is the 4K broadcast/web standard. The aspect ratio is 16:9, the same as HD video.

2. **4K DCI 4096 x 2160** is only for cinema. The aspect ratio is 17:9. Web versions will have to be cropped or pillar-boxed.

3. **HD 1920 x 1080** is the HD broadcast/web standard.

Keep in mind that all displays (screens, projectors) in the EV depot are HD.

You can shoot in 4K UHD and output a HD version without cropping because the aspect ratios are the same: 16:9. The 4K DCI aspect ratio is wider.

Frame Rates: Frequency/Scan

The camera calls standard frame rates **frequency/scan.**

For **4K UHD or HD** pick one of the two **NTSC** frame rates: 23.98p and 29.97p.

With large sensor CMOS cameras like the FX6, motion looks better when shooting at 29.97p.

29.97p also looks better on (NTSC) TVs, computer screens and data projectors.

23.98p is useful in lower light as it increases exposure time.

For **4K DCI** pick: 24p

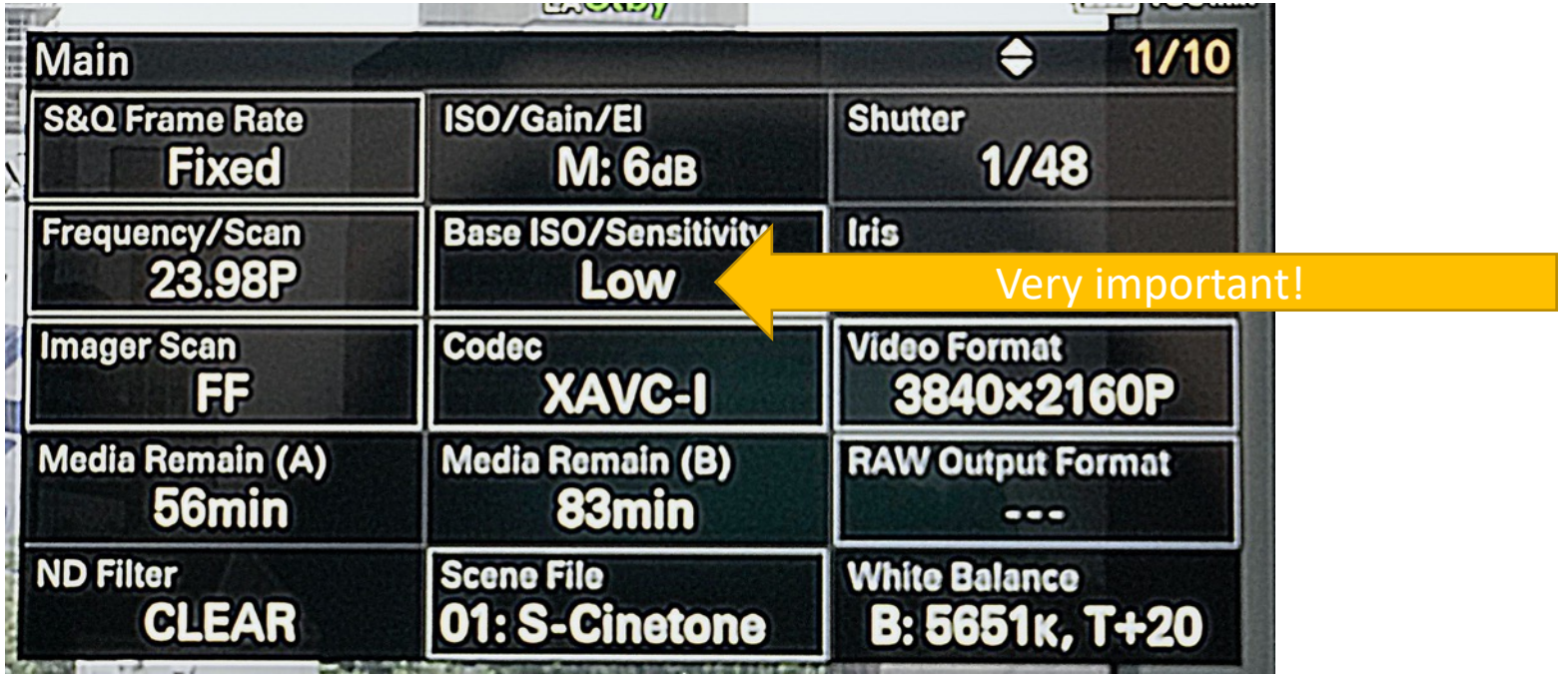
When in **PAL** nations pick: 25p

I consider 59.94p a high NTSC frame rate. I only shoot this as a special effect. You can pick it as a S & Q rate as well. The same thing applies for 50p for our PAL friends. Some people like to use these frame rates for sports/action. They are broadcast standards so they are included with the standard rates.

S & Q frame rates are covered in another section of this guide. These are frame rates higher or lower than the standards. S &Q frame rates **4K**: 1 to 120 fps, **HD**: 1 to 240 fps

Custom Shooting Mode: Main settings

In this image, you can see that there is some duplication of settings from status page 4, the frame rate (frequency/scan), Imager Scan and Codec. But on this page you can set the Scene File, Base ISO/Sensitivity and the Shutter. See next page.



Custom Shooting Mode: Main Settings

Scene File/ S-Cinetone. This is the best choice! More about this later.

Shutter: always set to twice the frame rate: 1/48 for 23.98p and 1/60 for 29.97p.

The **ECS** shutter speeds are for eliminating rolling lines when shooting monitors, screens and projections.

Base ISO/ Sensitivity: there are two choices, Low or High

When shooting in **Custom** mode: the **Low** Base setting is: 320 ISO and the **High** Base setting is 5000 ISO. The higher ISO number is more sensitive to light. See next page for detail.

Custom Shooting Mode: Two Base ISO settings

Most video cameras have one optimal ISO setting that corresponds to the sensitivity of the camera's CMOS imaging sensor. At this setting, the camera is able to get the most dynamic (luminance) range possible out of the sensor.

The FX 6 camera is a dual sensitivity camera so it performs very well at two distinct Low and High ISO settings. There is a slight increase in image noise at the High setting.

When shooting in **Custom** mode, the Base Low sensitivity is the lowest ISO possible on the camera. You can only add ND to cut sensitivity. Pick this ISO setting when shooting outdoors or in bright settings.

Ideally, try to shoot with either the Low or High setting without GAIN or ISO adjustments. **Adjusting ISO or GAIN is the same thing.** See the section on Custom mode: Exposure ISO and GAIN.

Custom Shooting Mode: Selecting a Scene File

When in **Custom(709)** Shooting Mode, there are four preset **Scenes** (looks) to choose from: **Still, Standard, ITU 709 and S-Cinetone**.

S-Cinetone is a gamma curve and color matrix based on the look of Sony's Venice cinema camera. The look is similar to shooting Slog 3 with the s709 LUT applied.

S-Cinetone is the best preset because it has the most highlight information. Exposed optimally, it will provide 11 stops of dynamic range. This means that one image can have details in the shadows and the highlights of the image.

In terms of dynamic range, S-Cinetone sits between the standard Rec.709 Scenes (6 stops) and shooting Slog 3 (15 stops) in Cine EI mode.

The Sony FX line of cameras, the A7sIII and Alpha 1 have the **S-Cinetone** scene.

Custom Shooting Mode: the other Scenes

Still is high contrast Scene with saturated colours. Avoid it! Superficially it can look great but it gives you no room to adjust in post if the exposure is incorrect. Oversaturated colours will also look noisy in the shadow areas.

Standard is a lower contrast, less saturated look than S-Cinetone but with aggressive highlight compression. Extreme highlights can start to have a colour shift.

ITU 709 has more contrast and colour saturation than **Standard** but nowhere close to the extreme look of **Still**. The image looks similar to S-Cinetone in the shadows and mids but both **Standard and ITU 709** lack the highlight details of S-Cinetone. They have around 6 stops of dynamic range.

Standard and **ITU 709** work well in a situation without extreme highlights, a controlled lighting situation.

If none of these scenes match the “look” you want, move on to Cine EI or Flexible ISO Shooting Modes and shoot in Slog 3 (see the section on Cine EI shooting mode).

Custom Shooting Modes: Scene Comparisons

The following pages show a comparison of the preset Scenes in the camera and how they respond to a high dynamic range lighting condition.

An exposure has been made for the interior foreground but slightly underexposed to avoid losing too much detail in the highlights outside the window.

Custom Shooting Mode: Scene Comparisons

Still Scene

Very high Contrast

Highlights Blown Out

Loss of detail in Shadows

Saturated Colours

Custom Shooting Mode: Scene Comparisons

ITU 709 Scene

Saturated Colours

High contrast but less contrast than Still Scene

Aggressive highlight compression

Custom Shooting Mode: Scene Comparisons

Standard
Scene

Less contrast

Less colour saturation

Better highlight detail but a colour shift in the highlights

Custom Shooting Mode: Scene Comparisons

S Cinetone
Scene

Lowest Contrast

Best Highlight detail

Less Saturated Colours

Warmer

Cine EI 800 ISO (Base Low)

This is **NOT** one of the Scene choices in Custom Shooting Mode. But it is here for comparison.

This image is taken with Cine EI Shooting mode at the 800 ISO setting.

The exposure is similar to all the Custom mode exposures. This is just one of the numerous ways to colour correct this Slog 3 image.

Custom Shooting Mode: Exposure

Sony FX 6

Custom Shooting Mode: Display

Exposure Settings

On any video camera the basic exposure controls are: aperture (or iris), shutter speed, ISO/gain, ND filters and white balance.

All of these controls are covered in this section on Custom shooting mode.

There may be some variation to these exposure settings in the other shooting modes but look at this Custom shooting mode section first to familiarize yourself with the basic exposure controls.

In this section, I refer to exposure recommendations made by Alister Chapman. See the reference section for more information on Alister.

Exposure: Base ISO/Sensitivity

As explained in the section on Custom mode settings, the FX 6 camera is a dual sensitivity camera so it performs optimally at two distinct Low and High ISO settings. These settings change with the Shooting Mode. The ISO settings for Custom Shooting mode are in bold, below:

Base Low:

Custom (709): 320 ISO

Cine EI and Flexible ISO: 800 ISO

Base High:

Custom (709): 5000 ISO

Cine EI and Flexible ISO: 12800 ISO

Exposure: Base ISO/Sensitivity

When shooting in **Custom** mode, Base Low is the lowest ISO possible on the camera. You can only add ND to cut sensitivity. Start with this ISO setting when shooting outdoors or in bright settings.

Ideally, try to shoot with either the Base Low or High setting without GAIN or ISO adjustments. This will reduce image noise.

The FX6 allows you to switch between displaying/adjusting ISO or GAIN on the L,M and H preset switches on the side of the camera.

Adjusting ISO or GAIN does the same thing. It's much easier to use GAIN than ISO. See next page.

Exposure: ISO and GAIN

GAIN is the traditional control on video cameras since video has always used an electronic sensor. GAIN amplifies the signal of the sensor to make the image brighter and this increases image noise. **It's easy to use GAIN because you know that 0 dB will not affect your image.** 3 dB or 6 dB of GAIN will be acceptable.

ISO is traditionally a rating of the sensitivity of a film stock. **ISO** is used in digital photo/videography to preserve a continuity between film stock and electronic sensors. It is convenient to use ISO if you are using a handheld light meter with ISO measurements.

On a video camera, ISO and GAIN adjustments do the same thing: amplify the signal from the sensor. Most video camera sensors have one sensor rating, one sensitivity. The FX 6 has two: Base low and high. Any ISO setting below or above those two base sensitivities is an adjusted signal.

Always make sure you have no ND filter applied before increasing GAIN or ISO.

Exposure: Gain Preset Settings

Menu/Shooting/ISO/Gain/EI:

This sets whether the **L,M,H** switch on the side of the camera uses GAIN or ISO presets settings.

Change the **Mode** to **dB** for **GAIN.**

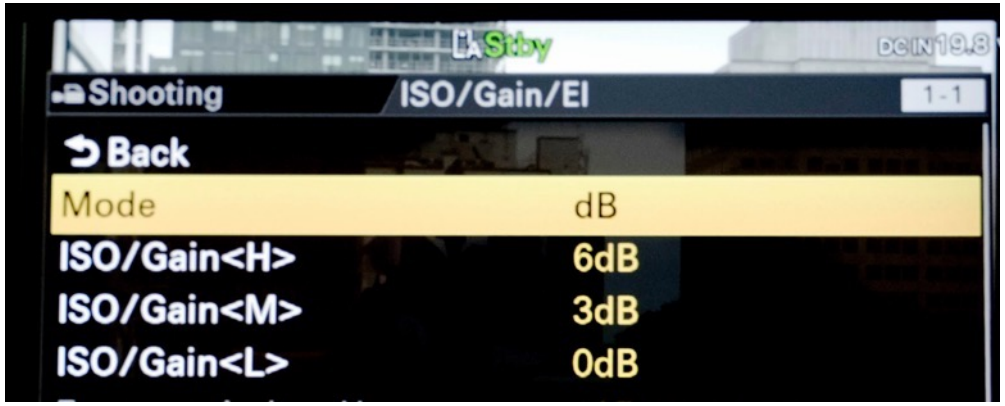
The image on the left shows how I like to set the GAIN presets for the three options.

L must always be **0 dB**.

H ideally not above **6dB** of GAIN.

Change to the Base High ISO Setting (5000 ISO) if 6 dB of GAIN is insufficient.

In the Base High setting try not to add any GAIN (or, once again, no more than 6 dB).



Exposure: GAIN settings

3 dB of GAIN has been applied to this shot. The base ISO is low (320 ISO) and the lens is wide open at f 4.5. The best option would be to increase the amount of light on the subject but if this cannot be done, then a small amount or GAIN can be applied. The window has been deliberately overexposed.

Base Low ISO

ND is clear!

3 dB of Gain (M preset setting)

Exposure: ISO Preset settings (really important)

Using ISO is more complicated. Look at these examples for Custom Shooting mode:

When using ISO at the Base Low setting (320 ISO), try not to amplify the signal to more than 640 ISO. 800 ISO can look OK too.

When using the Base High setting (5000 ISO): try not amplify at all or beyond 10000 ISO.

There is a point where amplifying the Base Low signal (320 ISO) makes the image look noisier than switching to the Base High setting (5000 ISO) even if you need to add a ND filter to that Base High exposure.

Changing the ISO to 5000 when in the Base Low setting is **NOT** the same thing as switching to the Base High (5000 ISO) setting. Increasing ISO on the Base Low to 2500 ISO creates **much more image noise** than switching to the Base High setting even though the Base High setting is 5000 ISO. The Base High setting looks incredibly good!

Exposure: Changing GAIN and ISO in smaller increments

The L,M,H switch provides an easy way to change your GAIN or ISO in presets but you can also change in smaller increments using the direct menu.

The ISO/GAIN button on the side of the camera will allow you to adjust in smaller increments in the direct menu.

The GAIN or ISO rating will highlight in the display.

This actually changes the preset setting for whatever preset you are on at the time of the change: L, M or H.

Exposure: Judging Image Noise

To recap, adding GAIN or ISO beyond one of the two base settings can create image noise.

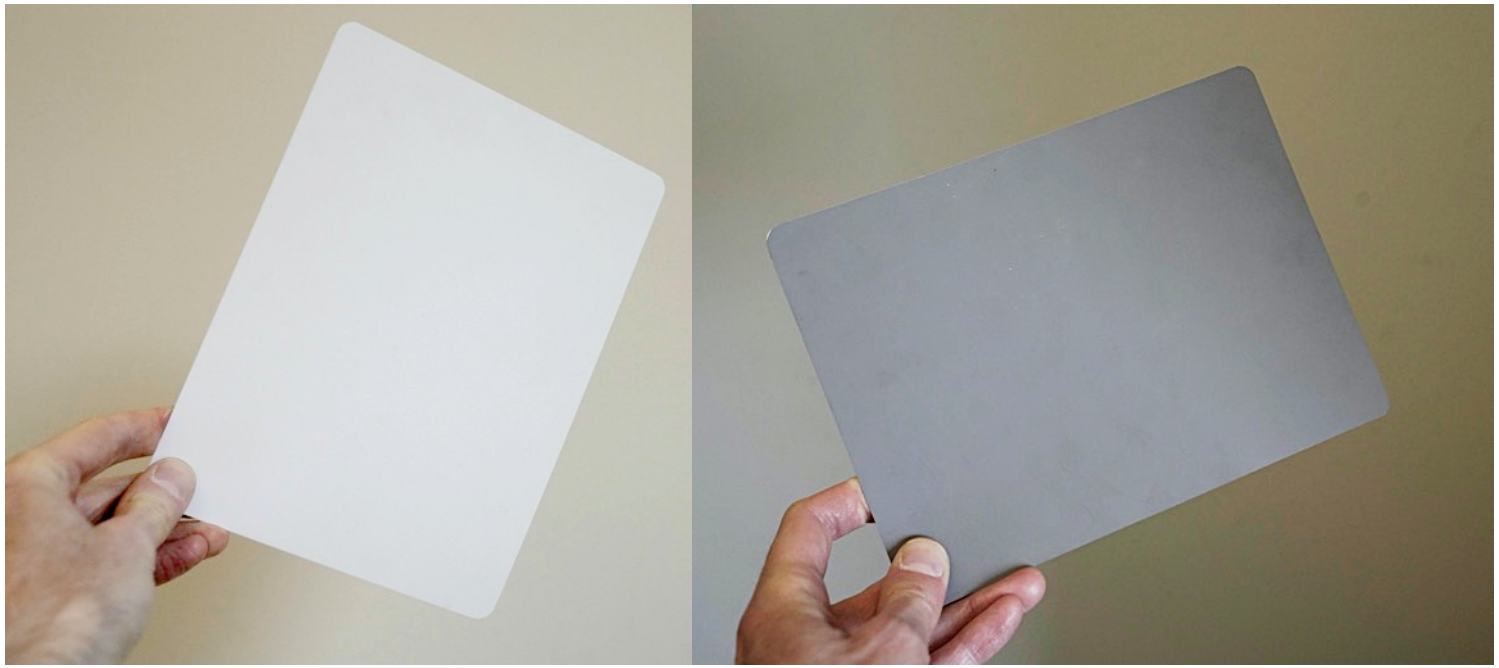
Image noise appears first in the shadow areas of an image.

It can be hard to judge noise in the viewfinder. You can use the focus magnifier button (button 4 on the handle) or consider connecting an HDMI screen to the camera if you are working in a studio.

Reducing image noise is critical when shooting green screen backgrounds, for example.

Exposure: White/Gray card

A really useful/essential item, that you can purchase cheaply at a camera shop, is a white/gray card.
It is a 90 percent white card and 18 percent (middle gray) gray card.
The white side reflects 90 % of the light hitting it and the gray card only reflects 18 %.
Both sides can be used for setting exposure and the white side for white balance.
The gray side provides the camera with a neutral low contrast subject for an accurate exposure reading.



The 18 percent gray card appears in the middle (roughly at value 50) of the waveform monitor when exposed. This is because our sensitivity to light is logarithmic.
Different LUTs or Scenes require different exposures.

Exposure: Manual White Balance

Once your Shooting mode, Scene, Base sensitivity and Shutter speed are set, set the White balance.

To perform a manual white balance, switch the setting on the side of the camera to **A or B.**

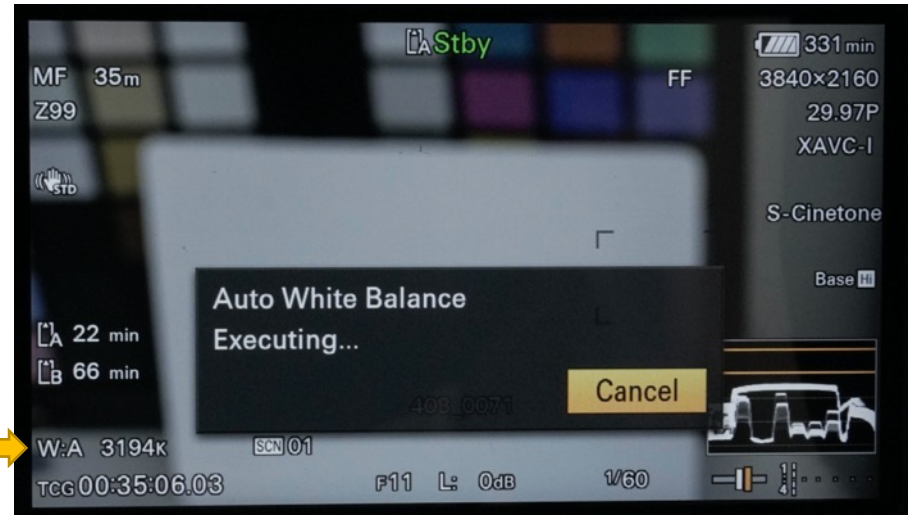
Set the iris exposure to auto (in the direct menu) or expose correctly and **hold a white card in front of the lens.** Try to fill the frame with the white card but allow light to fall on it.

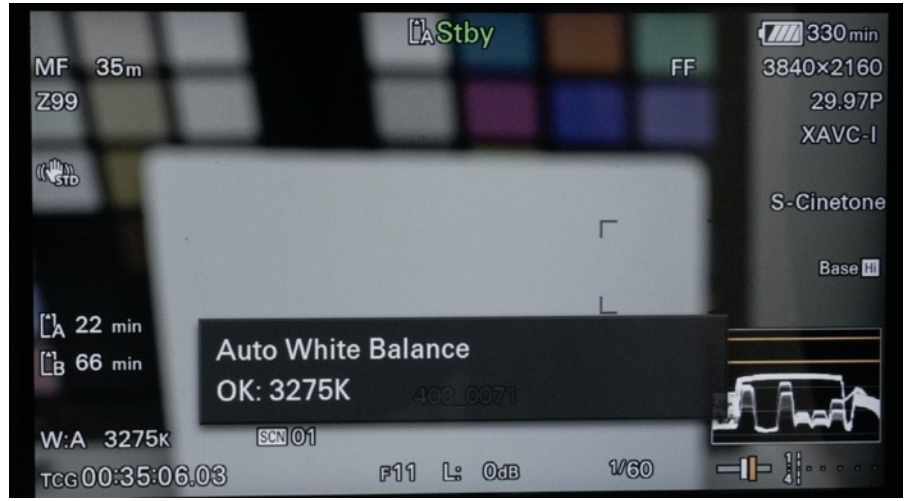
Press the **WB SET** button on the front of the camera. It will take a few moments for the white balance to be executed.

Exposure: White Balance

You must perform a white balance each time your lighting source changes.

The colour temperature remains stored in the **A or B** setting and is indicated in the display.





As an aside, note the information in this display: 4K UHD at 29.97p, Full Frame, XAVC I, Custom shooting mode with S-Cinetone scene, Base High sensitivity, 1/60th shutter speed and no GAIN applied. This is a good setup.

Exposure: Preset White Balance

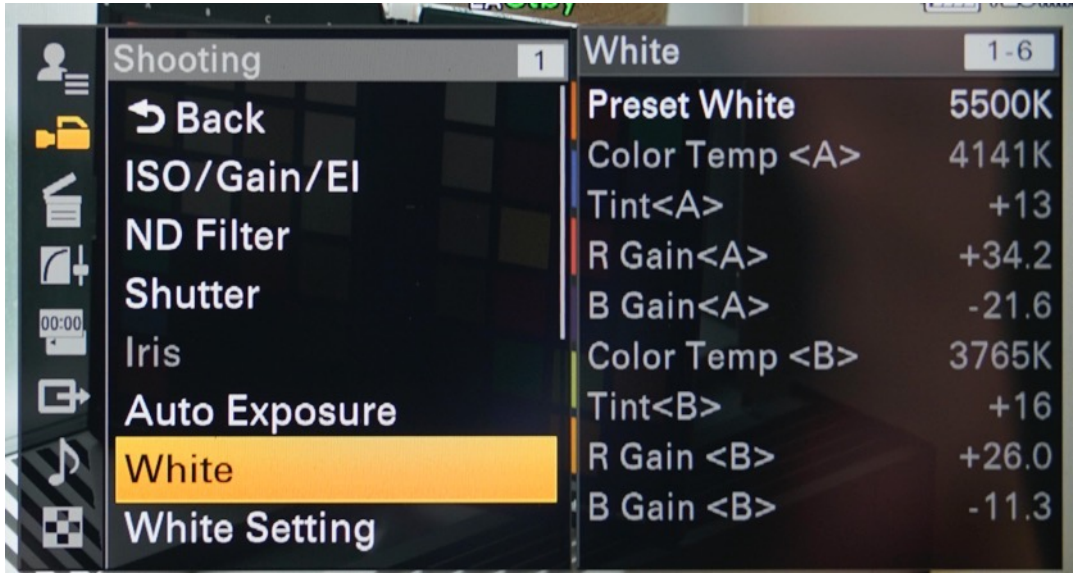
Turn the switch on the side to **Preset.** A preset will always be approximate.

Go into the **Full menu: Shooting/White/Preset White** and set the color temperature to your liking.

Common Color Temperature Settings:

LCD monitor: 6500K
Daylight (at mid-day): 5500 K
Florescent indoor: 4300K
Tungsten Indoor light: 3200K

Street lights (not LED) : 3200K
Incandescent indoor light: 2500K



Exposure: Shutter Speed

When shooting video, shutter speed is the setting we set once and then forget about. **The shutter speed should always be twice the frame rate.** The FX6 does not automatically set the shutter speed to be twice the frame rate, so, check this setting before you shoot.

Here are the shutter speeds for the standard NTSC, PAL and DCI frame rates:

Frame rate:	**Shutter Speed:**
29.97 fps (NTSC)	1/60
25 fps (PAL)	1/50
23.98 fps (NTSC)	1/48
24 fps (DCI)	1/48

Exposure: Shutter Speed

Do not automate the shutter unless you want a special effect! The shutter speed fundamentally controls the way motion appears. If the shutter speed is much lower than twice the frame rate, motion will appear blurry. If it is much higher than twice the frame rate, the motion can take on a staccato clockwork quality.

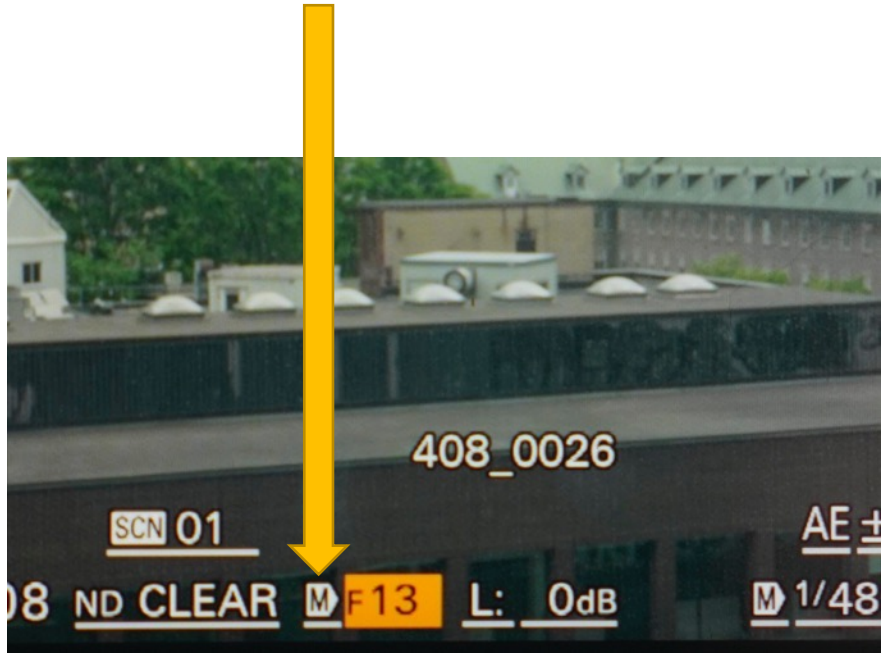
The doubling of the frame rate rule for shutter speed also applies when shooting at high frame rates. See the section on S&Q.

The **ECS** shutter speeds are for eliminating rolling lines when shooting monitors, screens and projections.

Exposure: Iris control

Manual control of the iris (aperture) can be quickly performed by pressing the iris button on the side of the camera and then using the wheel on the handgrip, handle or dial on the front of the camera.

Shifting slightly to the left with the multi-selector or dial will highlight the M next to the iris setting. Change this to A for auto exposure.

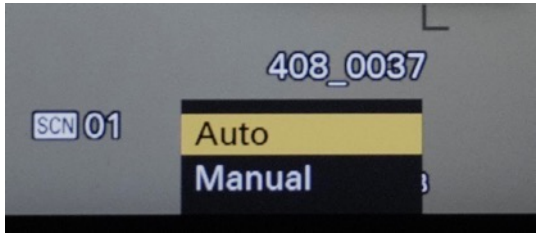


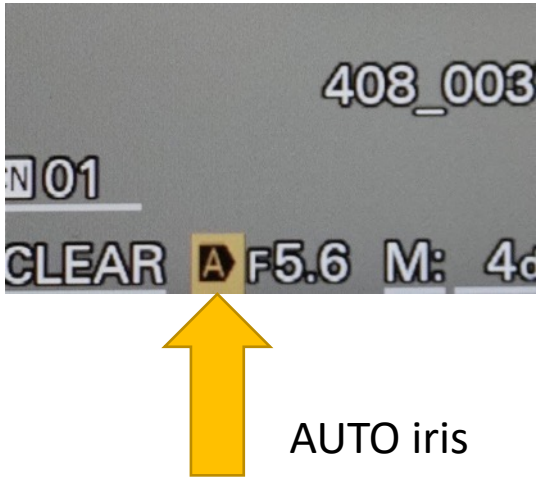
Exposure: AUTO Iris

There is no “one button” AUTO exposure mode with this camera but that is not a bad thing! If you have to automate one aspect of the exposure, automate the iris or the ND filter.

Put the IRIS on AUTO in the direct menu to automate it. Use Iris automation with caution, it won’t necessarily give you the results you want.

There are three different metering methods for auto exposure. **Menu/Shooting/Auto Exposure/Mode**: Backlight, Standard and Spotlight. See next page for details





AUTO iris

Exposure: Auto Iris

Menu/Shooting/Auto Exposure/Mode:

Backlight: this is obviously useful when you have a backlit subject. It exposes for the shadow areas.

Spotlight: this is useful when you are exposing for the highlight area or the subject is lit by a spotlight. It exposes for the highlight area.

Standard: exposes for somewhere in between highlights and shadows. This should be the default metering method.

Auto iris exposure can be convenient but also somewhat inaccurate.

Exposure: AUTO ND instead of AUTO Iris

A good option is to automate the ND filter instead of automating the iris.

ND filters are used to cut light to the sensor. They are mostly used when you cannot lower the exposure in any other way. Make sure that you never have any GAIN applied before using ND filters.

Using an ND filter does not affect image quality at all.

Using a ND filter can also allow you to select the manual iris setting you want for the desired depth of field, not an iris setting that is dictated by the exposure. This method works well because this camera is able to apply incremental amounts of ND.

There are three ways to use the ND filters: **preset, variable and auto.**

Exposure: ND Presets

The traditional way to work with ND filters is by selecting a preset. There is a section for ND on the side of the camera.

Turn **ND ON**

Press **ND AUTO** button until it goes off (if a light was on).

Switch to **ND PRESET**: this allows you to toggle between the three ND preset settings (made in the Full Menu/Shooting menu/ND Filter).

Pressing the **ND ON +** will cycle up through the three presets. Pressing the **CLEAR –** will cycle down through the three presets and also allow you to choose CLEAR (no ND filter).

When no ND is applied, a light will appear on the **CLEAR** button.

Exposure: ND Presets

The ND preset settings can also appear in the display and can be changed with the direct menu as well.

Changing presets in the middle of a shot will be noticeable. Don’t do it.

Presets are not the best way to work with ND. Read on.

Exposure: Variable ND filter adjustment

This is the best way to work with the ND filters.

Press the **ND ON** button

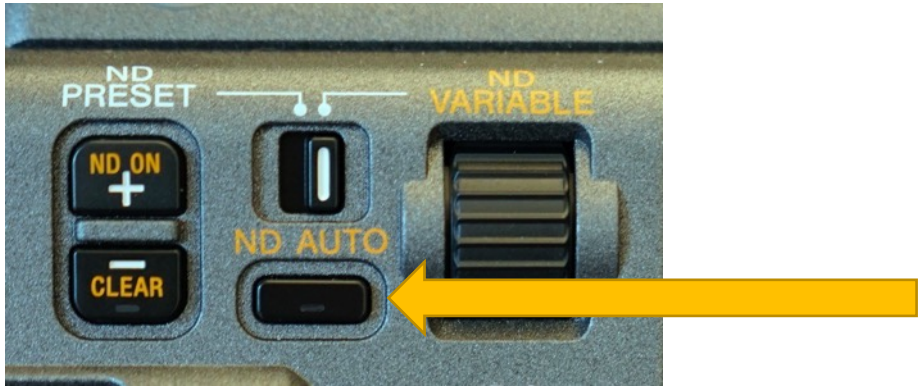
Turn the ND switch to **ND Variable** and then adjust the dial.

This way you can maintain the manual iris setting you want while applying incremental amounts of ND. You can also make ND adjustments while shooting.

The ND AUTO is even more helpful (next page).

This dial becomes your exposure control.

Exposure: ND Auto



The best way to maintain a consistent manual iris setting is to use ND Auto.

Keep the iris on Manual.

Press the **ND ON** button, switch it to **ND Variable** and then hold down the AUTO ND button until **AUTO ND** appears in the LCD display. A light goes on the button as well.

Now the camera will vary the strength of the ND filter automatically to maintain your chosen iris setting (providing of course that your iris setting is overexposing the image). In AUTO ND, **the lowest option is ¼.** It does not go to ”clear”. You always have some amount of ND filter applied.

The display will warn you if the light is low (meaning that you are underexposing by having the ¼ ND applied).

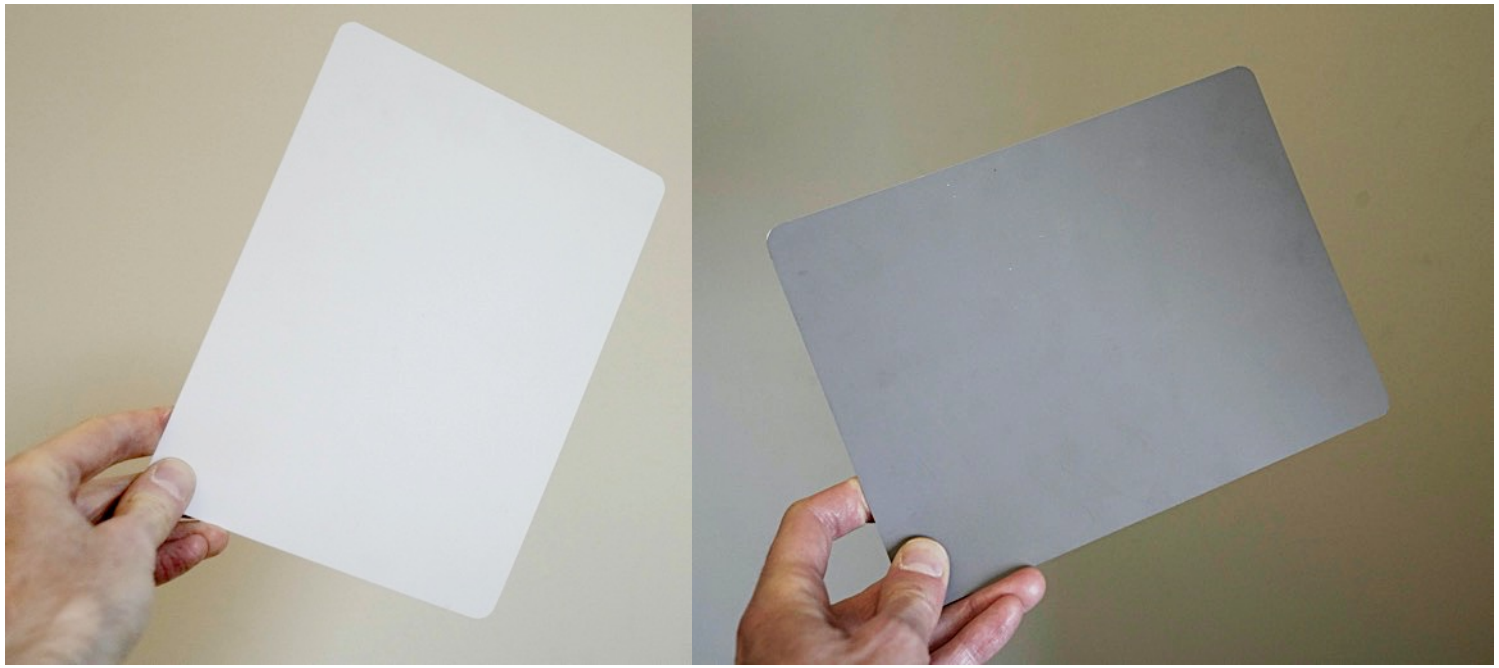
Exposure: Tools for helping with Exposure

There are three tools that are really helpful in determining the correct exposure: 1. the white/18 percent grey card, 2. the waveform monitor and 3. the zebra levels and stripes.

Most times we can judge the correct exposure by eye. But when you are shooting many separate shots that have to be edited together, consistency of exposure is important. Try to get the same exposure levels in a series of shots from one location that will be edited together.

Exposure: White/Gray card

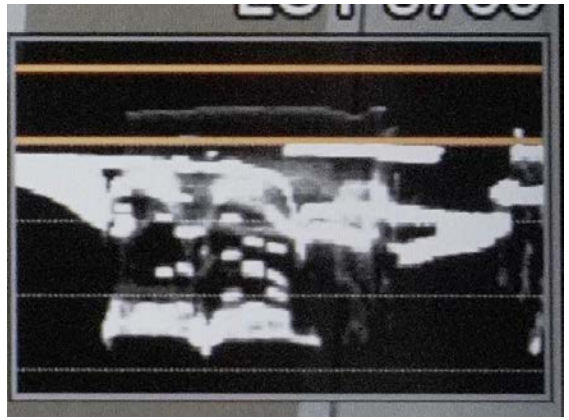
Once again, this is a photographic white/gray card, not one that you have make yourself.
It is a 90 percent white card and 18 percent (middle gray) gray card.
The white side reflects 90 % of the light hitting it and the gray card only reflects 18 %.
.



Exposure: the Waveform Monitor

The waveform monitor shows luminance values in the image. It can be read from left to right, exactly like the subjects in the image.

The white lines on the waveform monitor from bottom to top are: 0, 25, 50, 75, 100.



0 is black and 100 is white.

The monitor shows values above 100 to 109, these are overexposed areas of the image. Values below 0 are invisible.

Because the waveform monitor is so small in the VF, it helps to use Zebra levels to hit precise targets. In this image, the two yellow lines are Zebra levels.

Exposure: Zebra Levels and Stripes

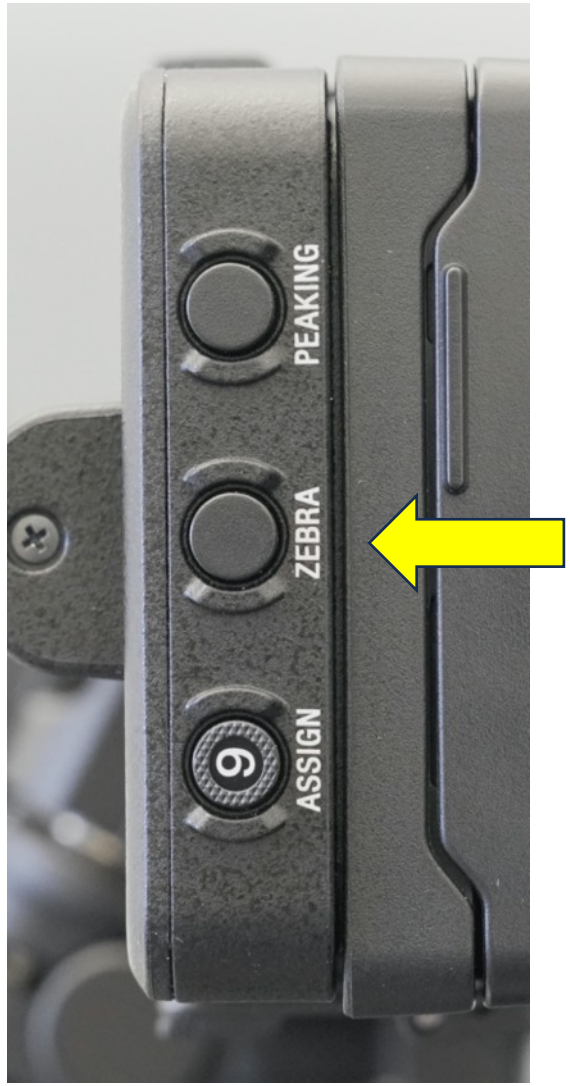
Zebra stripes and levels are used to judge overexposure.

They can be turned on with Zebra button on the side of the LCD. Striped lines appear over the image to indicate overexposure at 100 percent IRE or at another value.

Button 9 turns on the waveform monitor (or histogram or vectorscope as you keep pressing it) in the display.

The zebra level settings (there are two) will appear in the waveform monitor as yellow lines.

If you turn on the stripes in the Zebra menu (next page), they will appear over the image. I usually avoid this.



Exposure: Zebra Stripes

Menu/Monitoring/Zebra:

There are two Zebra levels. Zebra 2 level should always be at 100 percent to judge overexposure.

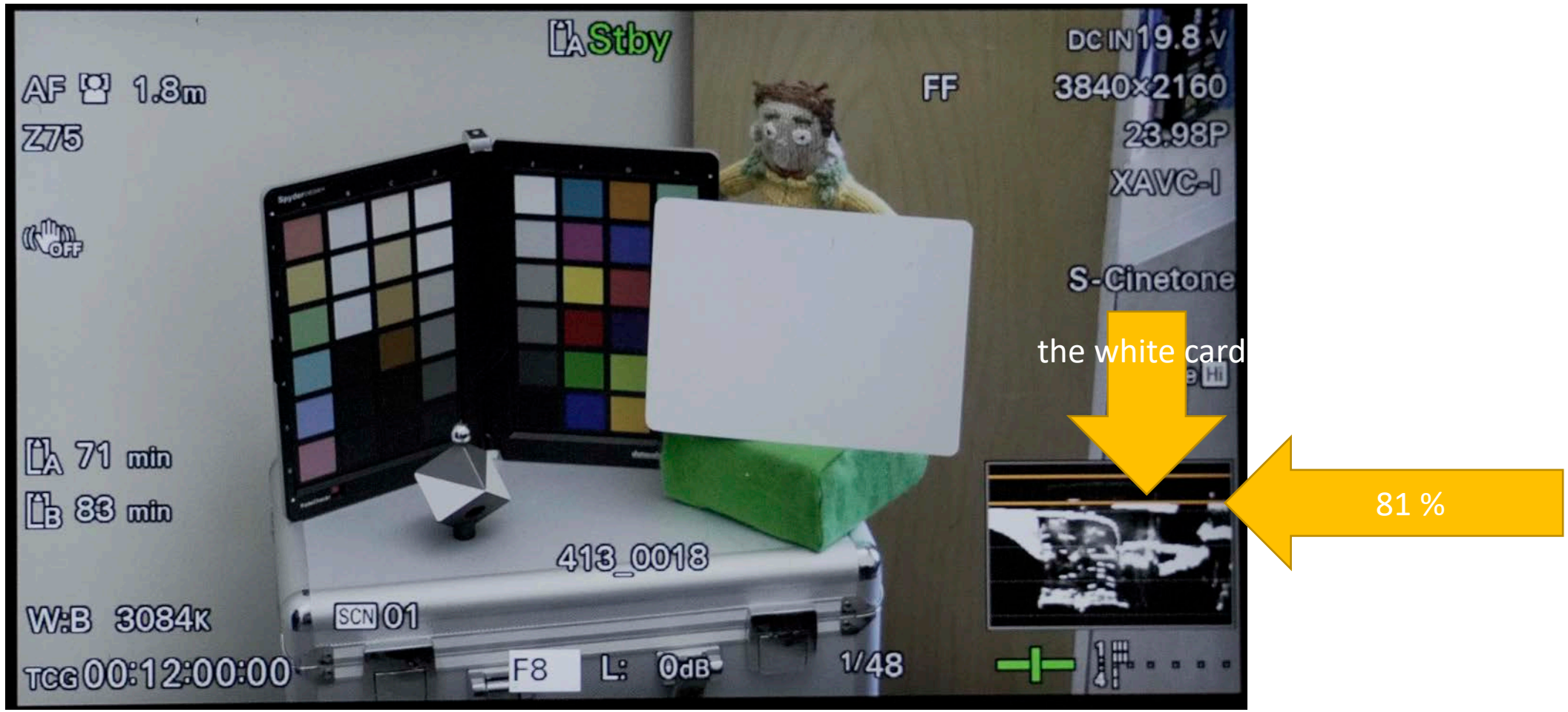
But Zebra level 1 can be set to another amount to judge exposure.

For example, here I have set level 1 to 81 percent for exposing a white card in Custom shooting mode using the S-Cinetone scene.

The Setting “Off” refers to Zebra stripes appearing over the image.

Exposure: Zebra Level

In this image, the white card is being exposed at 81 percent.



Exposure: S-Cinetone Exposure

With the **S-Cinetone** gamma curve, contrast changes occur with exposure: contrast increases in the shadows and decreases in the highlights (starting at 70 IRE).

Underexposing will create an more contrasty image, and overexposing will create a less contrasty, more subdued, image.

Use Zebra level settings, as I just illustrated, to help determine exposure.

The next page offers some suggestions for exposure.

Exposure: S-Cinetone Exposure

For a slightly underexposed image, Alister Chapman suggests exposing a white card at 81 percent. An 18 percent gray card will be exposed just below 50 percent, around 45 percent.

The white card can be exposed as high as 88 percent and as low as 78 percent on the waveform monitor.

Skin tones can be exposed as low as 60 percent and as high as 70 percent.

It is much easier to use a white/gray card to judge exposure manually than skin tones.

Expsosure: S-Cinetone Exposure

This image was exposed in a mixed lighting situation in Custom Shooting Mode with the S-Cinetone scene. Middle range skin tones were exposed at 65 percent on the waveform monitor.

To avoid overexposing or blowing out highlights, especially on skin tones, borrow the equipment to diffuse the light. Look at the “Light Disks, Scrims and Flags” section in the Patron Portal.

Focusing

Sony FX 6

Focusing: Manual, Hybrid and Total Auto

With the Sony kit lens (or other Sony lenses) working in conjunction in the camera, there are three possible focus “modes”: manual, hybrid, and total auto.

Leaving aside the “total” manual option, because it is largely redundant, this section will concentrate on the Hybrid and Total Auto Focus modes.

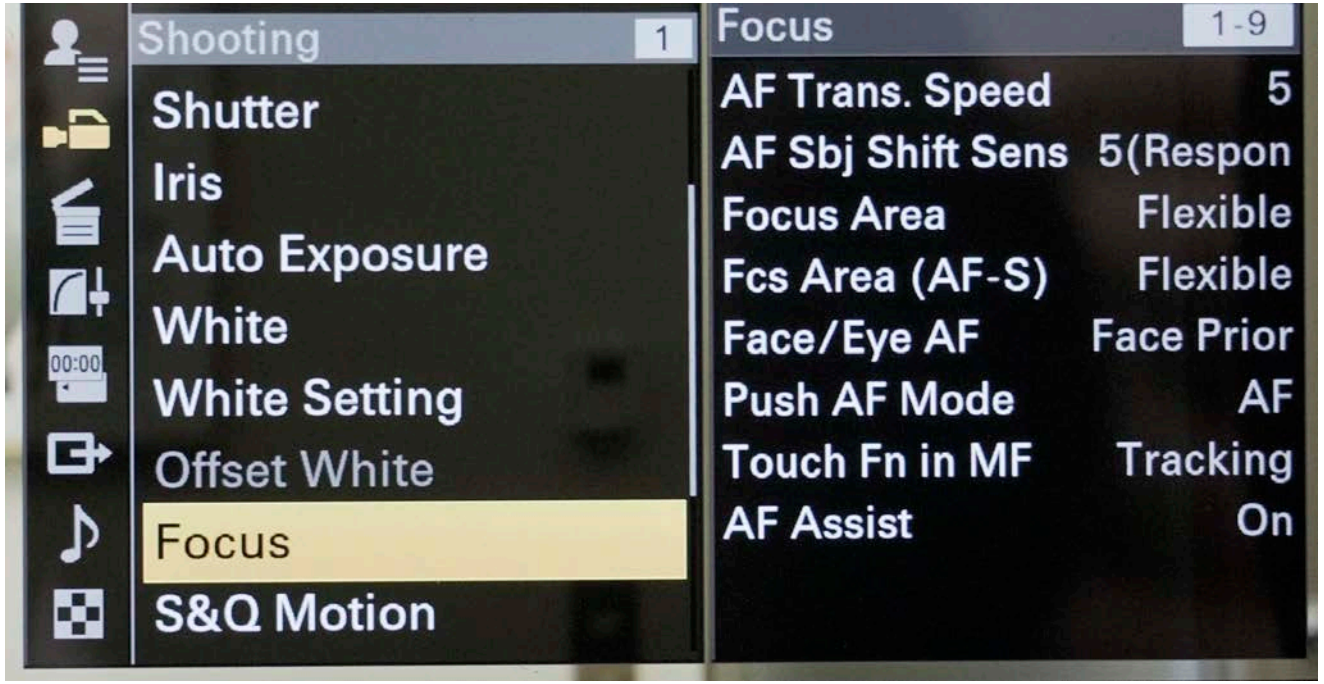
Hybrid mode focusing allows you to easily switch between manual and auto focus. There is no other camera where this switch is so intuitive!

In **Total Auto Focus**, manual focus is technically possible, but not practical. The focus tracking option is quite different in this mode.

Both modes have their uses, but the Hybrid mode is the most flexible.

Focusing: Menu Settings

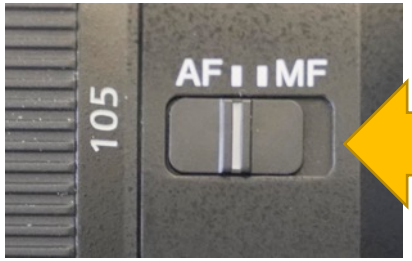
Here are the menu settings in **Menu/Shooting/Focus** for the options discussed in this section. There are many more options but I am concentrating on one method. I will look at some of these settings in detail but take the time to enter these settings if you want to follow this method.



Focusing: Hybrid Focus

In **Hybrid** mode, leave the lens on AF and change the focus switch on the front of the camera to MAN.

You can focus manually with the focus ring on the lens and also use the PUSH AUTO button when you want to auto focus.



Lens on AF

Focus switch on MAN

Push for Auto focus.

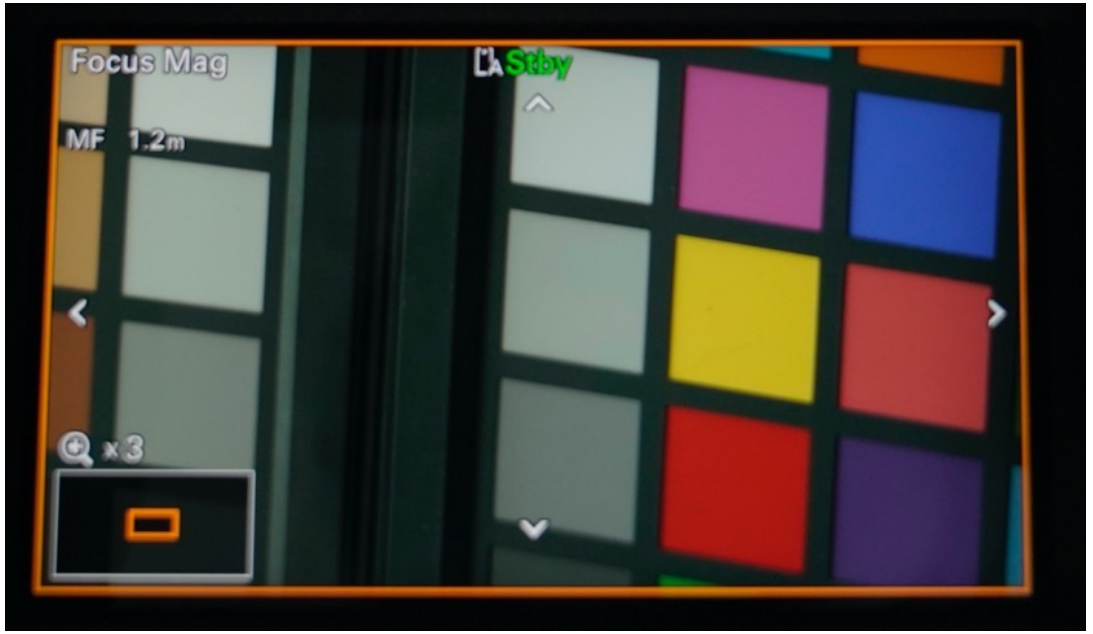
Focusing: Manual Focus

In **Hybrid** mode, simply turn the focus ring on the lens to begin focusing manually.

There are two aids to help.

Button 7 on top handle enables the focus magnifier in the VF. Push twice to increase magnification.

The Focus Peaking button is on the side of viewfinder (VF), if you prefer that aid.



Focusing: Total Auto Focus mode

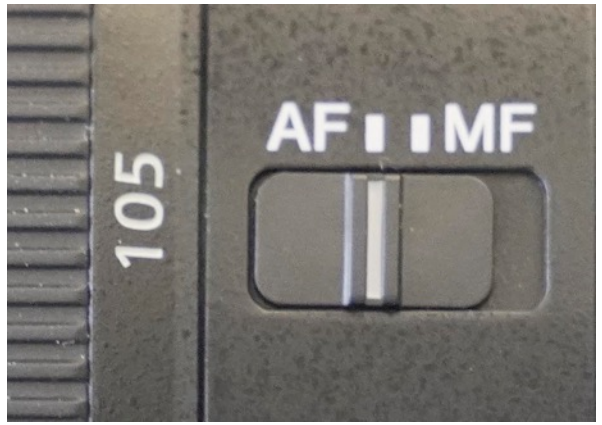
If you have the lens on **AF** and the Focus switch on the camera on **AUTO**, then you are in **TOTAL AUTO FOCUS**.

In this mode, it is not practical to manually focus. You can push the PUSH AUTO button on the front of the camera to temporarily enable manual focus but as soon as you stop pushing it, the camera goes back to auto focus. It is not practical to keep holding down this button to manually focus.

So, this mode is for auto focus only.

AUTO on camera.

AF on lens.



Focusing: Two Types of Auto Focus

With the menu/shooting/focus settings, that I showed on page 84, **there are two types of auto focus**: flexible spot auto focus and auto focus tracking.

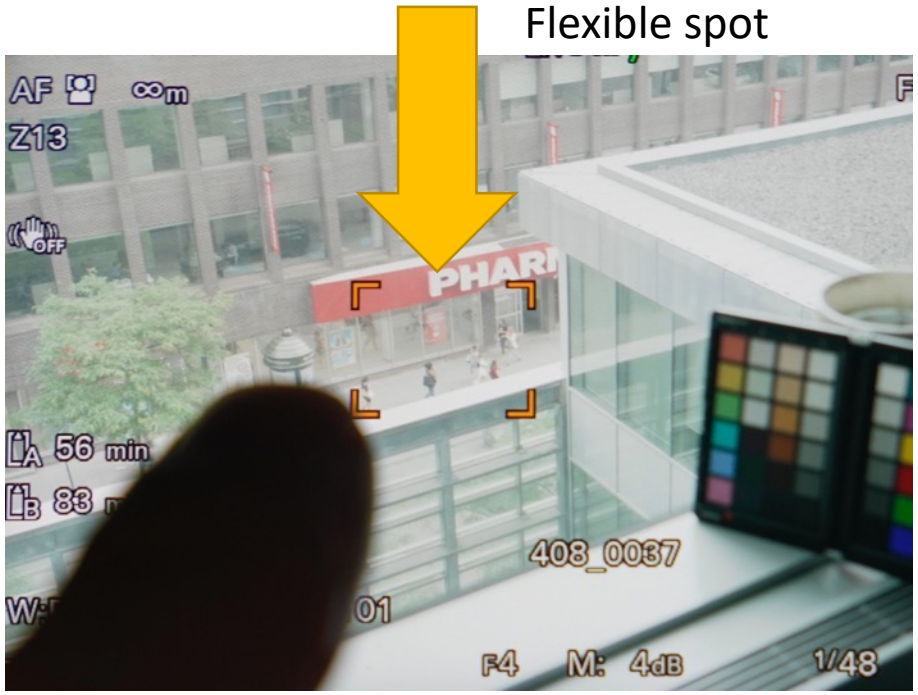
Button 3 on the side of the camera toggles between the two auto focus types, flexible spot and focus tracking, whether you are in Hybrid or Total Auto Focus mode.

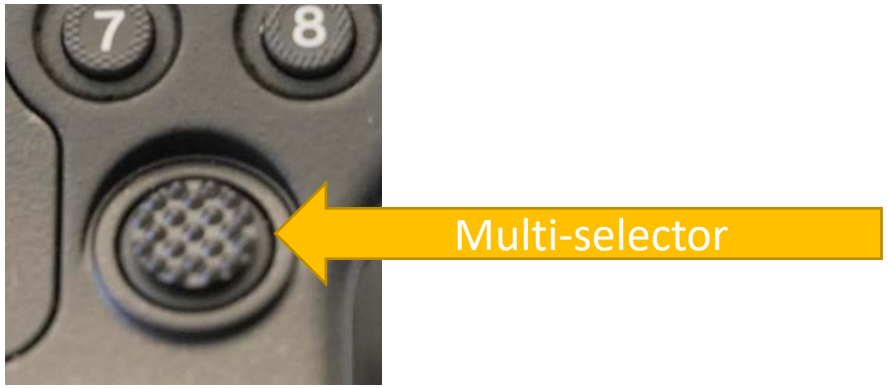
Focusing: Flexible Spot Auto Focus

Pressing button 3 will highlight the focus area. It will appear as an **orange square**.

This **flexible spot** can be moved with your finger on the LCD screen or simply tap the screen to move it to a different part of the image.

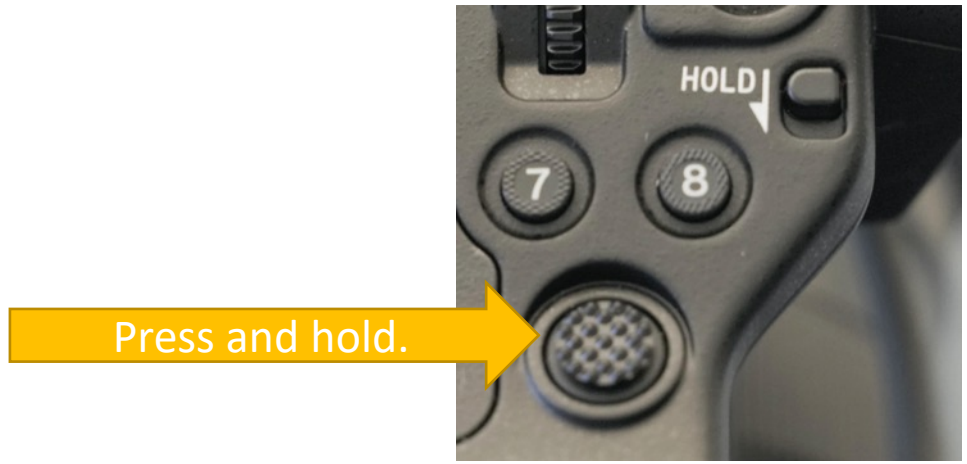
You can also adjust this **flexible spot** with the multi-selector on the top handle or hand grip.





Focusing: Default Flexible Spot Area

Menu/Shooting/Focus/Focus Area (AF-S) sets the default target area for the flexible spot in auto focus and PUSH AUTO. But if you move the flexible spot with your finger it stays at the last spot. It does not return to this default location unless you press and hold one of the multi-selectors on the camera (handle or the grip). I like to set the default location at the centre of the image.



Focusing: Other focus area options

The **Menu/Shooting/ Focus/Focus Area** specifies the target for the auto focus operation (and PUSH AUTO focus in Hybrid mode).

By default it is set to **Wide**. This is the least precise option.

You can also specify a **Zone**, that is somewhat more precise. Specifying a zone might be a good idea when filming a stage, for example, where all the subjects are on the same plane.

But, I am recommending using a **Flexible Spot** because usually there is a single subject that is the centre of your focus.

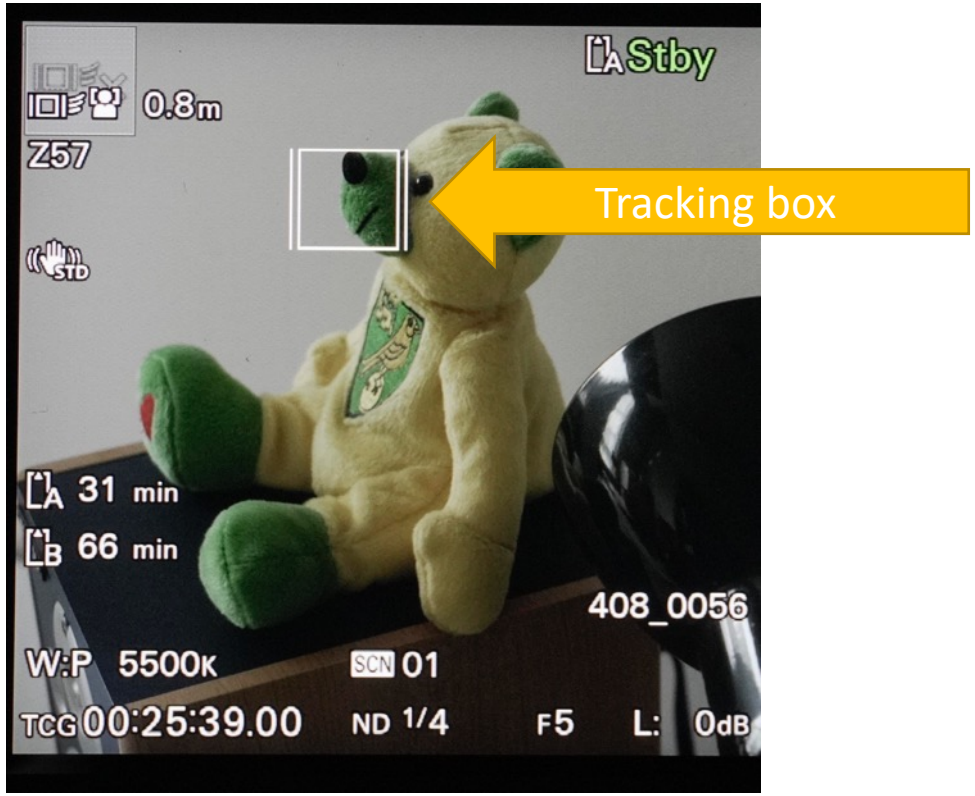
Focusing: Auto Focus Tracking

The second type of auto focus is auto focus tracking.

To **auto focus track objects,** you first have to exit the flexible spot auto focus by pressing button 3. When the flexible spot square is not orange, then you have exited that type of auto focus.

Now, simply press on an object on the touch screen. A **white box** will appear on it. The box should remain with the object as it (or the camera) moves. This is the tracking box.

You can select another object on the touch screen to begin tracking that new object.

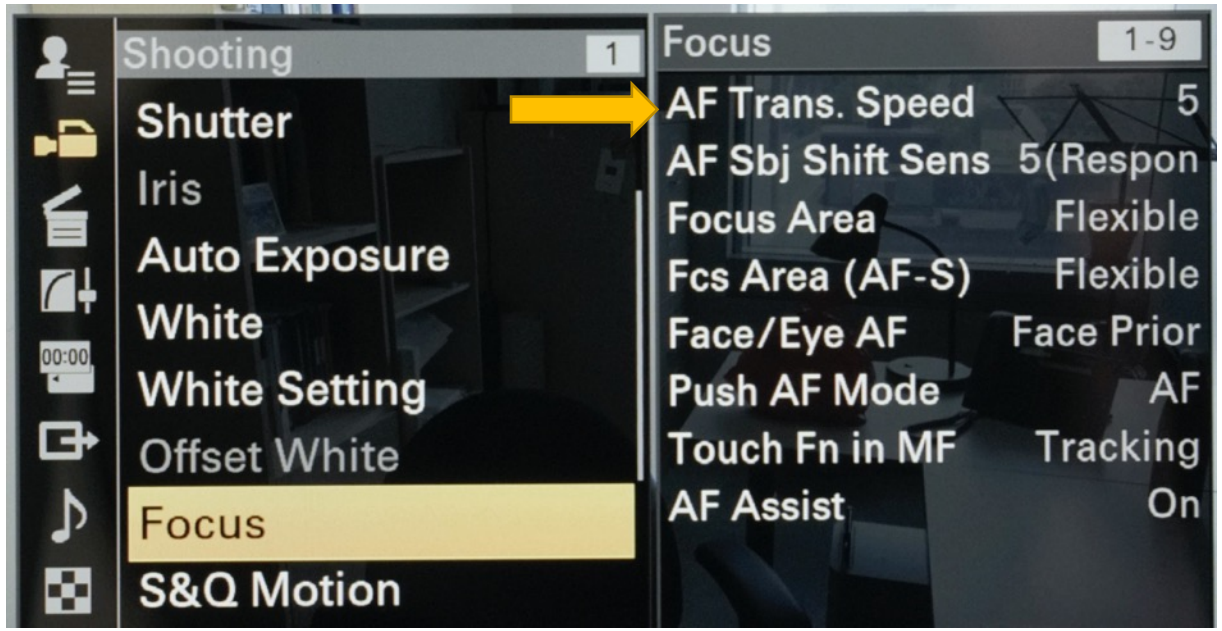


Focusing: Auto Focus Tracking AF Trans. Speed

The **Menu/Shooting/Focus/AF Trans. Speed** determines how quickly the focus changes from one object to another when you select that new object in the touch screen.

A faster setting is good for sports. A slower setting is good for a “pull focus” effect.

Caution: if another object comes in front of the object that you are tracking, the camera will change focus and start to track that object.



Focusing: Difference in Auto Focus Tracking when in Hybrid Focus and Total Auto Focus

There is a major difference between auto focus tracking in hybrid focus mode and total auto focus mode.

The settings I have chosen in Menu/Shooting/Focus give you a choice of how you want to handle the auto focus tracking by selecting Hybrid or Total Auto focus.

Menu/Shooting/Focus/Face/Eye Priority AF: with this selected (this is the default setting), the camera will automatically track faces and eyes in the frame when in TOTAL AUTO FOCUS. People will automatically become the “focus”.

See the next page for a more detailed explanation.

Focus Tracking: Difference between Hybrid Focus and Total Auto Focus

In **hybrid** focus mode, the camera can track **any object** and the focus will remain on that object.

In **total** auto focus mode, **faces and eyes have priority**. You can initially track any object but as soon as a person enters the frame, the camera will **automatically** shift focus to their face and eyes.

In **hybrid** focus mode, any object can be tracked and will remain being tracked, even if a person walks into the shot. Only if a person wanders across the tracked subject, does the auto focus tracking shift to the person.

A **white square** hovering over the object will show who/what is being tracked.

Focusing Recap: Two Auto Focus Types

When you see the orange square in the VF then the camera is in flexible spot auto focus, or, if you like, the regular auto focus with the flexible spot option chosen.

When you see the white square following an object, or the white squares following a person's eyes, then the camera is in auto focus tracking.

Be careful. If you see a white square following a person but in addition an orange square then the camera is in total auto focus mode, but still in the flexible spot auto focus. It is tracking the person, but not applying the tracking data. It is not changing the focus to that person. There should be no orange square in the VF when in auto focus tracking.

Press button 3 on the side of the camera to exit flexible spot auto focus and then press on the subject/object to track with your finger on the VF.

S and Q (Slow and Quick) Shooting

Sony FX 6

S & Q shooting

S & Q shooting is for shooting slow motion, fast motion and time lapse: something other than a standard frame rate.

S and Q slow motion shooting works by capturing the video at a different frame rate than the frame rate at which the video clip will be played back.

Shooting at high frame rates is the only way to create smooth slow motion. Video editing software has effects that allow you to slow down the speed of a clip. These effects rarely look good because the software has to invent extra frames (interpolation).

S & Q: slow motion shooting

When shooting in S & Q for slow motion, the video is captured at a higher frame rate than the frame rate at which it is played back. The length of the clip is extended on playback.

For example, if the project frame rate is 29.97 fps (30p) and the S & Q frame frame rate is 120 fps, the video shot will be four times the length of the original action. A 3 minute clip shot at 120 fps will play back in 12 minutes as a 29.97 fps video clip.

All of the frames are played back, but at a different speed.

S and Q: frame rates

In **4K,** you can set the frame rate between 1 fps (frames per second) to 120 fps (there is a 10 percent image crop at 120 fps).

In **HD**, you can set the frame rate up to 240 fps in HD but there is some image quality loss above 120 fps.

There are two frame rates to set (see images on next page):

1. the base frame rate that the clip is played back at: this is the Frequency/Scan rate on status page 1. This should be the frame rate of your project: typically NTSC rates of 23.98p or 29.97p or the DCI rate of 24p.
2. The S & Q frame rate set in Menu/Shooting/S and Q Motion. This is the number of frames per second that the camera will be recording.

S & Q: menu settings

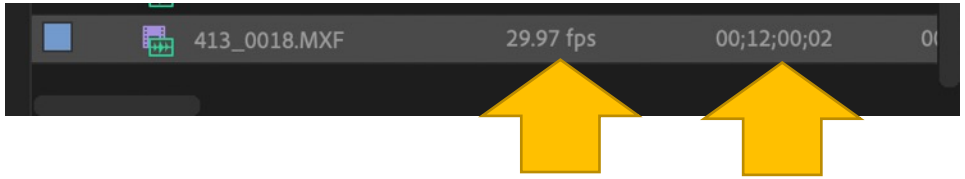
1. The base frame rate:

On status page 1, the frequency/scan has been set to 29.97 fps. This is the project frame rate and the rate at which all clips will be played back.

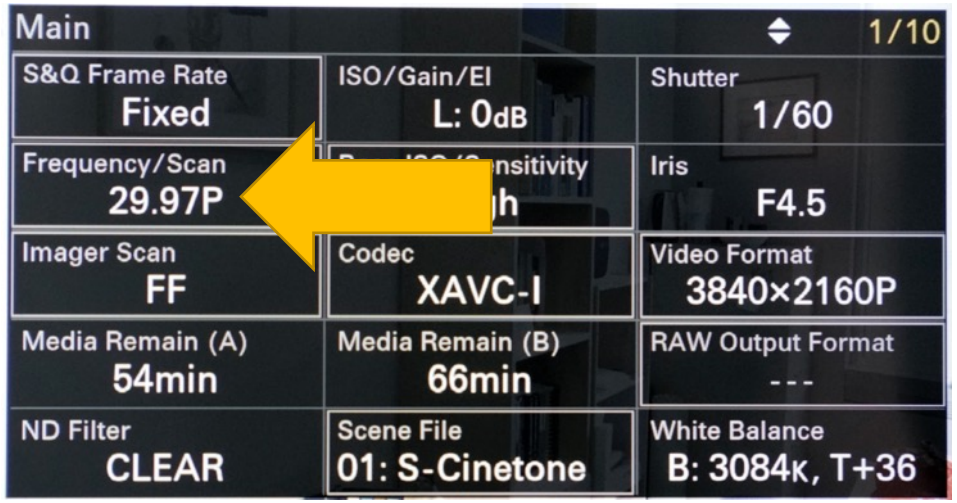
2. The S & Q frame rate:

In Menu/Shooting/S & Q Motion: Enter a S and Q frame rate.

In this case, once S and Q is turned on, the video clip will be shot at 120 fps and then played back at 29.97 fps. So, the clip will play back in Adobe Premiere (or other software) at 25 percent speed. Below is how a clip shot for three minutes at S & Q 120 fps, base rate 30p, will appear in Premiere. It appears as a 12 second 30p clip.



frame rate length



S and Q: button 1

Enable S and Q motion by pressing button 1 on the side of the camera.

This button toggles S and Q mode on and off.

S and Q: shutter speed VERY IMPORTANT

When you switch to S & Q mode **it does not pick the correct shutter speed for you.** The shutter speed will match the frame rate. This is not correct! Change the shutter speed.

Remember that when shooting standard motion or slow motion, the **shutter speed should be set to double the frame rate** for a normal amount of motion blur in the image.

So, if your S & Q rate is set to 120 fps, the shutter speed must be adjusted to 1/240th of a second or, in this case, 1/250th of a second because 1/240th is not an option on this camera.

With faster shutter speeds you need more light to expose the image!

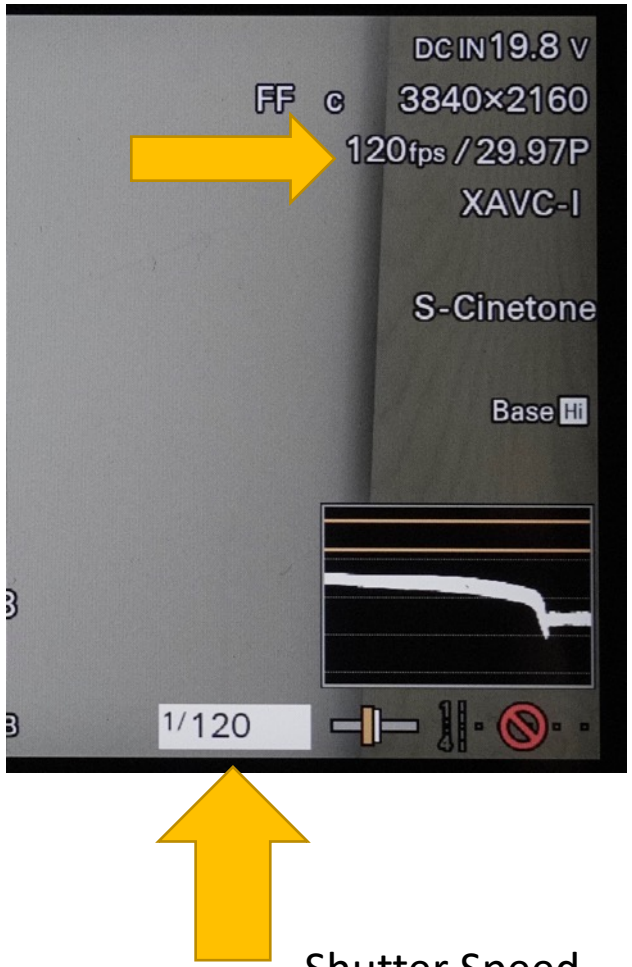
See the next page for images.

S & Q: shutter speed

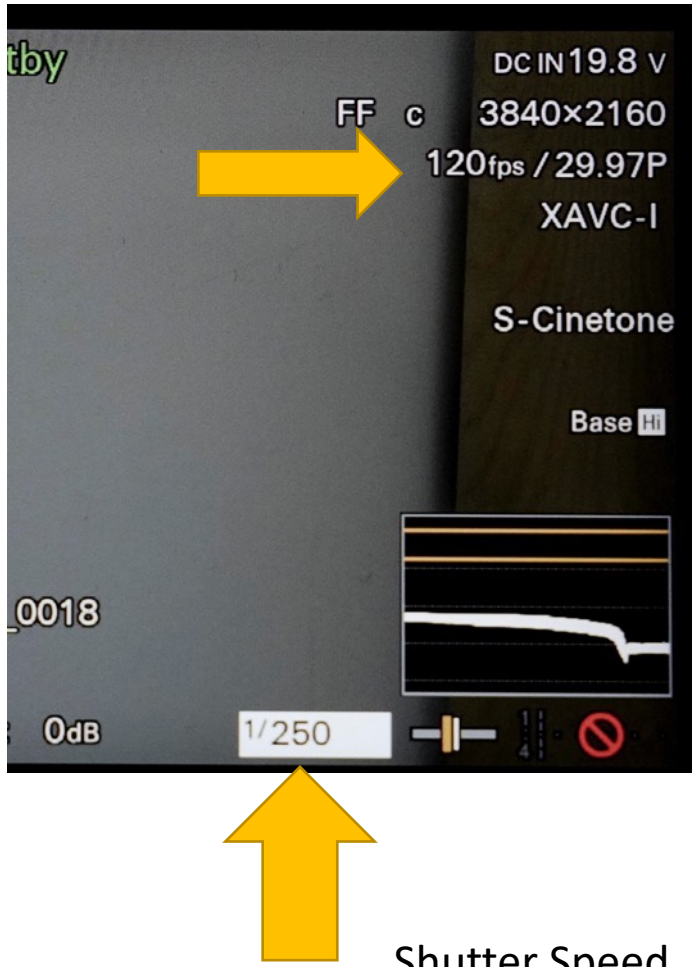
The camera will initially pick a shutter speed that matches the frame rate.

For slow motion, change the shutter speed to double the S & Q frame rate.

The S & Q frame rate is indicated in the top left, followed by the base (project) frame rate.



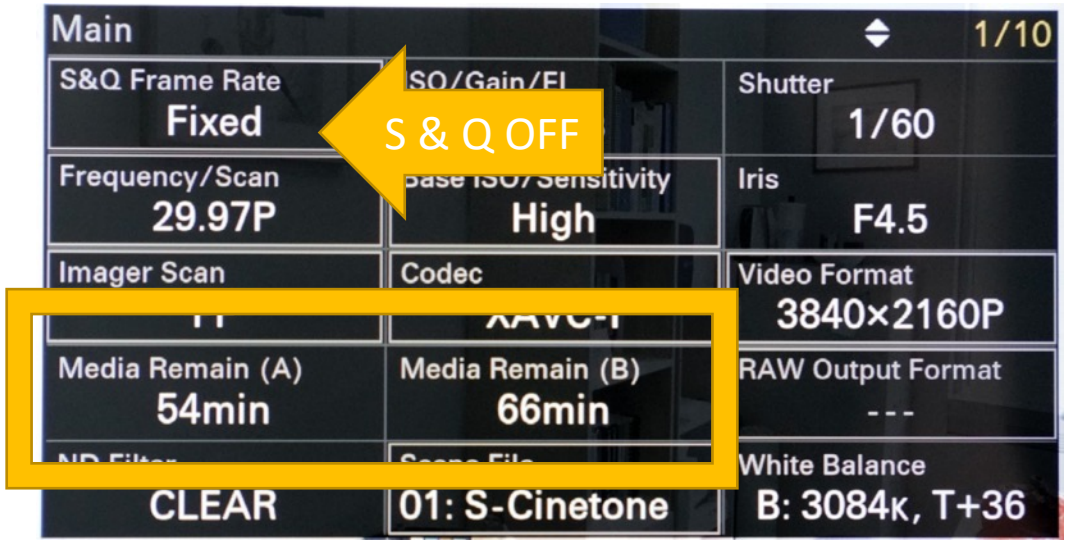
Shutter Speed WRONG !

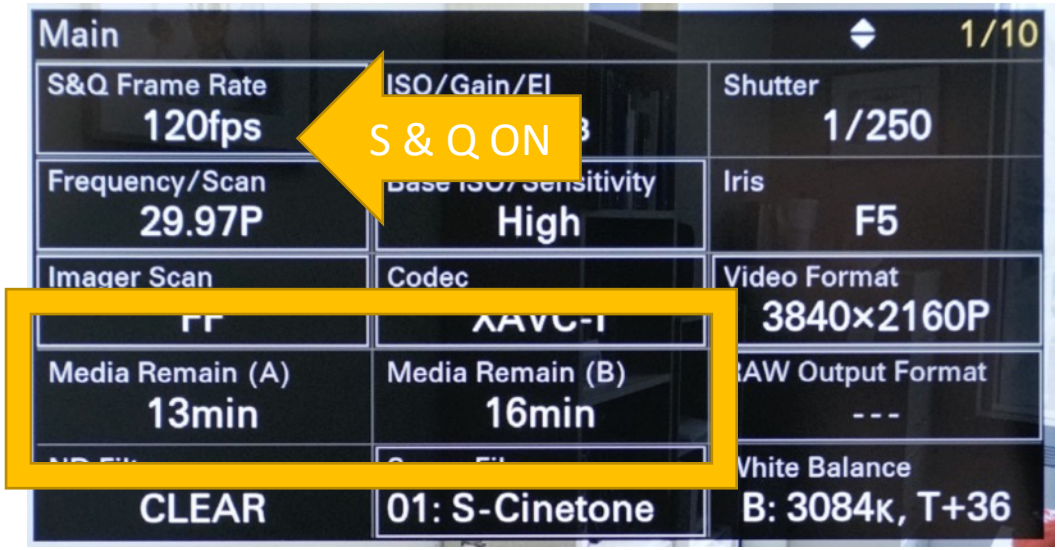


Shutter Speed RIGHT !

S & Q: Time Remaining

The time remaining on the media cards changes once S & Q motion is ON. This is based on the number of frames that are being captured. In this case, the remaining time is simply divided by four.





S & Q: shutter speed

After exiting S & Q mode, remember to change the shutter speed back to the normal setting!

S & Q: fast motion and timelapse

Setting a lower S & Q rate than the frequency/scan rate will result in fast motion. A S & Q rate of 1 fps will be timelapse.

For example, if your base (project) frame rate is 24p and you record 10 minutes at the S & Q frame rate of 12 fps, the playback time will be 5 minutes. It is two times faster.

All of the frames play back, but at a different speed.

When shooting fast motion **it is not necessary** to have the shutter speed be twice the S & Q frame rate. In the above example, I could shoot at 12 fps with a shutter speed of either 1/24th of a sec. or 1/48th of a second. At 1/48th motion is more crisp. At 1/24th there is more motion blur, and increasingly more blur as you lower the shutter speed.

If your frequency/scan rate is 24p and you record 10 minutes at S & Q speed of 1 fps, the playback time of the clip will be 24 seconds. It is 24 times faster.

Interval Recording and Time Lapse

You can also use **interval recording** to create timelapse sequences.

Menu/Project/ Interval Rec

The **interval time** is the amount of time between each exposure.

The **number of frames** is the amount of frames that the camera takes during the interval time.

For example, an interval time of 1 sec and the number of frames being 2, this means the camera takes two frames per second.

If you are shooting at 24p, then the camera takes 2 consecutive frames every 24 frames.

The shutter speed can be changed while recording in Interval Rec to create special effects. Extending the shutter opening time can be combined with the interval time to create blurry ghostly images of what is in motion.

If you are using auto exposure during time lapse, slow down the response time of the auto exposure system: Menu/Shooting/Auto Exposure/Speed. Set to -40 or slower.

S & Q: Interval Recording and Shutter Speed

For the image on the right, the interval rec. settings were as illustrated below. The shutter speed was 16 F with a base frame rate of 23.98 fps. Note the motion blur on the pedestrians.

Shooting Slog 3 Video

Sony FX 6

Shooting Slog 3 Video: Shooting Modes

There are three Shooting Modes for creating Slog 3 images:

Cine EI

Cine EI Quick (this is Cine EI with one difference)

Flexible ISO

Regardless of which of the three modes you choose for shooting Slog 3 video, **read the following section on Cine EI** since it explains the exposure and LUT settings for all three modes.

Shooting Slog 3 Video: Shooting Modes

ISO is the difference between the two Cine EI shooting modes and Flexible ISO mode. In the two Cine EI modes you are restricted to shooting at either 800 ISO or 12800 ISO. You cannot change from the two base ISO settings. In Flexible ISO mode you can change ISO.

So, Flexible ISO is most useful when you want to shoot Slog 3 video in low light situations. In Cine EI if your image is still too dark at 12800 ISO (and your aperture is wide open) you are stuck. Flexible ISO allows you to increase the ISO.

Remember that increasing ISO is the same as increasing GAIN. It creates image noise.

Cine EI Shooting Mode: Settings and Exposure

Sony FX 6

Cine EI Shooting Mode

Most of the previous section on Custom Shooting Mode Exposure applies to Cine EI mode. The controls for iris, white balance, and ND filters are the same.

However, Cine EI is for exposing Slog 3 images so there are differences in how you arrive at the optimal exposure.

The two Base Sensitivity ISO ratings are different from Custom mode.

It is not possible to do GAIN and ISO changes in Cine EI mode, instead you can use EI ratings to generate an ”offset” on the exposure while using a LUT. **If you wish to change ISO when shooting Slog 3, you have to use the Flexible ISO mode.**

Cine EI is for shooting Slog 3

Exposing Slog 3 in Cine EI mode is different from how you may have exposed Slog 3 in other “non-cinema” Sony cameras.

This section goes through the details of how to expose Slog 3 correctly with the FX6 in Cine EI mode.

If you are not familiar with the concept of LOG video look at these resources:

part five of the CDA Video Compression Moodle workshop for a detailed explanation of LOG video.

part six of the CDA Video Colour Correction workshop for how to normalize LOG clips inside Adobe Premiere, although this guide covers this topic briefly.

All Concordia Fine Arts students are enrolled in these Moodle courses. Look for them on your Moodle dashboard.

Cine EI is for shooting Slog 3

Cine EI shooting mode is for exclusively shooting Slog 3.

Slog (pronounced “S Log”) is Sony’s LOG format which has (optimally) 15 stops of dynamic luminance range, preserving detail in shadows and highlights. Most camera manufacturers have some version of LOG.

Why shoot in Slog 3?

1. You have a subject that has very bright highlights and dark shadows and you need details in both of those luminance areas.
2. You want video images that have a more natural, or low contrast look.
3. You want the maximum control over how the image looks in postproduction **and you have the time to spend on this task**.

Cine EI: Slog 3 and LUTs

Slog video images must be “normalized”. They appear low contrast on more linear displays (like TVs and computers). Unlike TVs, Slog video perceives brightness in a logarithmic way, the same manner we perceive light with our eyes.

The quickest normalization method is by applying a LUT, a look-up table: a file with a .cube extension that will apply color and contrast transformations to the file. LUTs can be applied in camera, in an external monitor or in editing software.

Usually, but not necessarily, you use the same LUT to monitor in production that you use to correct the image in postproduction.

Cine EI: Slog 3 and LUTs

You can import a LUT into the FX 6 or use one of the built-in LUTs to correct the image in the camera viewfinder (and the SDI and HDMI outputs).

Working with a LUT makes exposing the image much easier.

In this section, we will look at three options:

1. **exposing Slog 3 with the built-in s709 LUT**
2. **importing custom LUTs**
2. **exposing Slog 3 without a LUT**

Cine EI: Slog 3 Example

This is a Slog 3 image shot in Cine EI Shooting mode.

Notice the details present in all the areas of luminance.

This Slog 3 image was shot using the s709 LUT in the camera viewfinder and has been normalized in Adobe Premiere.

Cine EI Option One: Exposing Slog 3 with the s709 LUT

Sony FX6

Cine EI: Display

Cine EI: About the s709 LUT

The s709 LUT was developed by Sony for monitoring while shooting. It is available as a Base Look/LUT preset in the FX6. According to Sony it “renders imagery in subtle colours, with smooth colour gradation and a softer low contrast tone curve. s709 is close to the film colour characteristics”.

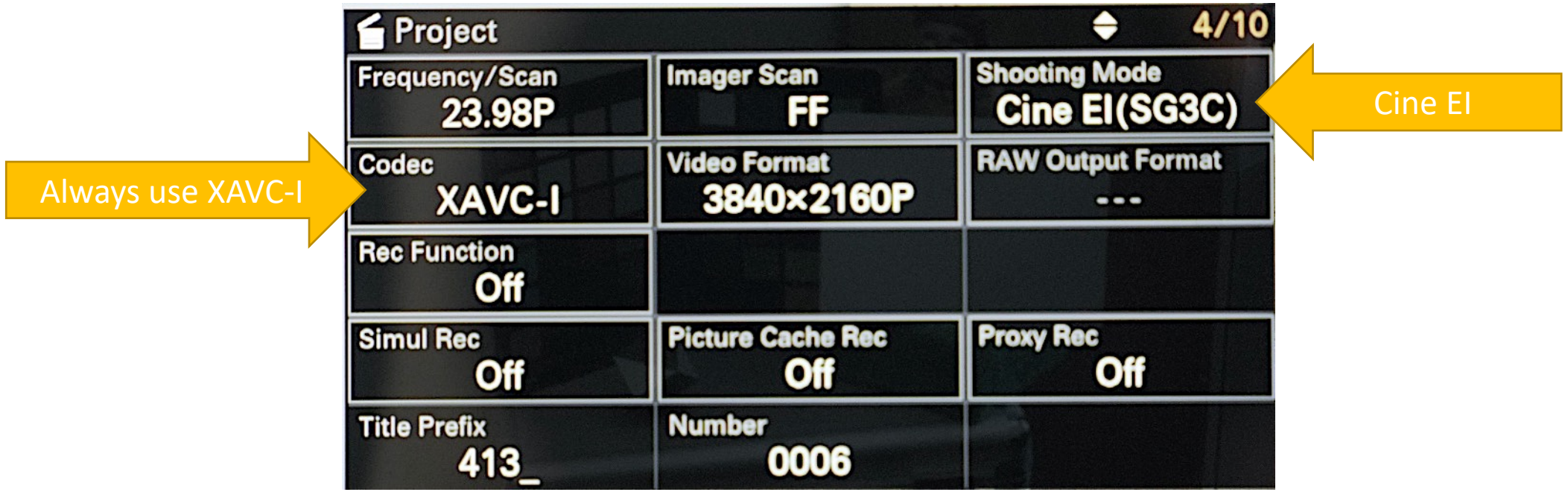
The s709 LUT is simply for **monitoring within the camera**.

Images shot with the s709 LUT can be then “normalized” in your editing software using the **S-Gamut.Cine/S-log3** LUT. The images in the software will look identical to what you saw in the camera LCD with the s709 LUT applied.

Cine EI: Project Status Page Settings

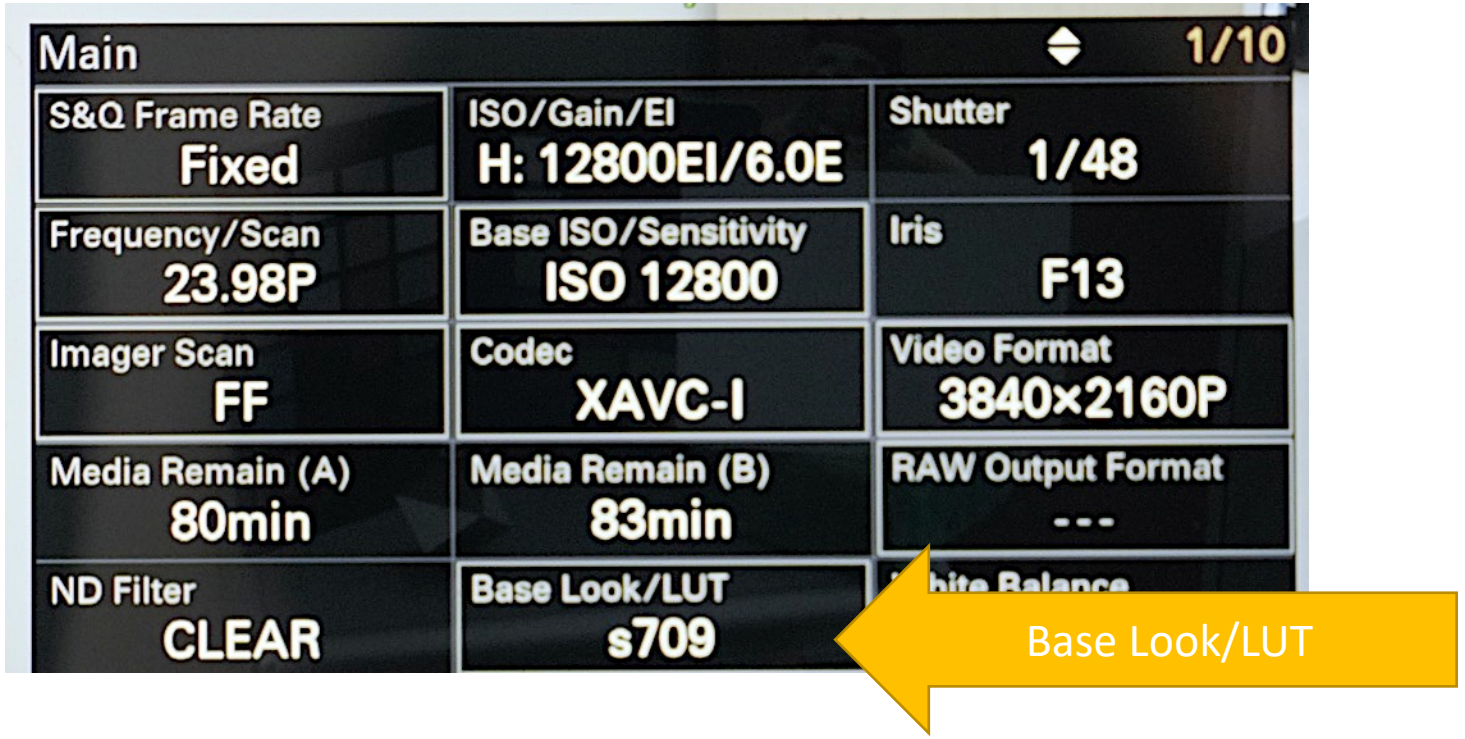
In **Menu/User/Base Setting** pick **Cine EI** as the shooting mode.

You can also go to status page 4 and change the shooting mode to Cine EI. Always choose the XAVC-I codec in Cine EI.



Cine EI: choose the built-in s709 LUT

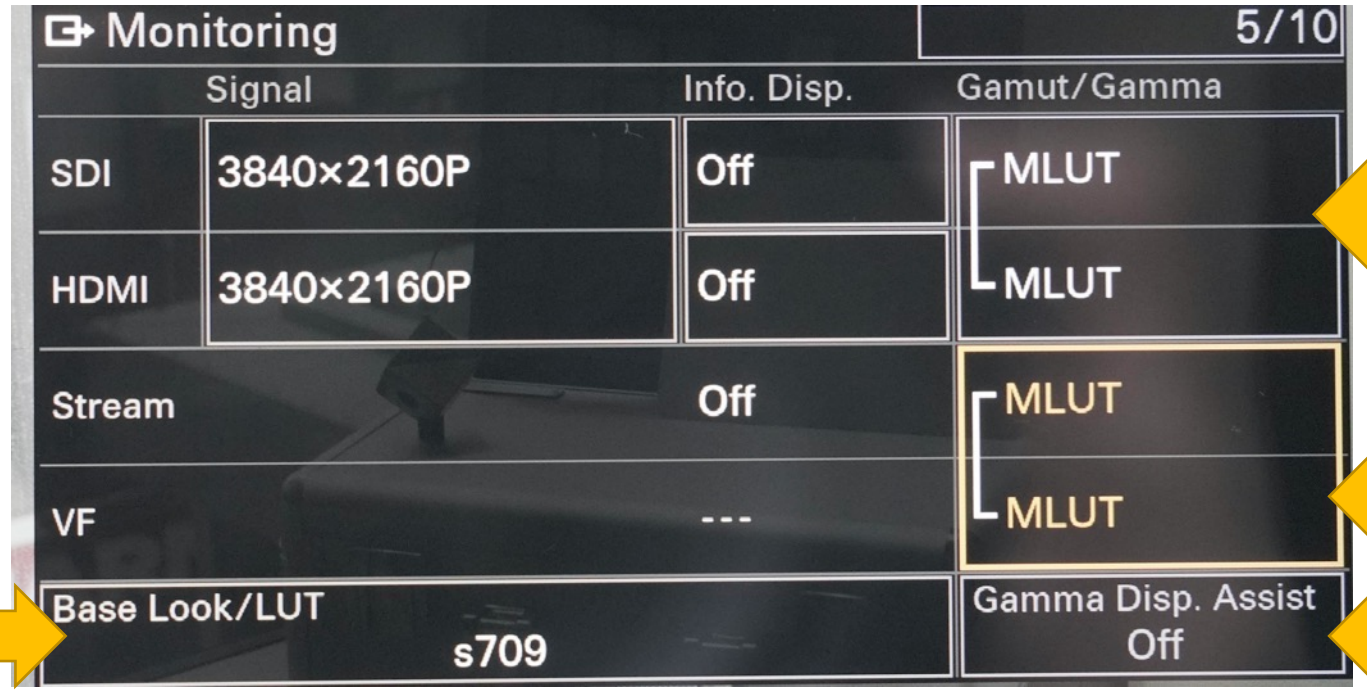
Choose the **s709** LUT on status page one.



Cine EI: Turning on a LUT in the viewfinder

Go to status page 5 to turn on the LUT for the viewfinder and the SDI and HDMI outputs.

Always turn on the LUT for the SDI/HDMI outputs when you are using the LUT in the viewfinder (even if you are not using an external monitor or recorder). **MLUT** means the selected LUT is turned ON. Make sure Gamma Disp. Assist is OFF.



LUT on outputs

LUT on viewfinder

You can also choose the LUT here.

This should be OFF

Cine EI: Turning on a LUT for the viewfinder (VF) VERY IMPORTANT!

It helps to use the waveform monitor in the VF to judge Slog 3 exposure. The waveform in the VF measures the output from the SDI and HDMI outputs, even if there is no recorder or monitor attached.

So, to avoid confusion, even if you are not using an external recorder, **turn on the LUT for the SDI and HDMI outputs if you are turning on a LUT for the viewfinder.**

This will ensure that signal measured in the waveform monitor corresponds to what you are seeing in the viewfinder: the normalized image from the s709 LUT.

Cine EI: Turning on a LUT for the viewfinder

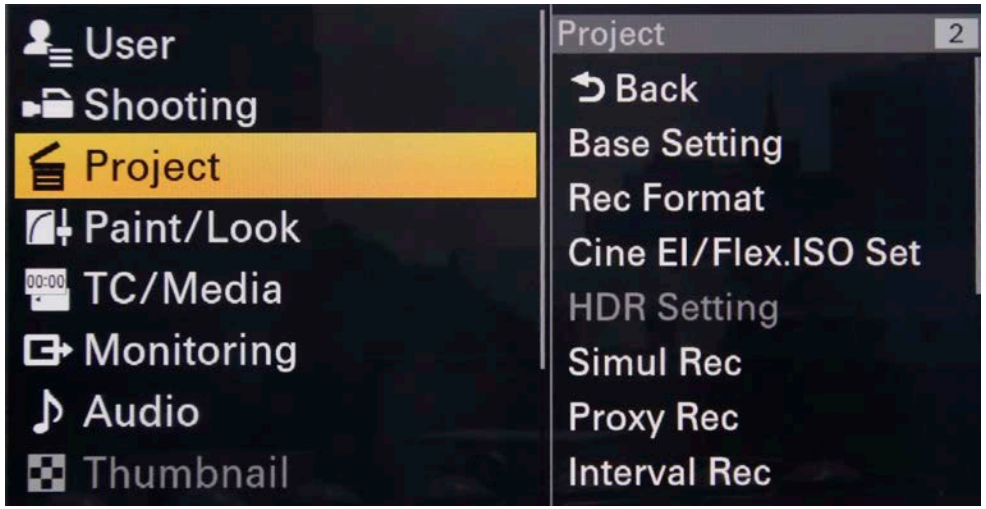
From top to bottom on the right hand side of the display it is indicated that you are recording in Slog 3 (because the camera is in Cine EI mode), that you have the s709 LUT applied and the waveform is measuring the signal adjusted by the s709 LUT because you have a LUT turned ON for the SDI/HDMI outputs.

What is being recorded: Slog 3

s709 LUT applied to VF

Signal measured by waveform

Cine EI: Check the Colour Gamut

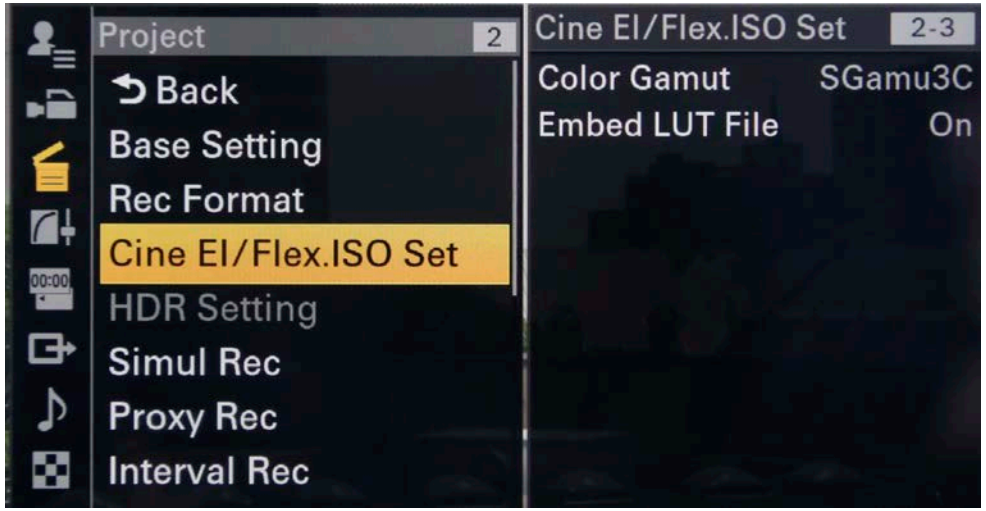


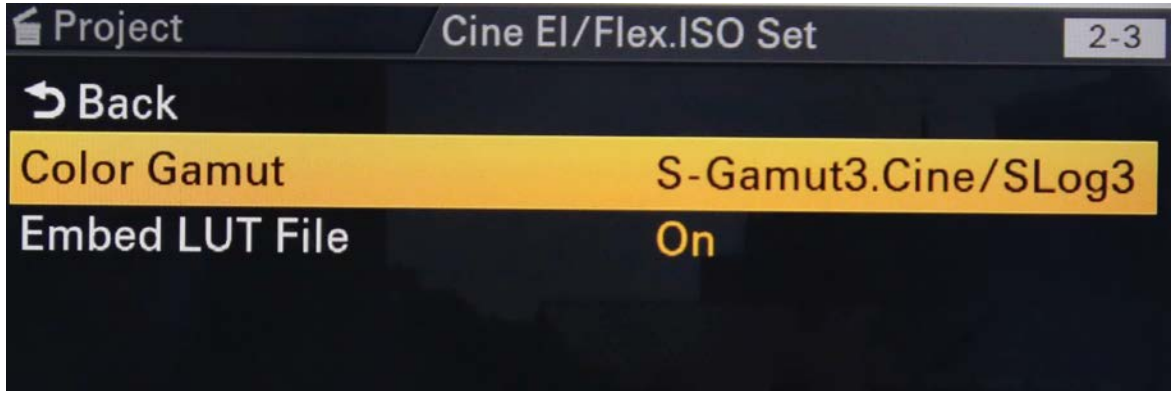
The Colour Gamut should be this:

Go to Menu/Project/Cine EI/Flex.ISO Set/Color Gamut/

S-Gamut3.Cine/SLog3

Also Turn “Embed LUT File” **On.**





Cine EI: Select a Colour Gamut

There is a choice of two colour gamuts for Slog 3:

S-Gamut3/SLog3 or S-Gamut3.Cine/SLog3

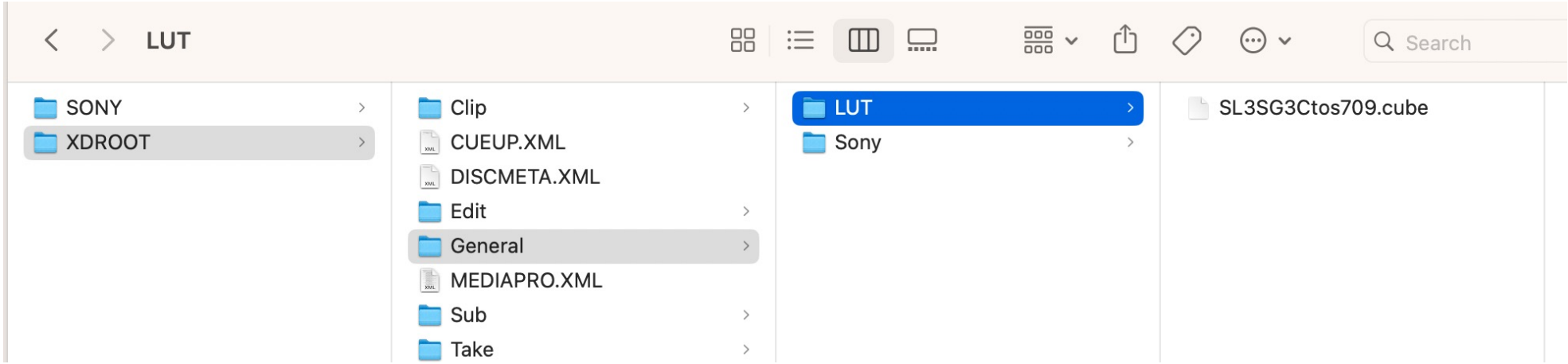
The default is **S-Gamut3.Cine/SLog3** and Sony requests that you use that gamut.

The S-Gamut3/SLog3 gamut is a very wide colour space gamut and may make colour grading more difficult.

Cine EI: Embed the LUT in the SD card

When you turn the “Embed LUT file” **On,** the LUT file will be saved to this location in the SD card (see below). The full name of the S-Gamut3.Cine/SLog3 LUT is: **SL3SGCtos709.cube**.

If you shot with more than one monitoring LUT, multiple LUTs will be saved to that location. Back up the whole SD card to your hard drive when you’re done shooting.



Cine EI: Sony LUTs

If you forgot to embed the S-Gamut3.Cine/SLog3 LUT or forgot to back up the entire CF card, you can download all the Sony LUTs and more on this page:

https://pro.sony/en_CA/technology/professional-video-lut-look-up-table

Cine EI: Slog 3 exposure with the s709 LUT

With the s709 LUT applied, you can judge the exposure by eye in the viewfinder.
For more accurate exposure, follow these instructions from Alister Chapman:

expose a white card at 77 percent or
expose a gray card around 41 percent.
To make these values appear as a line in the waveform monitor change this setting:
Menu/Monitoring/Zebra/Zebra level 1 (see next page).

The above levels are for a proper photographic 90 % white, 18 % gray card.
White paper is brighter than a 90 percent white card so expose white paper at 81 percent.
These numbers only apply to the s709 LUT. Different LUTS may require different exposures.

Cine EI: Slog 3 exposure with the s709 LUT

Here is the setting in **Menu/ Monitoring/Zebra**.

Zebra Level 1 is set to 77 percent.

A line will appear in the waveform monitor at the 77 percent level.

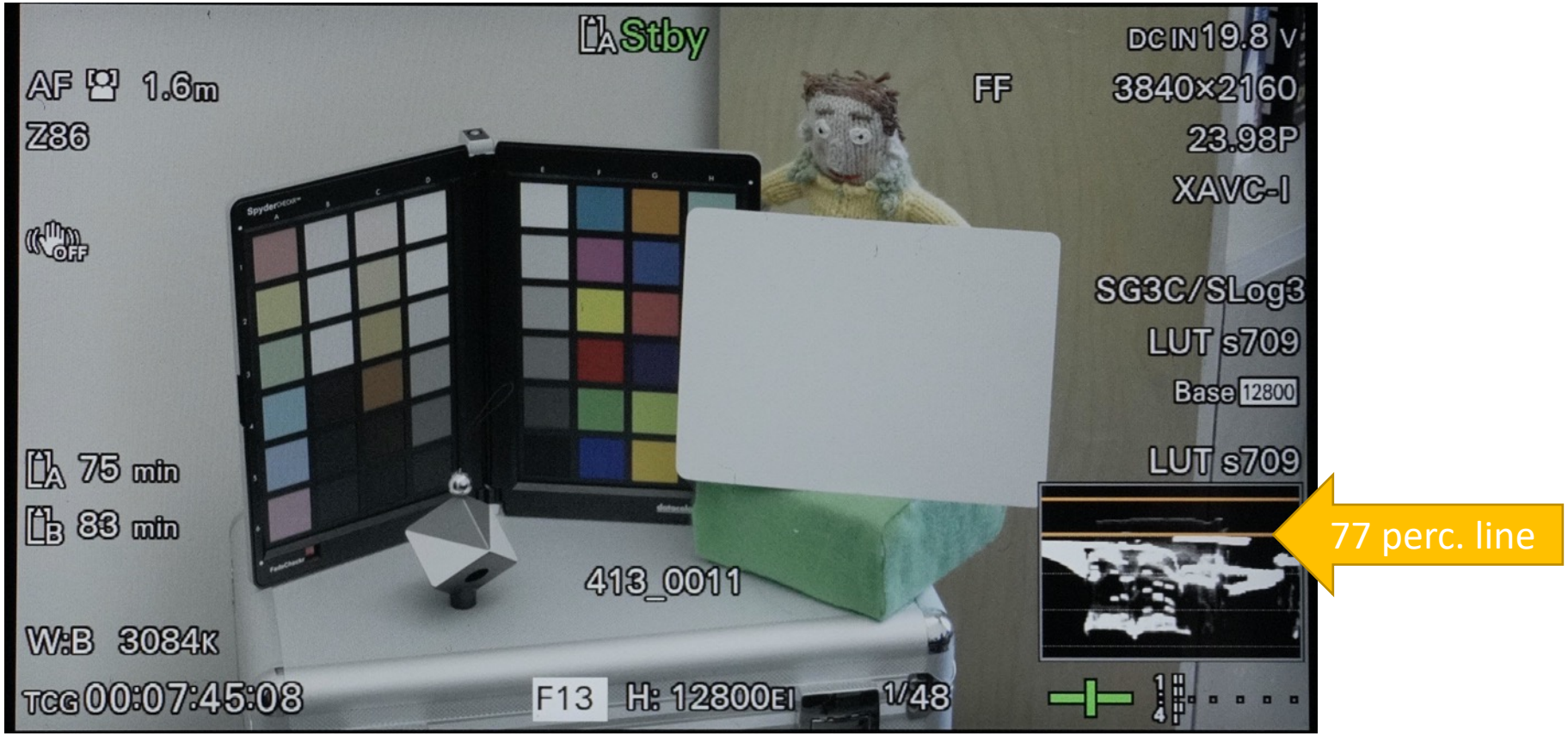
I keep Zebra 2 Levels at 100 percent to judge overexposure.

The “Setting” option determines the zebra stripe overlay on the image. Here it is the zebra 2 level.

You can also turn this setting off for no overlays.

Cine EI: Slog 3 exposure with the s709 LUT

In this image the white card is lined up with the 77 percent line in the waveform monitor. This is the optimal exposure for Slog 3 with the s709 LUT applied.



Cine EI: Base Sensitivity and EI

When you are exposing Slog3 images with a LUT applied, **it is easiest** to keep the EI preset at the same value as the base sensitivity ISO value.

In the image you can see that the Base High Sensitivity ISO and the EI preset value are the same: 12800. However, you can make adjustments. Read on.

Cine EI: What is EI?

ISO is the camera's sensitivity to light. The camera has two ISO (Base Sensitivity) settings in Cine EI: Base Low (800 ISO) and Base High (12800 ISO).

In Cine EI mode, you **cannot** change the ISO (or add GAIN). The ISO will always be one of these two settings.

Iris, ND filters, and the shutter speed change the actual exposure, the amount of light getting to the camera's sensor. I adjust iris and ND values but always keep the shutter at twice the frame rate unless I want a special effect.

EI stands for exposure index. It is an **offset** that is applied to the exposure.

When you are changing the EI setting on the camera, you are changing the brightness of the LUT that you applied to the viewfinder. See next page.

Cine EI: What is EI?

When you lower the EI value to a number **lower** than the Base ISO, you will have to expose the image **brighter**.

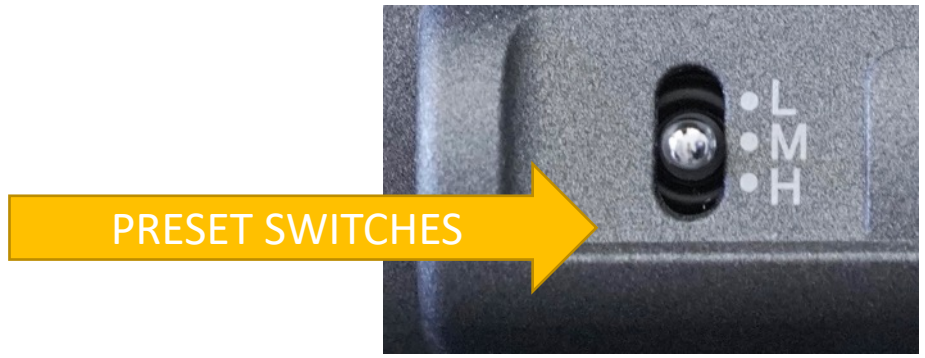
When you raise the EI value to a number **higher** than the Base ISO, you will have to expose the image **darker**.

The first option of **lowering the EI value** is most useful since a brighter exposure can reduce image noise at the Base High setting (12800 ISO).

The Base Low Sensitivity setting (800 ISO) does not really have issues with image noise, so typically you would keep the EI value at 800 for Base ISO 800.

The following pages explain how to change the EI settings.

Cine EI: EI Presets



To change the EI setting, you can use the preset switches on the side of the camera or the direct menu.

In Cine EI mode, the **L,M and H ISO/GAIN preset switches** on the side of the camera control **EI** (exposure index) ratings. **They do not change ISO or GAIN**. EI controls the brightness of the LUT.

You can change these EI preset settings in **Menu/Shooting/ISO/GAIN/EI.**

If you use the direct menu, any change you make will be saved in the preset currently selected by the switch.

The next page describes how you may want to set these presets.

Cine EI: EI Presets

Alister Chapman suggests the following setup for the L, M, H EI presets when in Base High 12800 ISO.

Preset **H** setting exposes Slog 3 normally: using the same EI setting as the same Base Sensitivity (ISO) setting.

Preset **M** or **L** changes the brightness of the LUT. Lowering the EI value below the Base Sensitivity value will lower the brightness of the LUT, you will then have to increase exposure (open up the iris) to expose the Slog 3 image correctly.

Base High Sensitivity (12800 ISO):

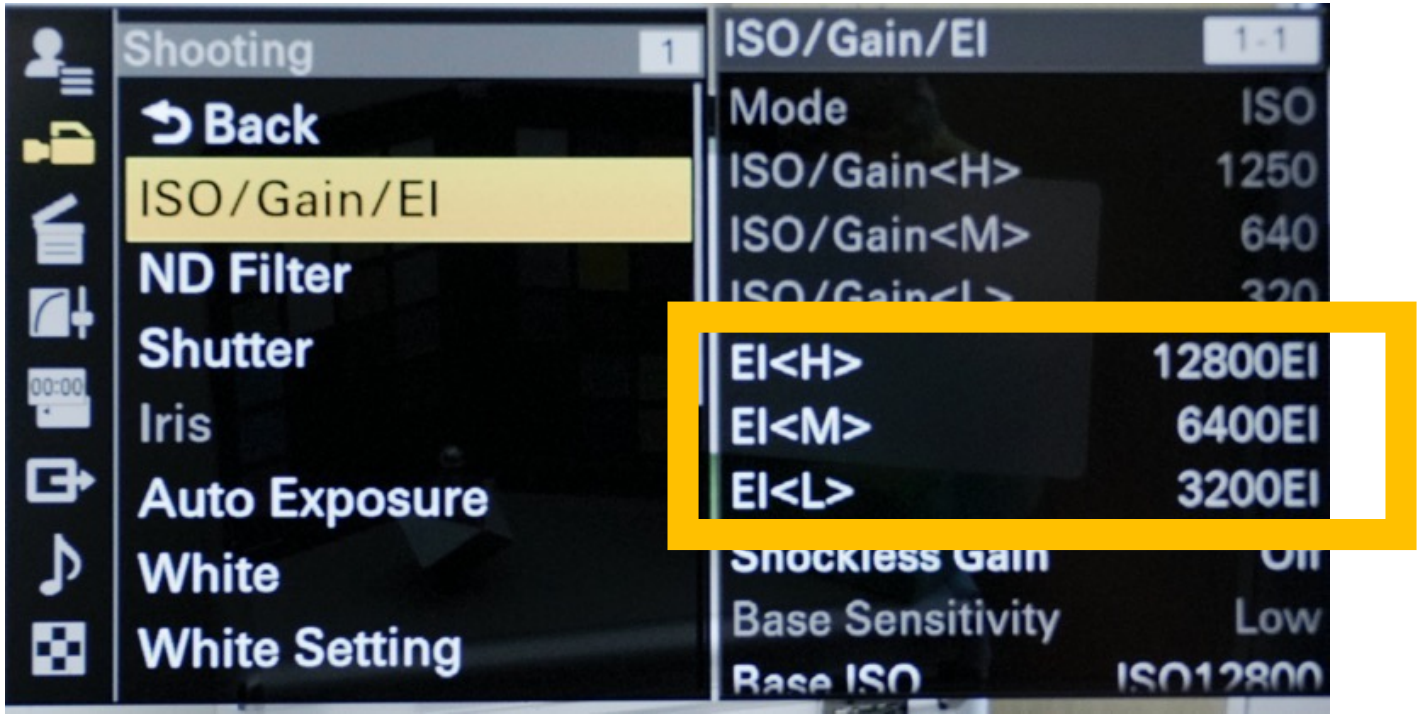
L: 3200 EI/ 4.0 E

M: 6400 EI/ 5.0 E

H: 12800 EI/ 6.0 E

Cine EI: EI Presets

Here is how the presets have been entered in Menu/Shooting/ISO/Gain/EI:



Cine EI: EI Settings and Exposing Brighter

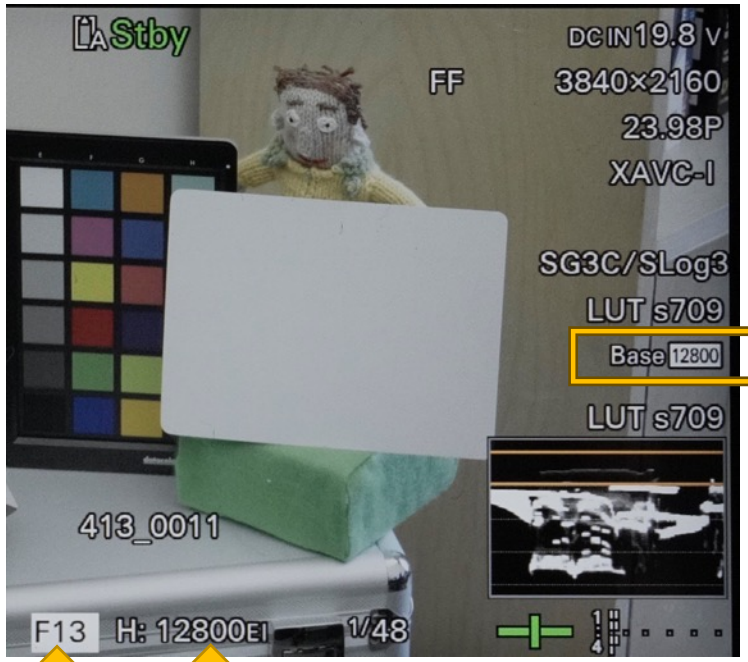
When you lower the EI value to a number **lower** than the Base ISO, you will have to expose the image **brighter .** This is an option if you a) want to decrease image noise or b) want to use a larger aperture (iris) opening for a shallower depth of field.

Exposing slightly brighter can diminish image noise since it pushes image information out of the shadow areas that have the most noise. It will increase the detail in the shadow areas of the image once the video is normalized and colour corrected. The tradeoff is that you lose a bit of range in the highlight area.

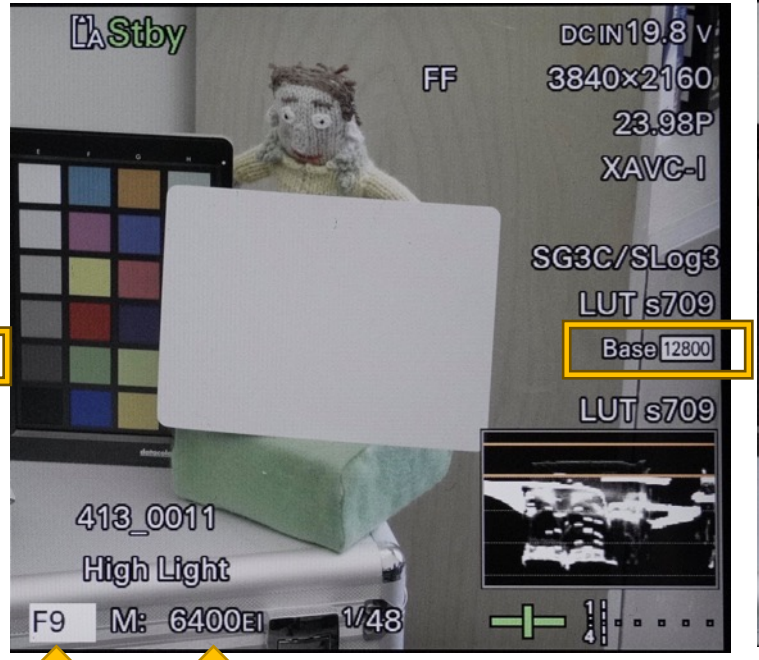
Exposing brighter using the EI Presets is **most useful** when working in Base High Sensitivity 12800 ISO, but lowering the EI value below 3200 EI can create a lot of highlight compression.

Cine EI: EI Settings and Exposing Brighter

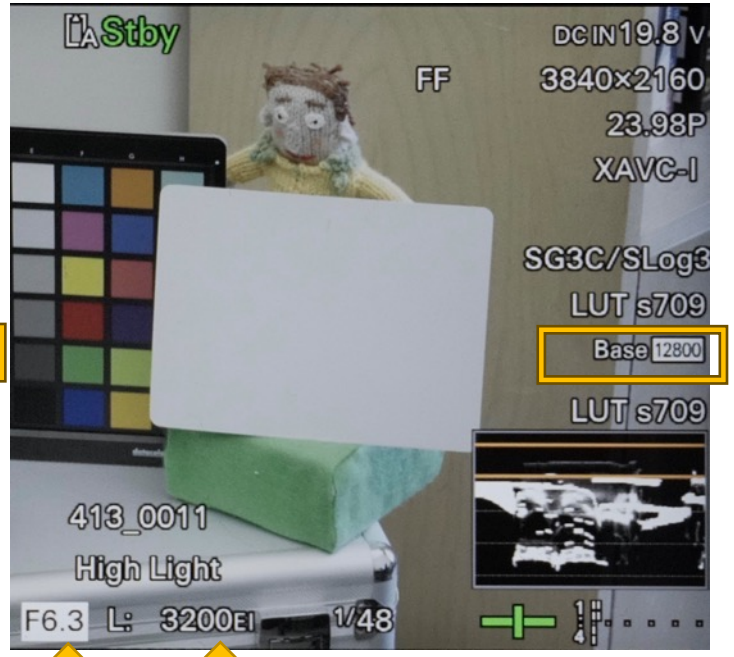
Once you have the EI preset applied you can then determine the correct exposure using the 77 percent line for the white card. In these VF details you can see how the iris value changes as the EI preset changes. Also, the luminance values become a little more compressed in the waveform monitor as you increase the exposure.



Same EI and Base ISO.



Exposing brighter.



Exposing even brighter.

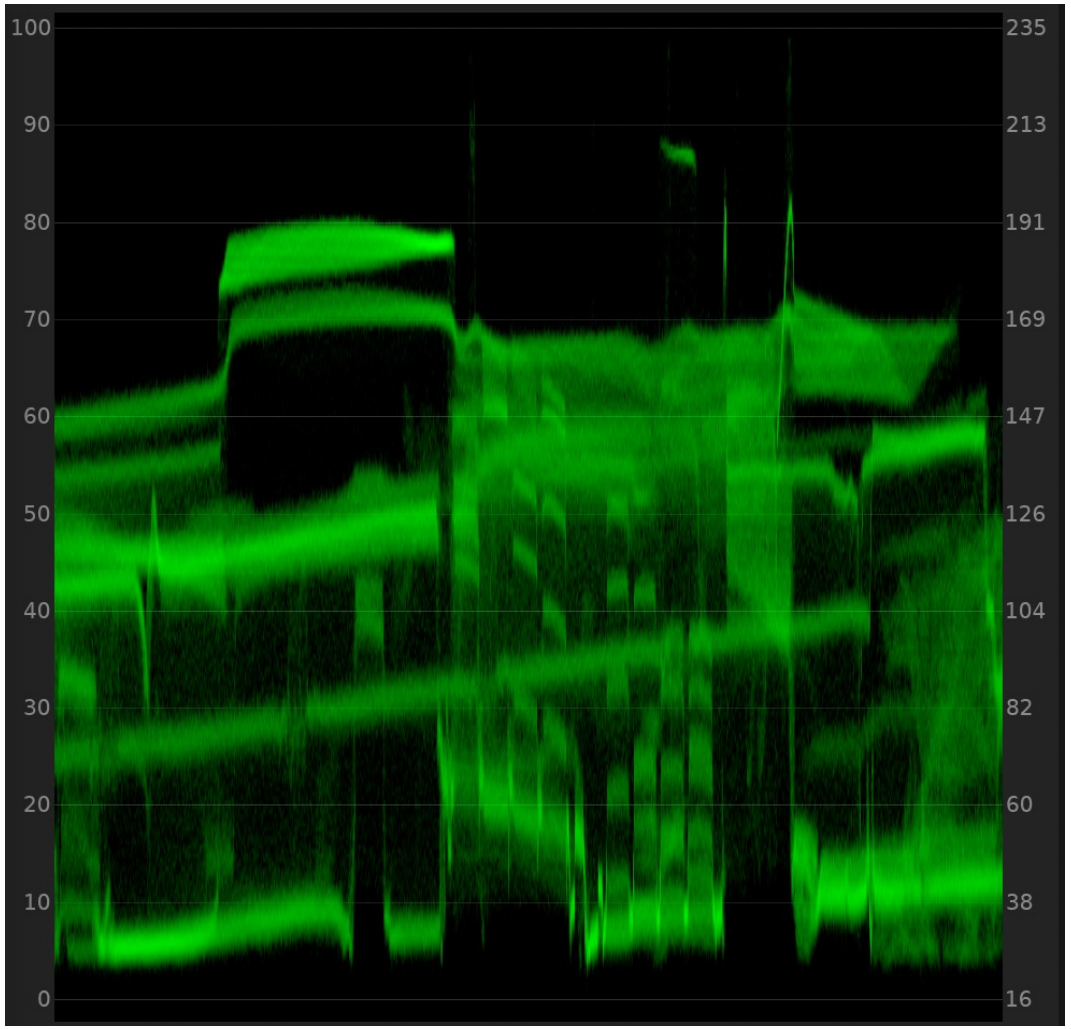
Cine EI: EI Settings and Exposing Brighter

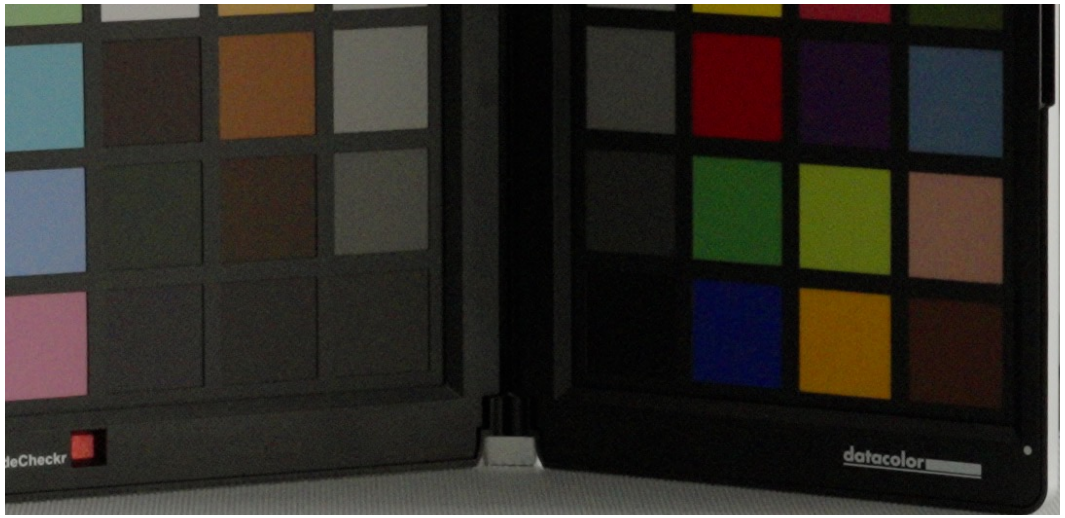
The following pages show a comparison of a setup shot once with the same EI and Base ISO settings and then with two brighter exposures with different EI values. The screen captures and stills are taken from Adobe Premiere where the images have been placed on a sequence with the SGamut3.Cine/SLog3 LUT applied. No other adjustments have been made.

Looking at the waveform monitor of the sequence, you can see how overexposing pushes information away from the shadow areas. It also has the effect of compressing the highlight information. Because our eyes are less sensitive to highlight areas, this compression is less important.

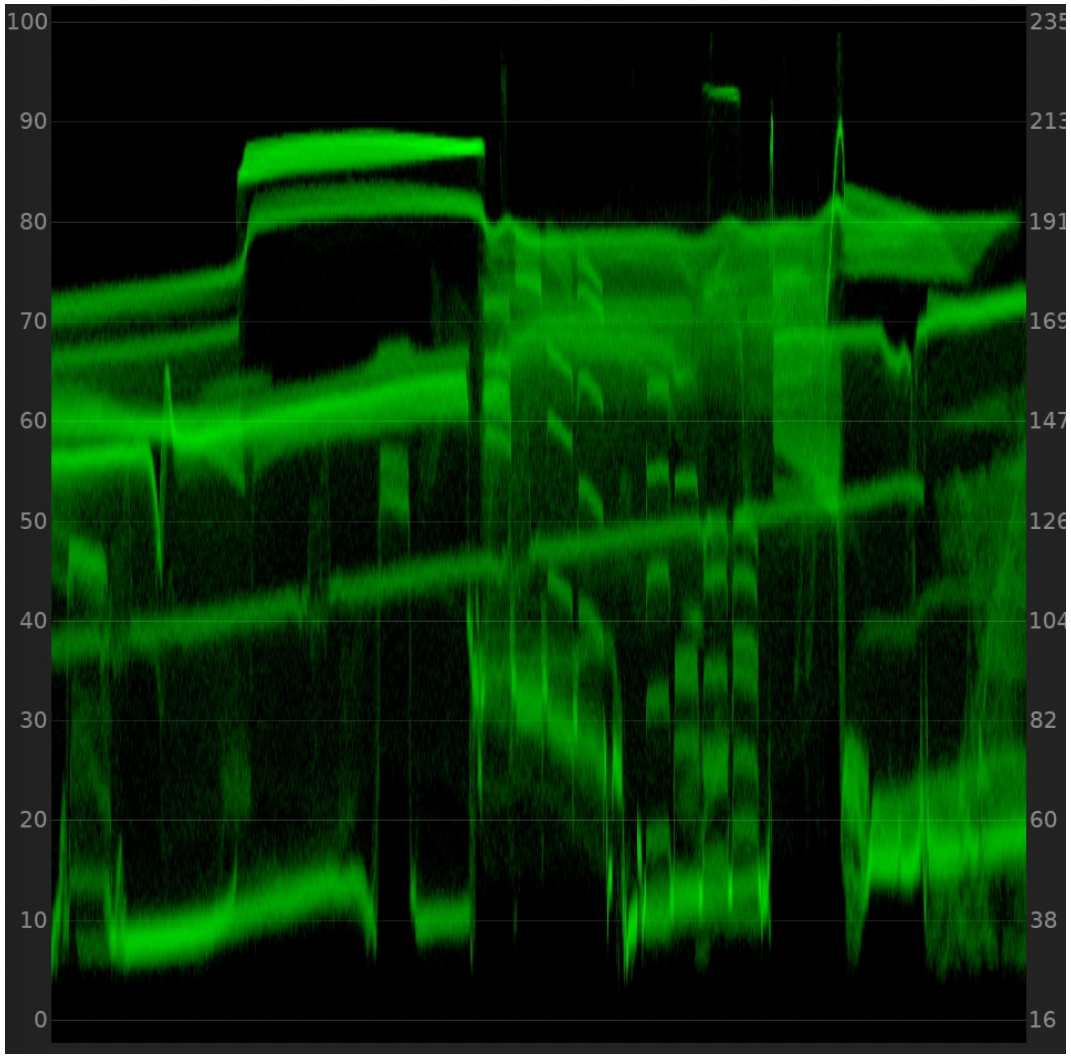
You can see the comparison of image noise in the detail. The 3200 EI image is cleaner.

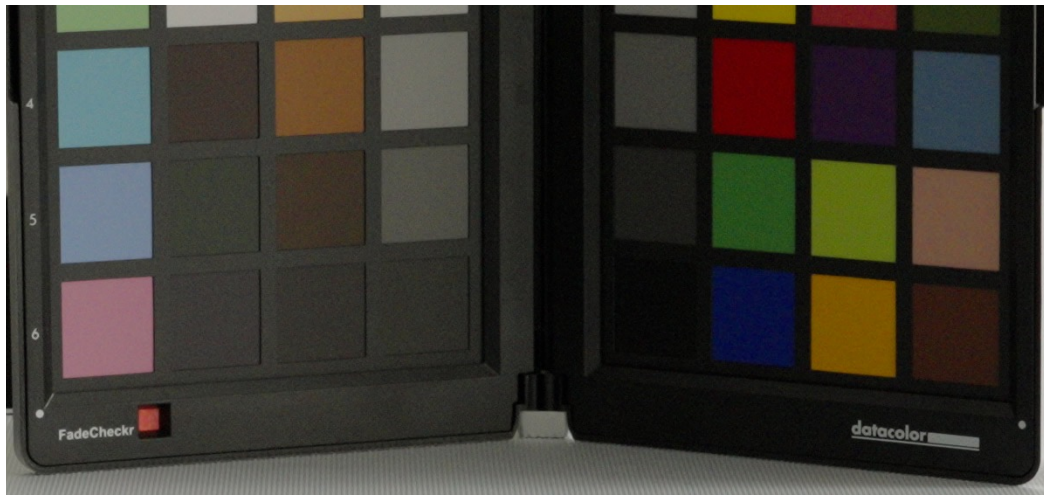
Cine EI: Base High ISO 12800, 12800 EI



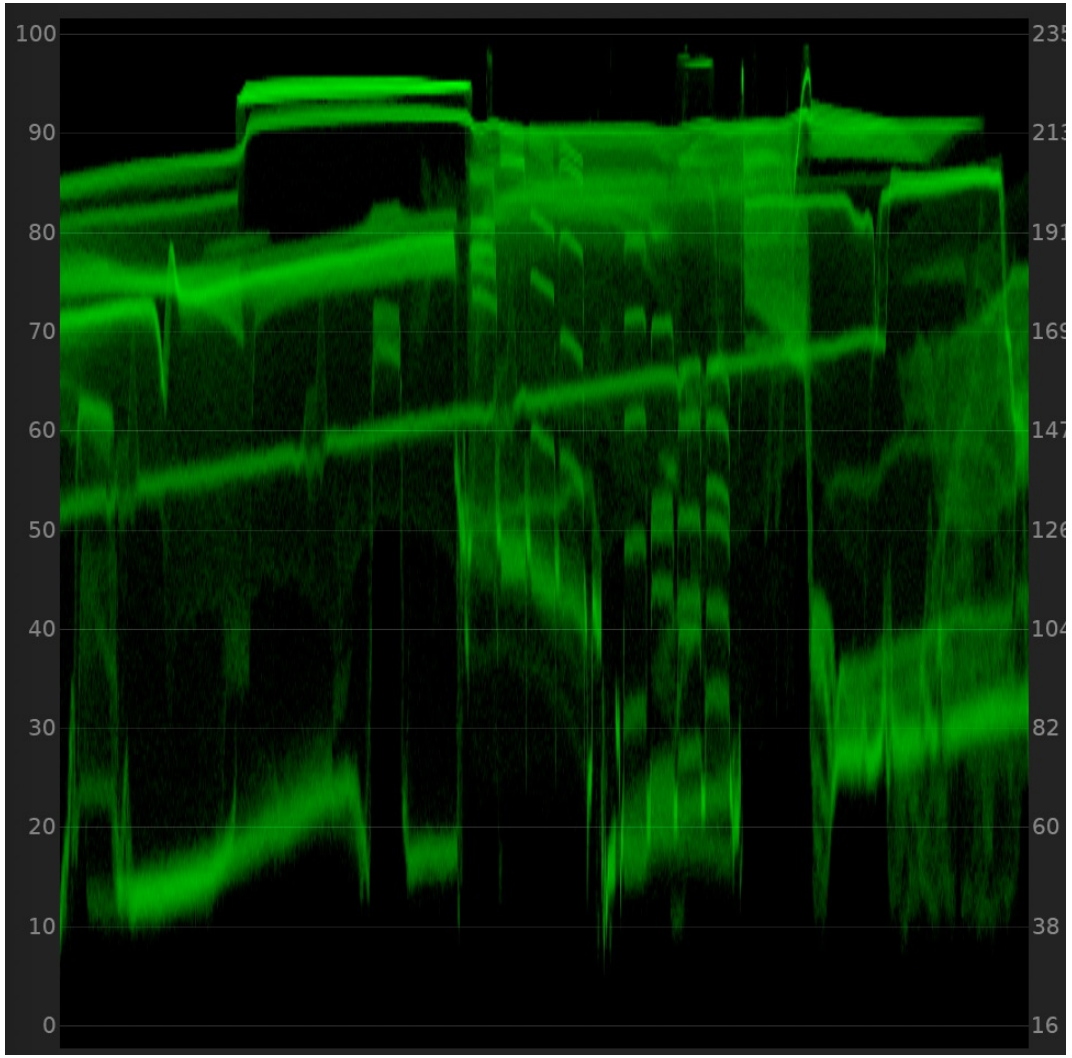


Cine EI: Base High ISO 12800, 6400 EI





Cine EI: Base High ISO 12800, 3200 EI



Cine EI: Noise Comparison at Base ISO 12800

Shot in Cine EI at the Base High Sensitivity 12800 ISO with three different EI settings. You can see the results of exposing the image brighter to reduce image noise. This detail is from the lower and lower/mid area of luminance.

Cine EI: EI Settings and Exposing Darker

When you raise the EI value to a number **higher** than the Base ISO, you will have to expose the image **darker**.

This is an option if you a) want to increase image noise or b) want to use a smaller aperture (iris) opening to increase depth of field.

At the Base High 12800 ISO setting you can only increase the EI to 51200 EI. That is the limit.

Exposing the Slog 3 image darker will create image noise because it pushes information into the shadow areas of the image where typically image noise is more present. Once the image is corrected in post and made brighter the image noise will remain.

Cine EI: Settings and Exposing Darker

If you are in a low light situation, shooting in Cine EI at the Base High 12800 ISO setting and the image is still too dark, you can get another two or three stops of light by raising the EI value but this is probably not the ideal approach.

Switch to the Flexible ISO mode when you want to shoot Slog 3 images in a low light situation and you are feeling restricted by the Base High ISO of Cine EI.

In both shooting modes you can increase image noise. In the first case, raising the EI value and exposing the image darker will create image noise by pushing the information to the shadows. In the second case, electronically boosting the signal with an ISO increase above 12800 will also create noise. **But the Flexible ISO method is a bit more intuitive and actually a bit cleaner.** See the following comparisons.

Cine EI and Flexible ISO comparisons

Cine EI: Base High 12800 ISO, 12800 EI f5

Flexible ISO: Base High 12800 ISO, 12800 ISO f5

The result is identical.

Cine EI

Flexible ISO

Cine EI and Flexible ISO comparisons

Cine EI: Base High 12800 ISO, 25600 EI f7.1

Flexible ISO: Base High 12800 ISO, ISO set to 25600, f7.1

Cine EI slightly noisier.

Cine EI and Flexible ISO comparisons

Cine EI: Base High 12800 ISO, 32000 EI f8

Flexible ISO: Base High 12800 ISO, ISO set to 32000, f8

Cine EI is noisier.

Cine EI and Flexible ISO comparisons

In addition, in Flexible ISO shooting mode you can change ISO all the way to 128000 ISO! The image will be very noisy but you will get an image!

See the section on Flexible ISO for more information.

Cine EI: auto exposure and Cine EI

It is better to use manual exposure when shooting in Cine EI.

The camera's auto exposure does not take into account the EI rating, so if the EI preset value is different from the Base Sensitivity ISO rating, the auto exposure will be **incorrect**.

Shooting with the same EI value as the ISO, the auto exposure should work correctly but keep in mind that fluctuations in exposure during the shot can make "normalizing" the Slog 3 images more difficult.

In general, it is better to use Custom shooting mode when using auto iris exposure.

Cine EI: colour grading with the Slog 3 clips shot with the s709 LUT

To recap: In Cine EI mode, when you have the s709 LUT applied in the viewfinder (and SDI/HDMI outputs), the file will nevertheless be recorded to the camera as a low contrast Slog 3 file.

The LUT is not “baked in”. It is only used for monitoring. You must correct the image in postproduction by applying the S-Gamut.Cine/S-log3 LUT.

The following example describes how this works in Adobe Premiere. The process will be similar in other editing software. The Slog 3 files are normalized to the Rec.709 colour space.

Rec.709 is the most prevalent video colour standard for HD and 4K display devices. Other standards like HDR(HLG) Rec.2100 are for displays that have increased brightness levels.

Cine EI: Premiere colour management

Premiere 2022 (and up) interprets the colour space of a video file when it is imported into the software.

So, in addition to a sequence having a working colour space, every imported video file is automatically assigned a Media colour space.

Using this Media colour space, LOG video files become automatically normalized to the sequence colour space without having to apply a LUT. But this is not always what you want! It may be preferable to apply the Sony LUT.

Cine EI: Premiere colour management

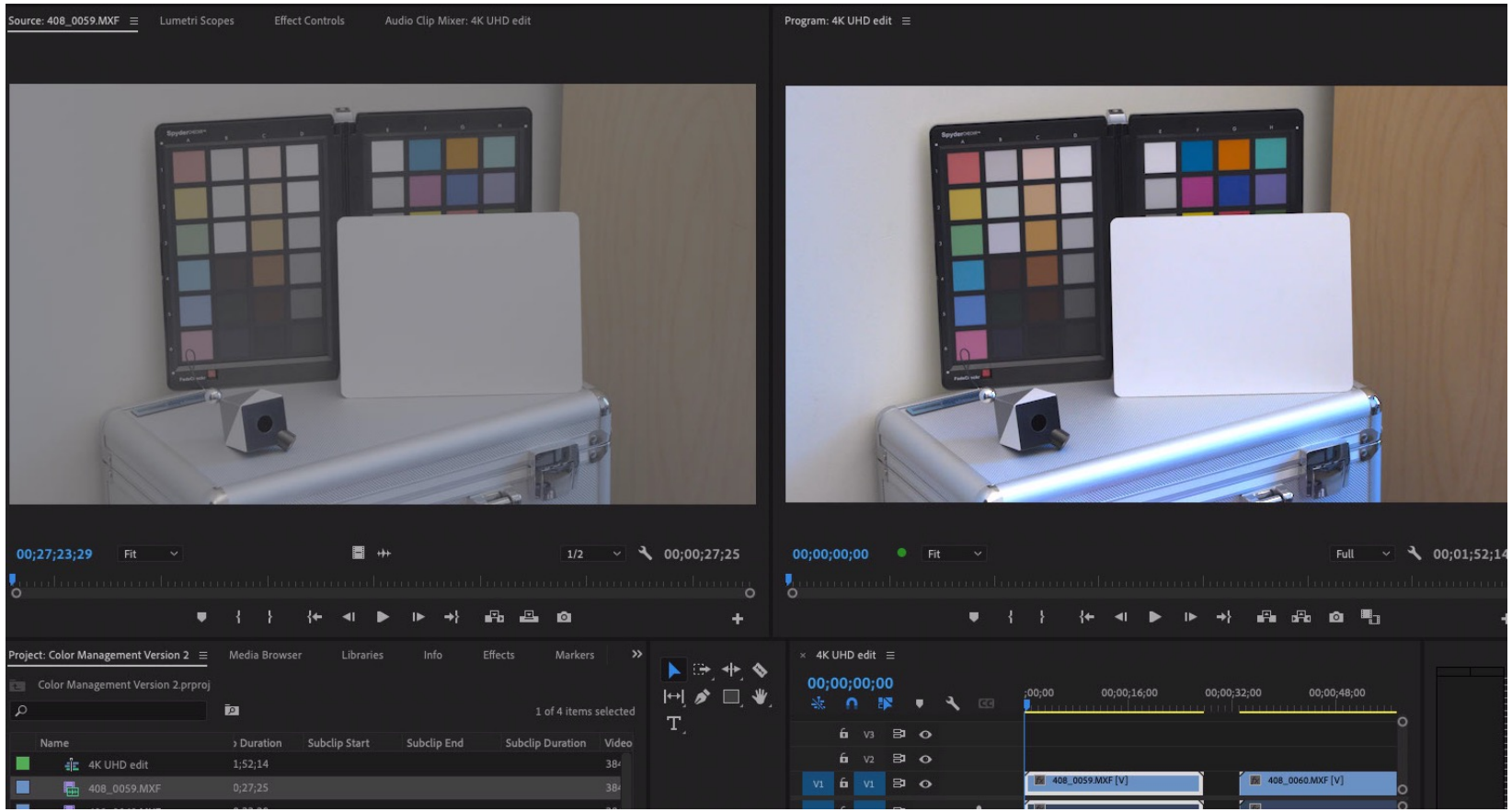
In this guide we are focused on shooting videos in the Rec.709 colour space: in Custom shooting mode by selecting **SDR(BT.709)** as the Target Display and in Cine EI mode by normalizing the Slog 3 image in the viewfinder with the **s709** LUT (base look) and normalizing to the Rec.709 space using the S-Gamut3.Cine/SLog3 LUT called SL3SGCtos709.cube.

This .cube file was saved to your CF card if you chose to embed the LUT or is available on this page: https://pro.sony/en_CA/technology/professional-video-lut-look-up-table

Cine EI: Premiere 2022 colour management

When you import a Slog 3 video file into Premiere, you will notice that it appears washed out and low contrast in the viewer (like an uncorrected Slog 3 image) and normalized in a sequence with a Rec.709 working colour space.

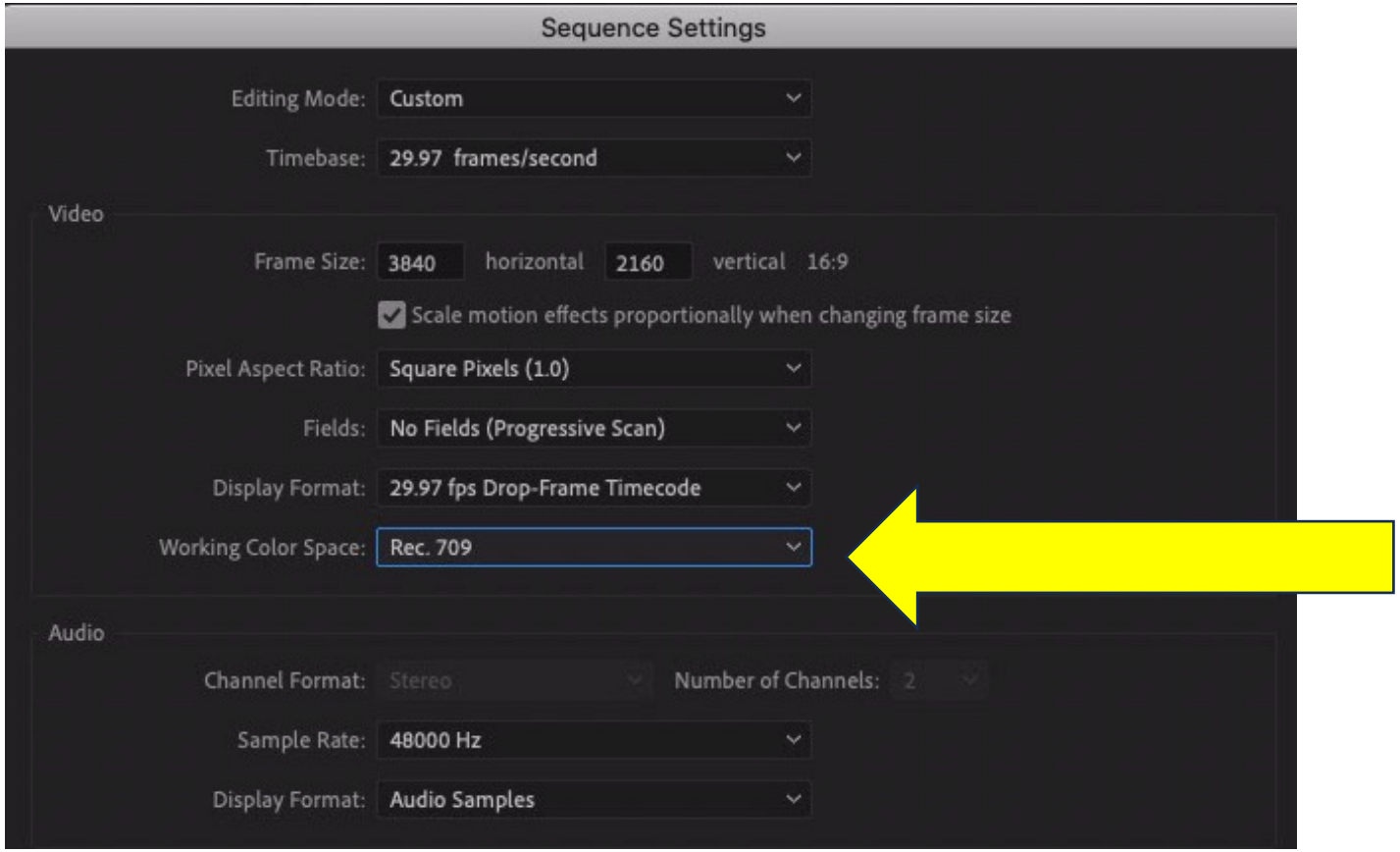
Viewer Window: uncorrected Slog 3 clip in project



Program window: Auto-corrected Slog 3 clip in a Rec.709 sequence.

Cine EI: Premiere 2022 colour management

Here are the sequence settings with the Rec.709 working colour space.

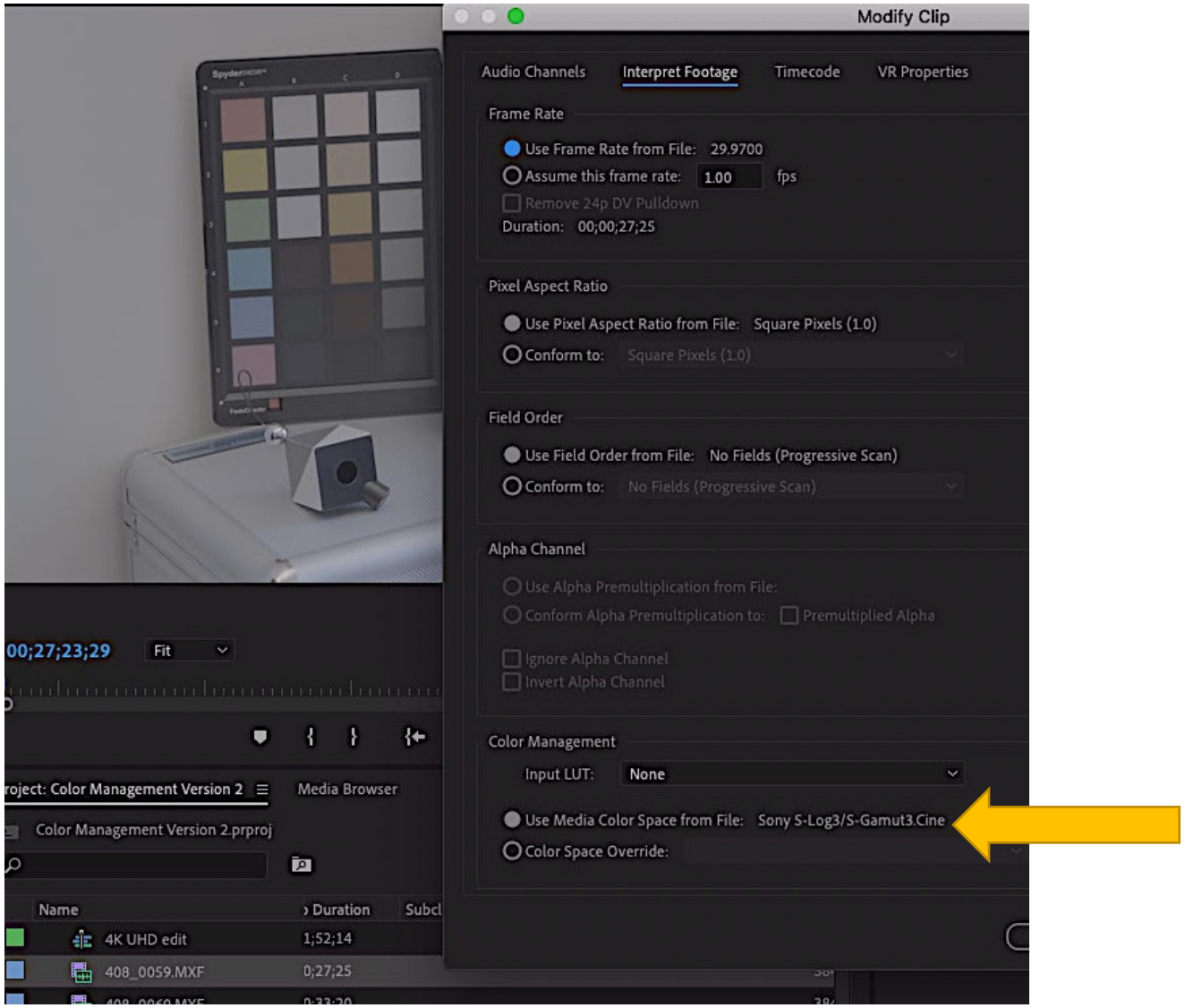


Cine EI: Premiere 2022 colour management

Right clicking (or control clicking) the video file in the project window and going to **Modify/Interpret Footage** will show you how Premiere has interpreted the Media colour space of the file.

Under **Colour Management** you can see that this file has been interpreted as being shot in Sony Slog 3/S-Gamut3.Cine.

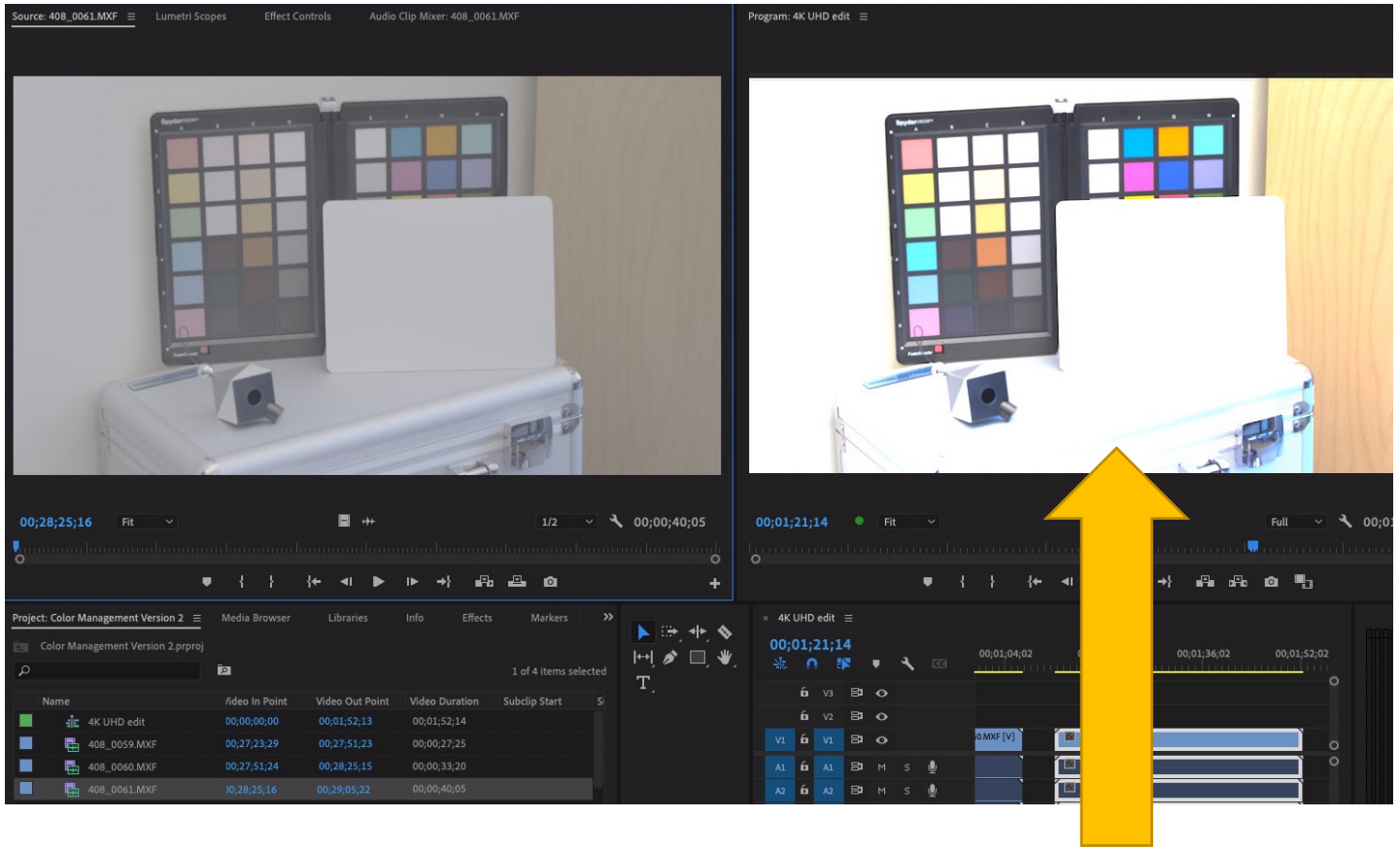
It says “Use Media Color Space from File: Sony S-Log3…”



Cine EI: Premiere 2022 colour management

This default Media colour space interpretation will work fine if you have exposed Slog 3 normally, using the same EI setting as the same Base Sensitivity (ISO) setting. The image will be normalized correctly in the sequence.

But if you have offset the exposure of the LUT in Cine EI mode, by using a different EI setting than the Base Sensitivity (ISO) setting, the image may not look correct. A slightly brighter exposed image looks really overexposed.

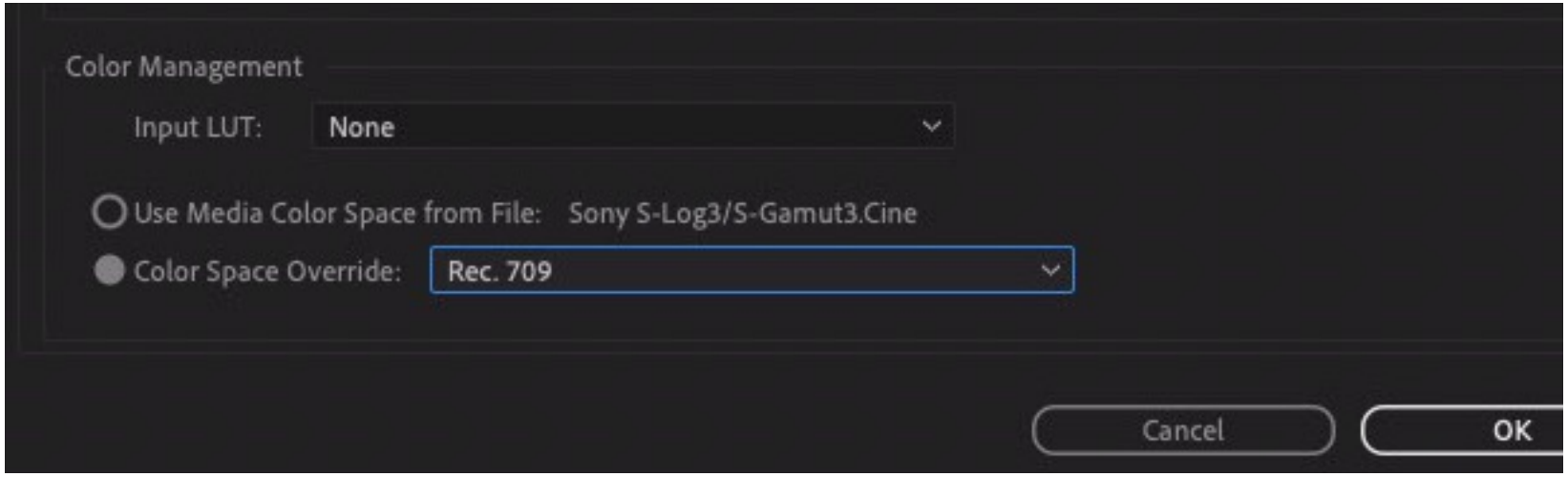


The image should not be this much overexposed.

Cine EI: Premiere 2022 colour management

In that case, it is best to **override** the media colour space interpretation that Premiere is providing. You may also use the override when you start colour correcting if you want to grade from scratch or grade using the imported S-Gamut.Cine/S-log3 LUT. This is recommended!

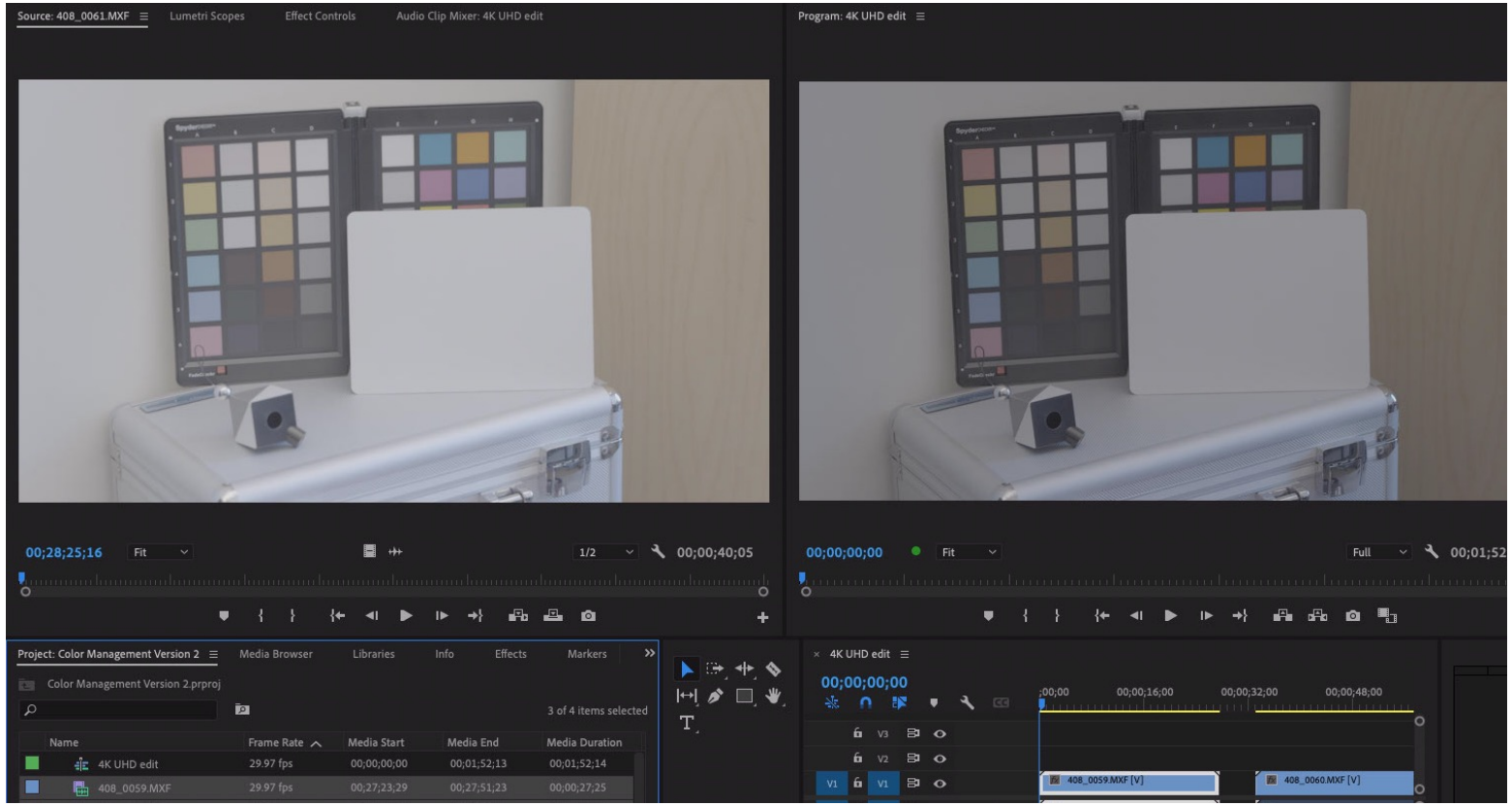
Right click (or control click) all the video files you want to override in the project window, then go to **Modify/Interpret Footage** and under **Colour Management/Colour Space Override**, select **Rec.709**.



Cine EI: Premiere 2022 colour management

After you apply this override, then you are working with uncorrected Slog 3 images in the project and in the Rec.709 sequence. The images will look the same in the viewer and in the program window.

Viewer window: Uncorrected Slog 3 clip in the project



Program window: Uncorrected Slog 3 clip in the sequence

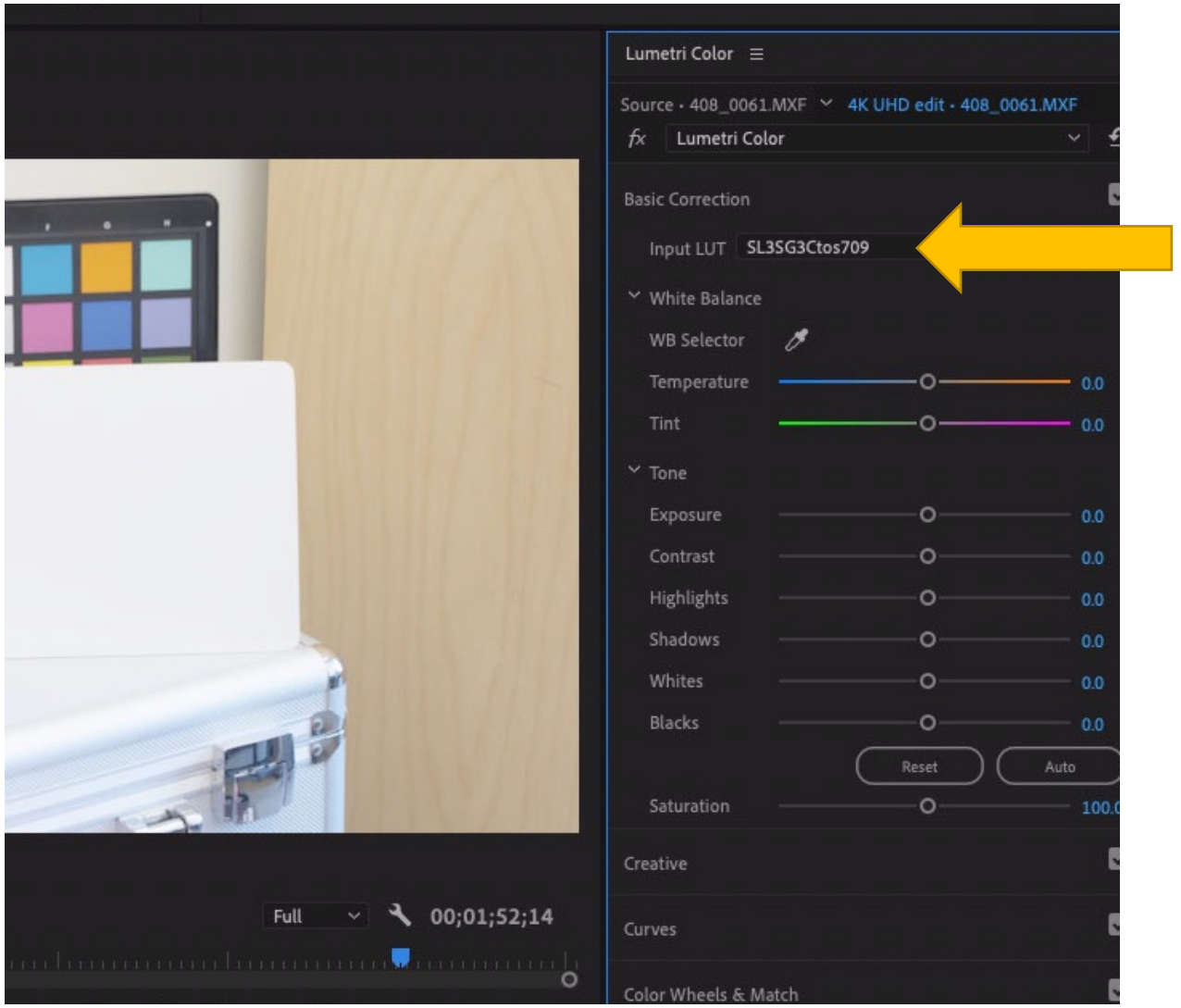
Cine EI: Applying a LUT in Premiere

To normalize a single clip using the Sony LUT, apply the Lumetri colour effect to the clip on the sequence.

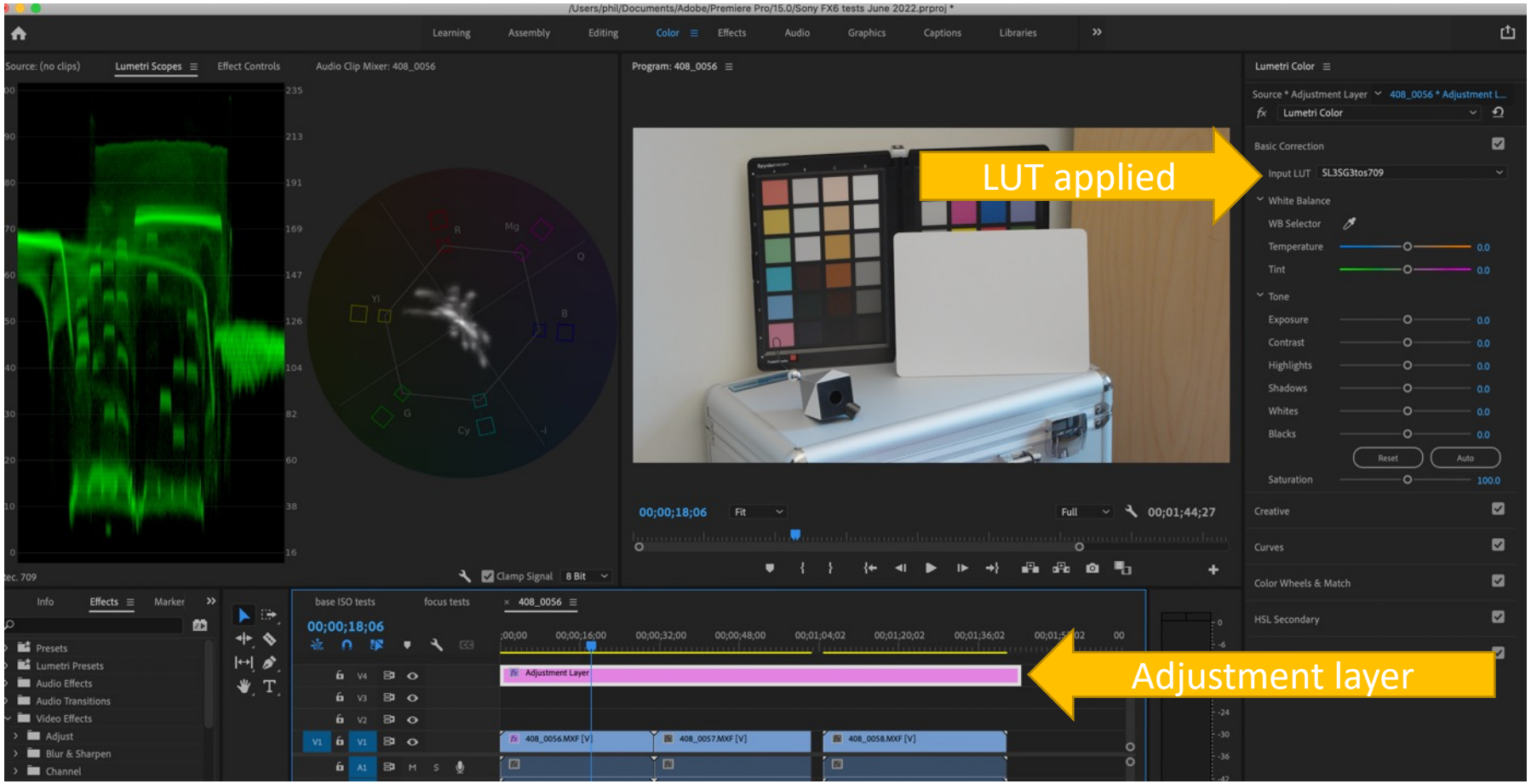
Then input the Sony S-Gamut.Cine/S-log3 LUT in the basic correction tab of the Lumetri effect.

Shots taken with EI exposure offsets on the LUT will look correct (only slightly brighter or darker as you shot them).

To apply the LUT normalization to a series of clips, make an adjustment layer.



Cine EI: Adobe Premiere adjustment layer



Here I have an adjustment layer with the LUT applied. I am using only one instance of the Lumetri color tool to normalize all the clips underneath the layer.

When making an adjustment layer, make sure to have the project window selected, not the sequence.

Cine EI Option Two: Importing custom LUTs

Sony FX6

Cine EI: Using other LUTs

If you apply other built-in LUTs or custom LUTs, they will have different brightness levels and should be exposed differently than the built-in s709 LUT.

Once a LUT is applied, you should be able to judge exposure by eye but if you want to be more accurate, look for any documentation that comes with the LUT.

Different LUTS may also have different white balance levels.

White balance once the LUT is turned ON in the camera menu.

Another FX6 built-in LUT is the **709 800 LUT**.

For the 709 800 LUT: expose a white card at 90 %, gray card at 45 %.

This LUT makes the image look brighter and more contrasty.

But no matter what monitor LUT is applied, the video file is recorded as a neutral Slog 3 image.

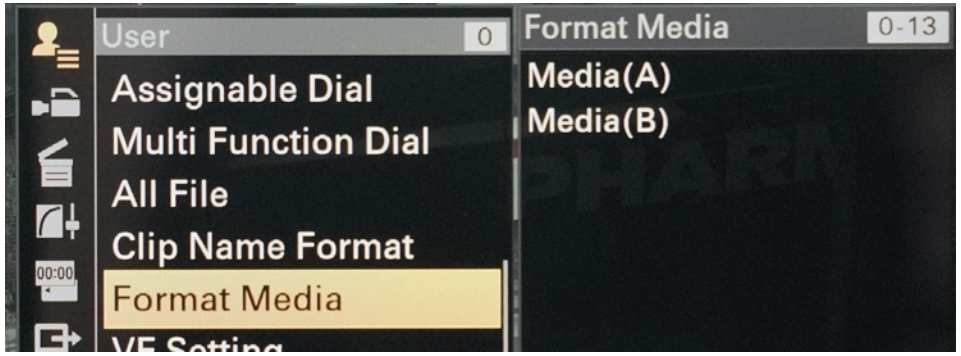
Cine EI: Loading Custom LUTs

You can load your own LUTs into the camera.

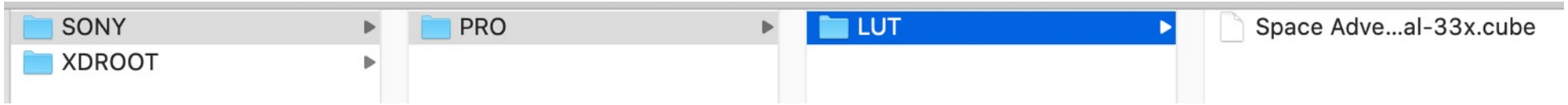
The LUTS must be 3D .cube LUTs: 17x or preferably 33x cube LUT’s designed for use with S-Log3 and SGamut3.cine. It is even better if they are designed for use with the FX6.

Put the LUTS in the location shown below on the media card in **Slot B** of the camera.

You may have to format Media Card B first. A quick format is fine. This erases all files!



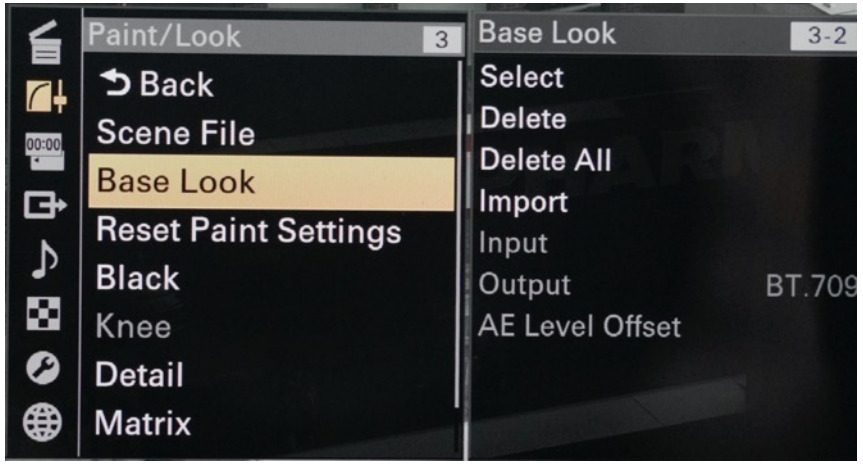
Format the card and then import the custom LUT into this location on card B:

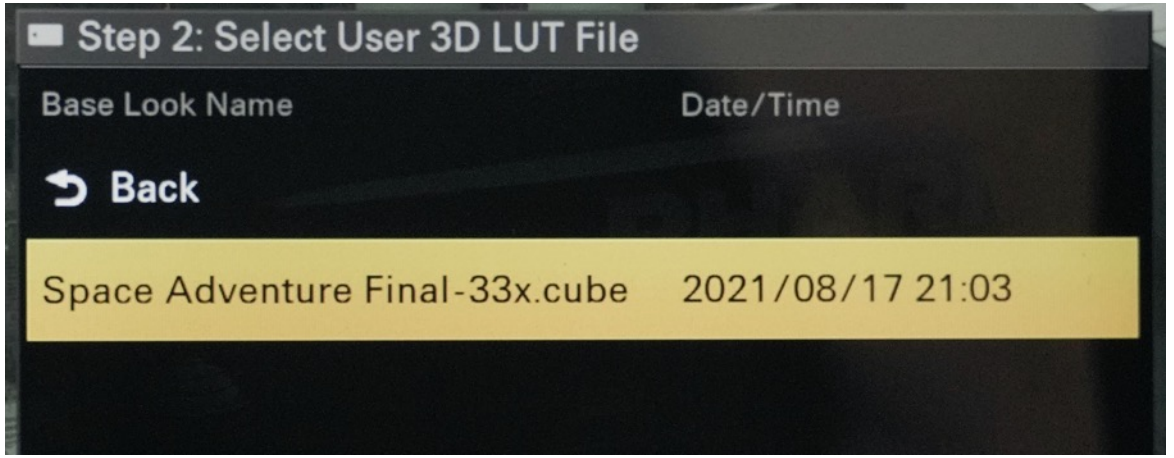


Cine EI: Loading Custom LUTs

Put card B in the camera and then go to **Menu/Paint/Look/Base Look/Import.** There are several free spaces for loading LUTs. Pick one of them (it will say NO LUT).

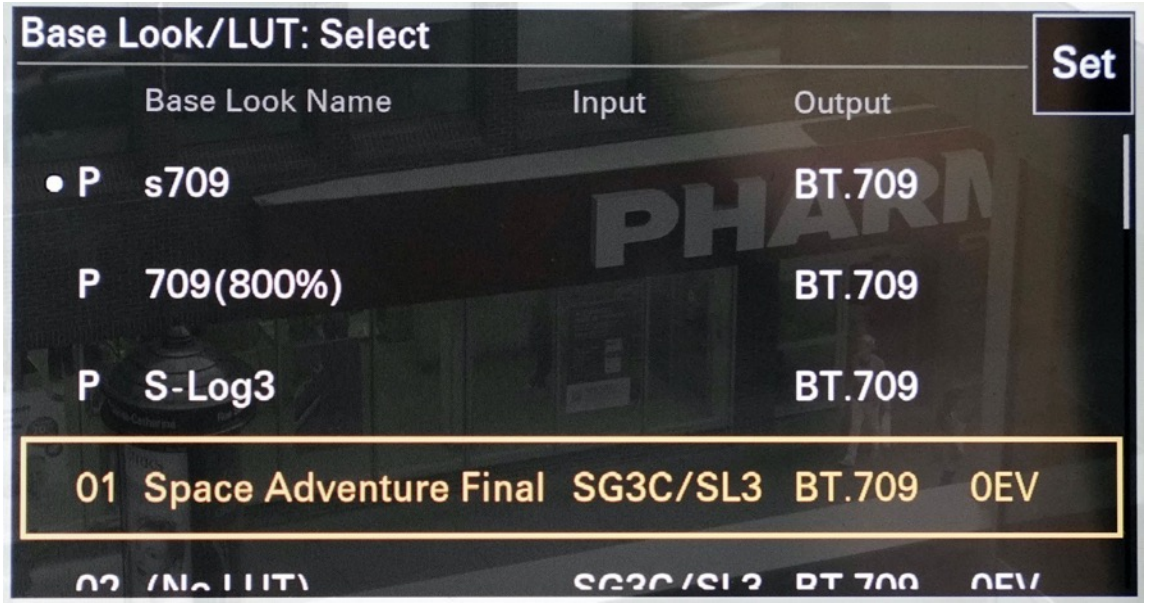
Here I am loading a LUT for a sci-fi look called “Space Adventure Final”.





Cine EI: Loading Custom LUTs

In this particular case, I chose the first free space with No LUT. The custom LUT will now appear in this list when you select a LUT on status page 1. It will appear in the VF in Cine EI mode once you have the LUT turned ON for the VF and for the SDI/HDMI outputs.



Custom LUT on VF

LUT on outputs

Cine EI: Gamma Display Assist

If you are using a LUT, then you don’t use the Gamma Display Assist.

You can use the Gamma Display assist if you wish, **instead** of the a LUT. Turning on Gamma Display Assist will make Slog 3 images look normal in the camera viewfinder. **But be careful.**

Gamma Display Assist will make the image appear normal in the viewfinder but the waveform monitor will show the values of the unaltered Slog 3 image.

So, if you use want to use the waveform monitor to judge exposure, there is a mismatch between what you see in the VF and what values are being represented in the waveform monitor. This can become confusing.

Cine EI Option Three: Exposing Slog 3 without a LUT

Sony FX6

Cine EI: Slog 3 exposure without a LUT

If you are used to working with Slog 3 in other non-cinema Sony cameras, then you may prefer to shoot Slog 3 with the FX6 without a LUT applied.

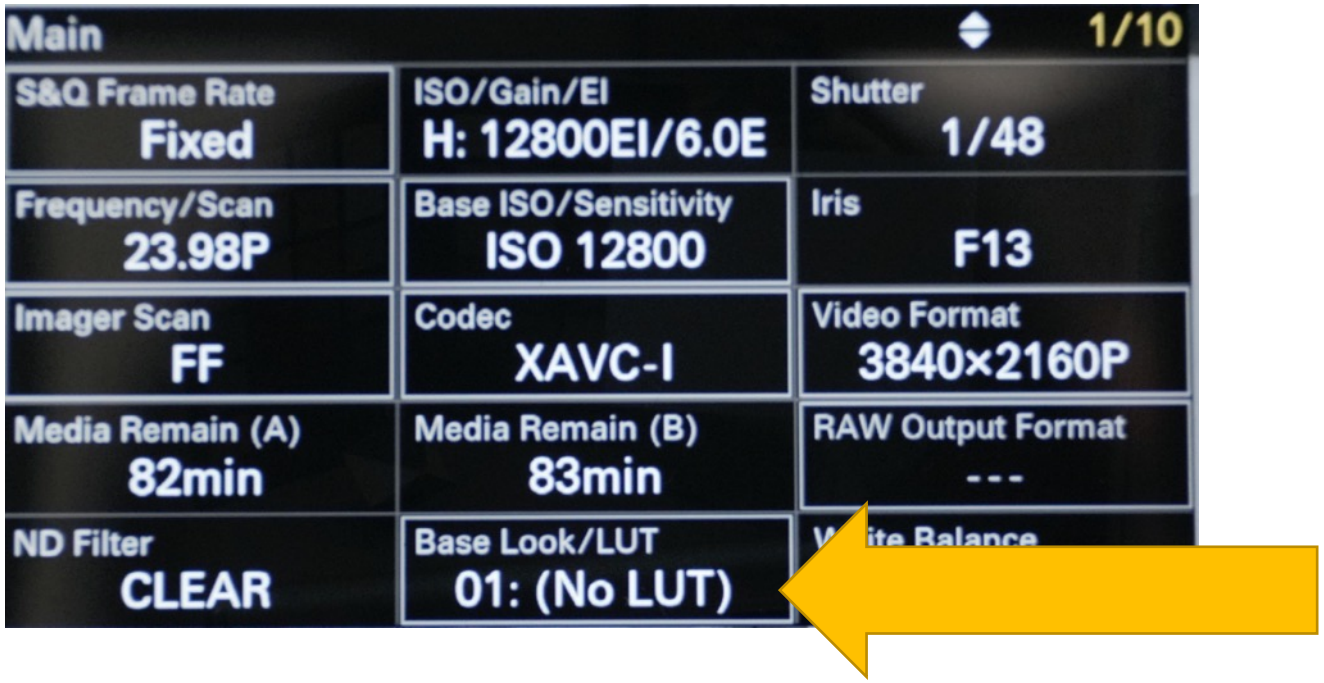
Without a LUT on for the viewfinder, the image in the VF will be low contrast and desaturated. Without a LUT on for the SDI/HDMI outputs, the luminance values in the waveform monitor will look compressed.

I don’t recommend this method if you are new to shooting Slog 3. It just makes judging the image harder.

Nevertheless, the following pages describe the setup and exposure.

Cine EI: Slog 3 exposure without a LUT

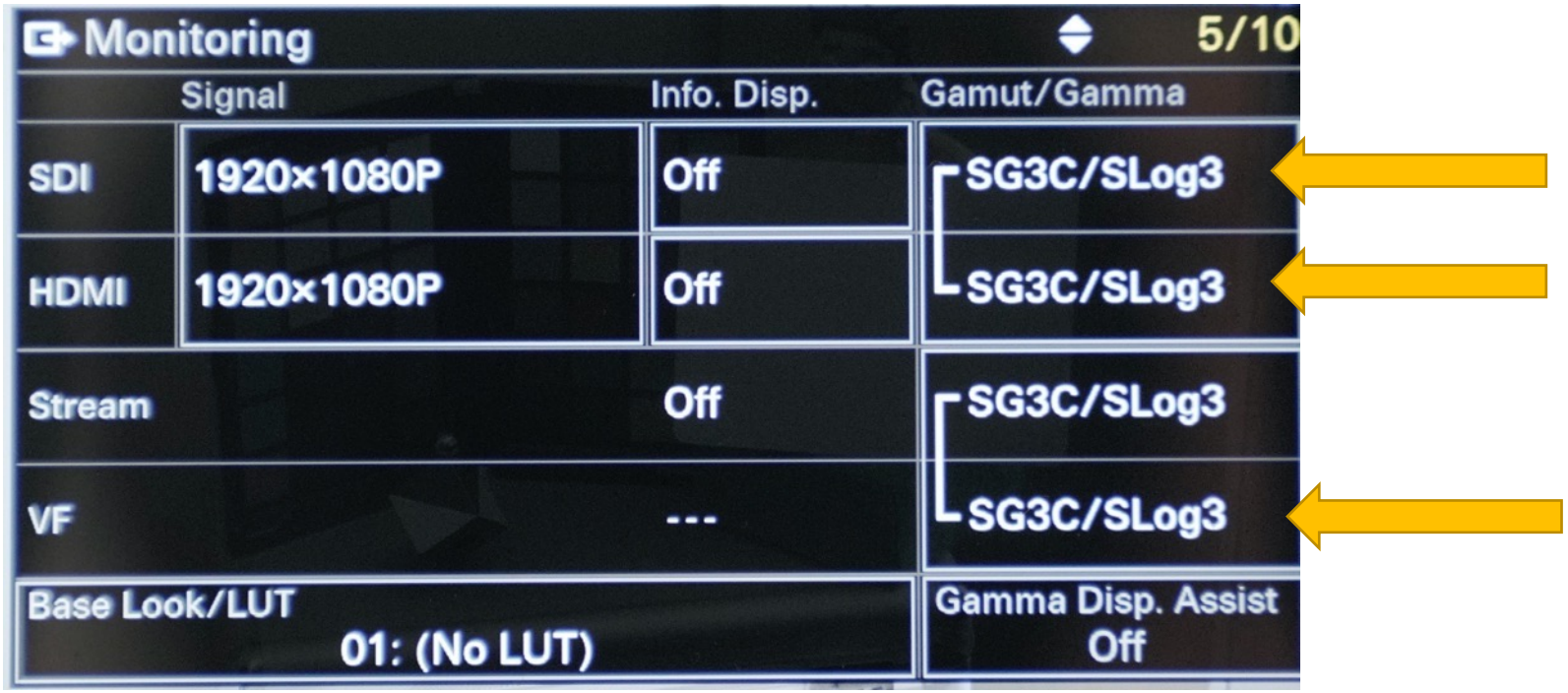
In this case, in Cine EI mode status page 1 choose the **No LUT** option under Base Look/LUT. There are several choices with No LUT since these are empty fields into which you can load custom LUTs.



Cine EI: Slog 3 exposure without a LUT

In status page 5, choose **SG3C/Slog3** for the SDI, HDMI outputs and the VF. This means that no LUT is applied to the viewfinder(VF) and the outputs. **It is very important that the settings are the same for the outputs and the VF.**

You can also verify that the Base Look/LUT is set to No LUT and that Gamma Disp. Assist is OFF.



Cine EI: Slog 3 exposure without a LUT

With the s709 LUT off, no LUT at all, Alister Chapman suggests exposing a white card at 61 percent.

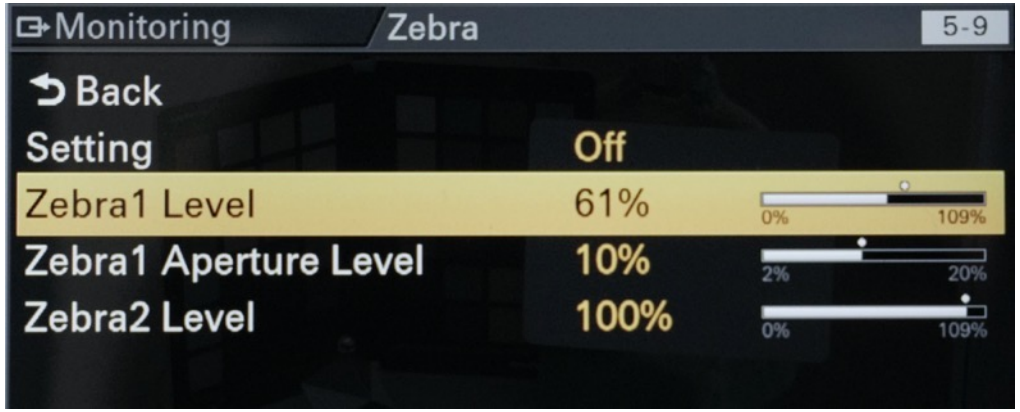
You can make these values zebra settings that will appear on the waveform monitor:

Menu/monitoring/zebra/zebra level 1

Keep zebra level 2 at 100 percent if you need to judge overexposure.

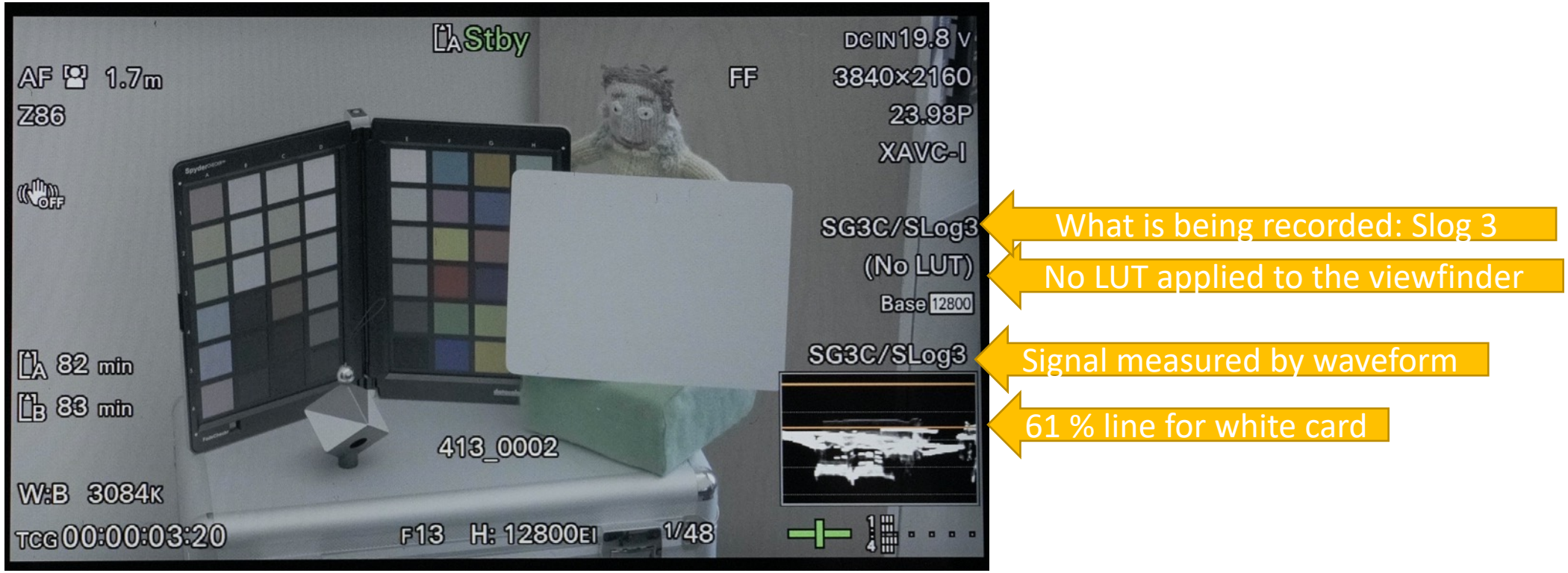
The above levels are for a proper photographic 90 % white, 18 % gray card.

Expose white paper at 63 percent.



Cine EI: Slog 3 exposure without a LUT

In this image the white card is exposed at 61 percent. The waveform monitor is reading the signal from the Slog 3 image, not the applied LUT, because there is no LUT applied to the SDI/HDMI outputs. Note that the Base Sensitivity (ISO) and EI preset match: 12800.



Cine EI: Slog 3 exposure without a LUT

In Cine EI mode, shooting without a LUT applied, you are restricted to shooting at Base Low (800 ISO) and Base High (12800 ISO) sensitivity.

The L, M and H preset switches control EI values but changing these values has NO EFFECT because there is no LUT to adjust. The EI presets only adjust the brightness of a LUT.

Without a LUT, your options for controlling exposure are limited to iris, ND and shutter.

For this reason, you may with to use Flexible ISO shooting mode when shooting Slog 3 without a LUT. Flexible ISO will give you the ability to change ISO.

Cine EI Quick Shooting Mode

Sony FX 6

Cine EI Quick

Cine EI Quick is exactly the same as Cine EI shooting mode with **one exception** that makes adjusting EI easier.

In Cine EI, the Base ISO/Sensitivity setting affects how much you can change EI.

At the Base Low ISO 800 setting, you can adjust EI from 200 EI to 3200 EI.

At the Base High ISO 12800 setting, you can adjust EI from 3200 EI to 51200 EI. But you have to change the Base ISO menu setting to access higher or lower EI settings.

In Cine EI Quick, **you don’t need to go back to the Base ISO menu**. See next page.

Cine EI Quick

In Cine EI Quick, you don’t need to go into the menu to change the Base ISO setting from Low to High. The camera will automatically change the Base ISO setting depending on what EI you choose. You can make these EI changes in the direct menu in the viewfinder.

In Cine EI Quick, **3200 EI is the threshold** between the Base Low ISO 800 and the Base High ISO 12800 settings. When EI is set below 3200, the camera is set to Base Low ISO, at 3200 EI and above it is set to Base High ISO.

That’s the only difference between Cine EI and Cine EI Quick.

So, this is quick chapter.

Flexible ISO Shooting Mode

Sony FX 6

Flexible ISO: Display

Battery

Image size

Frame rate

Codec

Slog 3 Recording

LUT applied to VF

Base ISO

LUT applied to waveform mon.

Audio Meters

Flexible ISO

Flexible ISO is also for creating Slog 3 video.

The difference between Flexible ISO and the two Cine EI modes is that in Flexible ISO mode **you can change the ISO setting** just like in Custom shooting mode. **In Flexible ISO mode you adjust ISO**, not EI.

Flexible ISO mode is most useful when you want to shoot Slog 3 images in a low light situation and you are restricted by Cine EI.

If you are shooting in Cine EI mode at Base High 12800 ISO and your image is still too dark, switch to Flexible ISO mode if you want a cleaner image.

Flexible ISO

In Cine EI, in a low light situation, you will create noisy images if you expose the image darker by raising the EI to a value higher than the Base High 12800 ISO setting.

Adjusting ISO above 12800 ISO in Flexible ISO mode, also creates image noise but the overall result is cleaner.

See the comparisons between shooting Flexible ISO and Cine EI in low light on page 157 of this guide.

You may find Flexible ISO mode a more intuitive way to shoot Slog 3 video and want to skip Cine EI mode.

Flexible ISO

You can follow the chapter on Cine EI: exposing Slog 3 with the s709 LUT for detailed instructions on how to properly expose Slog 3 video. The procedure is the same:

1. Pick the s709 LUT at the Base Look/LUT
2. Turn on the LUT for the viewfinder and the outputs
3. Choose the S-Gamut3.Cine/Slog 3 Gamut.
4. Get the right exposure but this time, by staying as close as possible to one of the two Base Low or Base High ISO settings. In Flexible ISO, the settings are Low: 5000 ISO, High 12800 ISO. The ideal exposure settings are on the next page:

Flexible ISO: exposure

The instructions for exposing Flexible ISO are the same as for Cine EI. With the s709 LUT applied, you can judge the exposure by eye or, more accurately, follow these instructions from Alister Chapman:

expose a white card at 77 percent or

expose a gray card around 41 percent.

The above levels are for a proper photographic 90 % white, 18 % gray card.

White paper is brighter than a 90 percent white card so expose white paper at 81 percent.

These numbers only apply to the s709 LUT. Different LUTS may require different exposures.

Appendix One:
Attaching the Viewfinder Loupe

Sony FX 6

Attaching the Viewfinder Loupe

There is an optional Zacuto Loupe for the Viewfinder. Ask for it at the EV depot when you pick up the camera. It does not come in the camera bag.

It is so much easier to judge the image outdoors with the loupe attached.

Using the loupe makes judging manual focus easier. But you won't be able to use the touch screen for focus!

Attaching the Loupe

The Sony bracket is too weak to support the loupe so first attach the more sturdy Vocas bracket. Do not attach the loupe to the VF without attaching the Vocas bracket first. The Vocas bracket allows the VF and loupe to be tilted but the VF will not have the same range of vertical positions.

The loupe can be easily removed while shooting once the bracket is in place.

The camera does not fit into the camera bag with the Vocas bracket attached. Remove it once you have finished shooting.

The process is explained step by step on the following pages.

Attaching the loupe

Detach the cable for the VF from the right side of the camera.

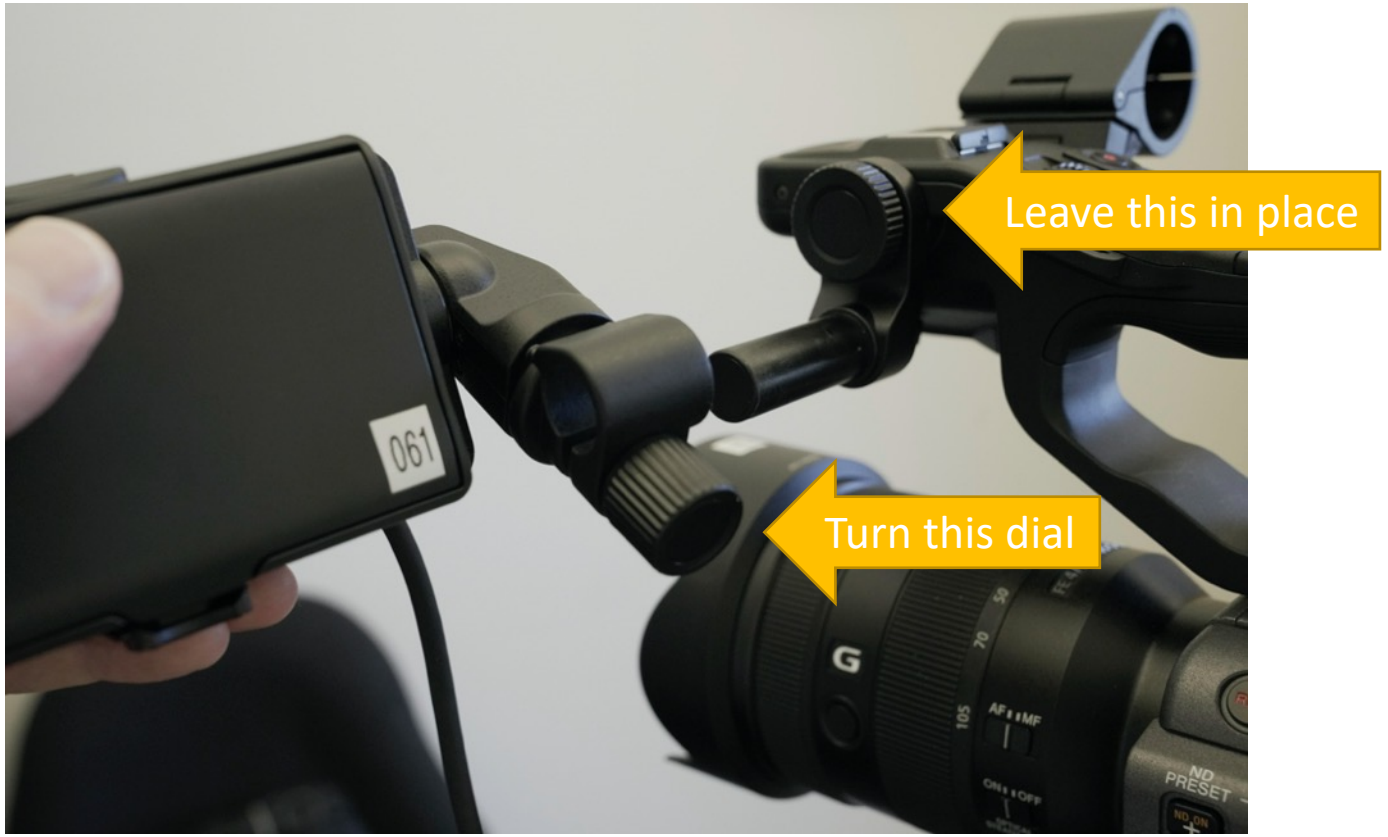
Press the sides of the plug to detach it.

Be careful as there are many small pins on this plug.

Attaching the loupe

Now that the VF cable is free, detach the VF from the camera handle by turning the dial.

Leave the post that is mounted to the handle in place.



Attaching the loupe

Attach the Vocas viewfinder bracket to the same post that you just removed the VF from.

Tighten with the red handle.

Attaching the Loupe

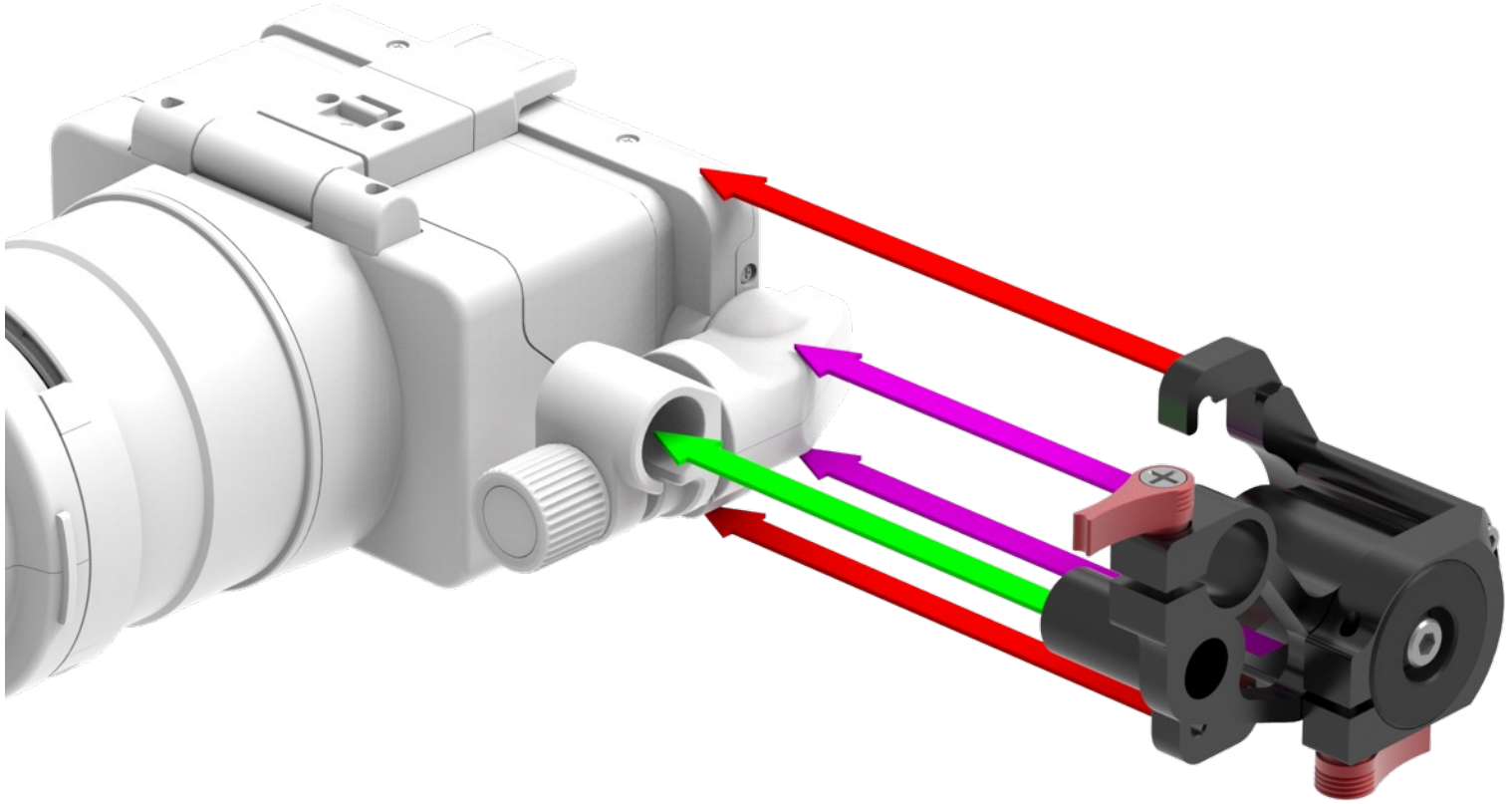
Slide the VF into the bracket.

See the following pages for more detail on this part.

Attaching the Loupe

This image from Vocas, gives you a better idea of how the FX6 VF fits into the bracket.

Ignore that a loupe is already attached to the VF in this image. The VF pictured is a Sony FX6 VF.



Attaching the Loupe

Tighten the VF on the bracket with the dial.

Plug the VF cable back into the camera taking care to line up the pins correctly.

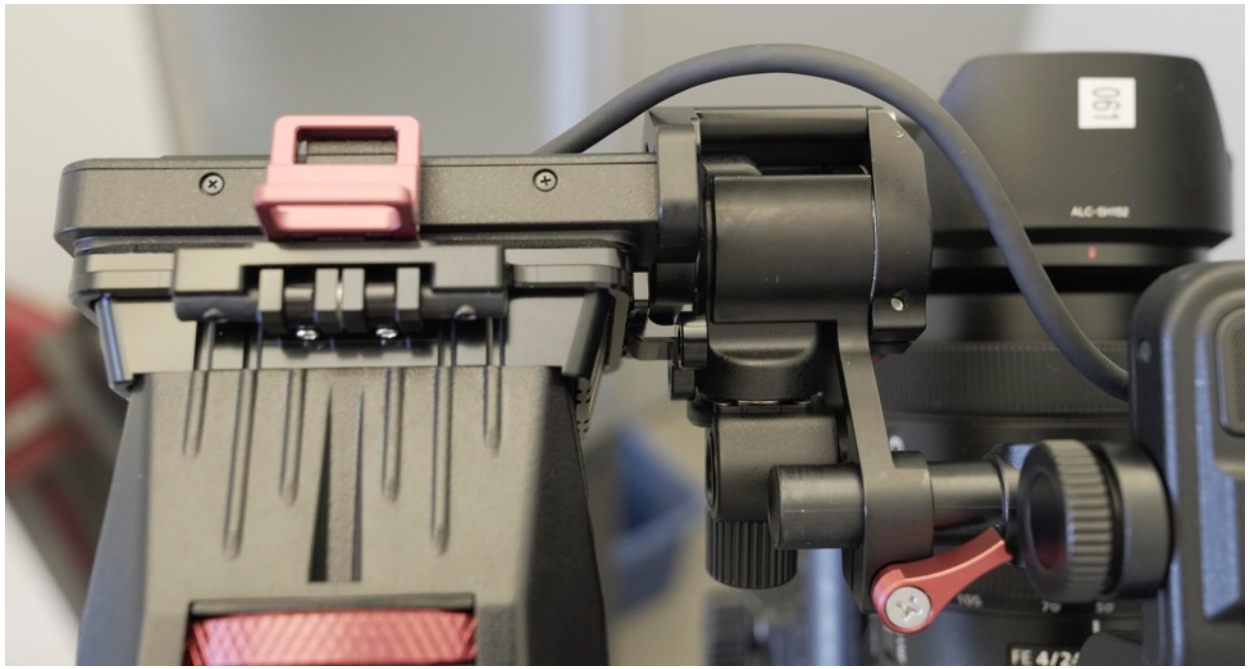
Attaching the Loupe

Remove the shade from the VF and attach the Zacuto loupe on to the VF using the top clasp on the loupe.

Be careful not to scratch the VF screen.

Attaching the Loupe

Here is another view with the loupe attached to the VF and the VF secure in the Vocas bracket.



Take apart before packing up

Follow the procedure in reverse to detach the loupe.

When remounting the VF to the camera, once the Vocas bracket has been removed, secure the VF right at the end of the rod. This way the VF has room to turn towards the camera when it is stored in the bag.

Appendix Two: Controlling the Camera Remotely

Sony FX 6

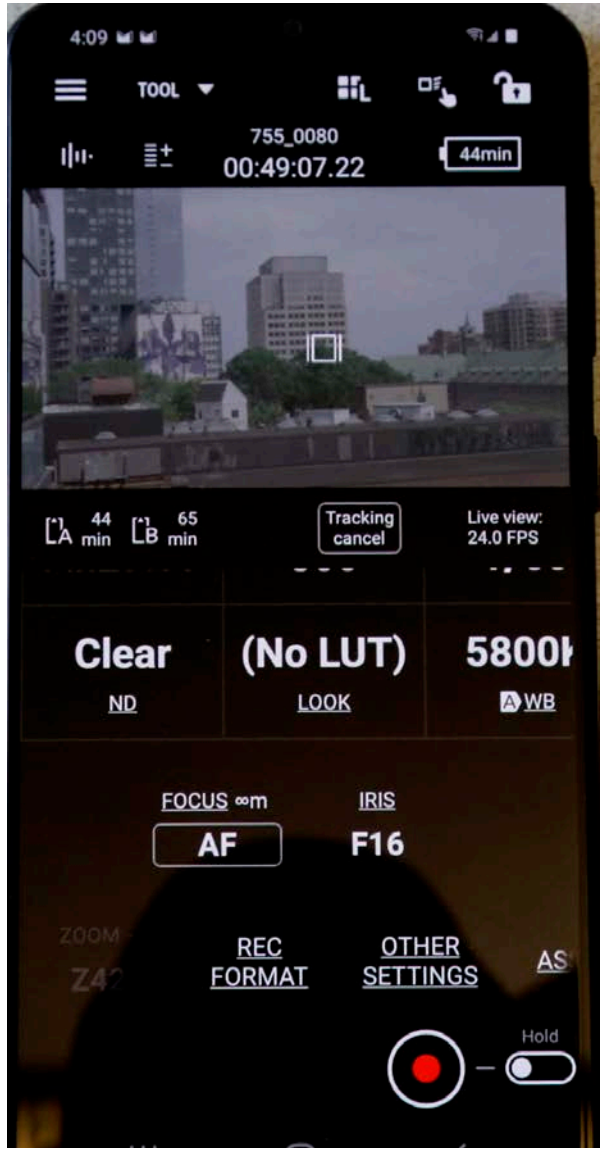
Sony Monitor and Control App

You can control the camera remotely from an iOS or Android device (phone or tablet).

Download the Sony Monitor and Control app to your device.

Exposing settings and many menu settings can be adjusted. Touch screen for focusing also works. You can start and stop recording.

The interface was slightly buggy on Android but useable.



Sony Monitor and Control App

To use the Sony Monitor and Control app, you have to establish a WIFI connection to the camera.

Follow this Sony guide. It takes about 20 minutes to complete the set up.

https://helpguide.sony.net/promobile/mc/v1/en/index.html

Appendix Three: Tripod Tips

Sony FX 6

Tripod Tips: basic advice

Tripods, having three legs, can tip. Follow this advice to avoid accidents:

Always take the camera off the tripod when moving it. The quick release plate makes this easy to do.

If you do need to shift the tripod slightly while the camera is on it, make sure you have one hand on the camera handle as you are shifting the tripod legs.

If you suspect that the camera will be in a high traffic area when shooting (a conference, for example), you can steady the legs of the tripod against sandbags (available from the EV depot). Sandbags are also useful if the surface is uneven.

Tripod tips: the Sachtler tripods

The EV depot staff will give you one of the Sachtler tripods for the Sony FX 6.
There are two models, the newer model called ACE is pictured to the right.
The ACE model is lighter and has a simpler quick release plate mechanism.

Older model

Newer model

Tripod tips: older model Sachtler base plate

The older, heavier, Sachtler tripod model **has a very powerful quick plate release spring.**
Before removing the plate, make sure the tilt and pan are locked.
To remove the quick release plate you must pull down on the small red disk attached below the red lever. Then move the lever to the left. The quick release plate should pop up.
Remove the release plate by the tripod screw.
Be careful not to get your fingers trapped between the plate and the release mechanism!
The plate snaps into place with a lot of force.

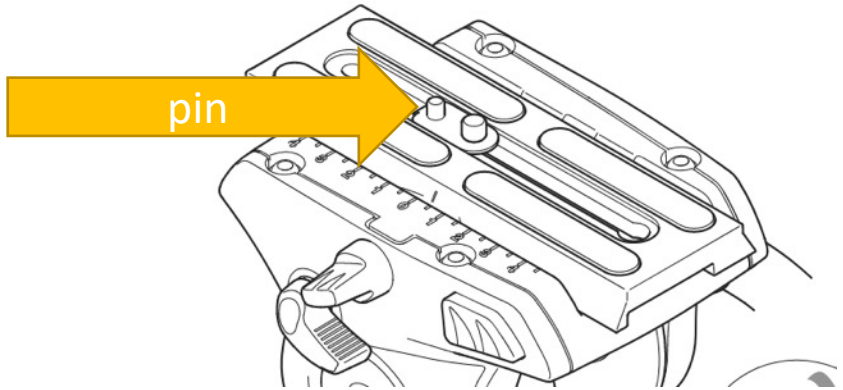
Tripod Tips: Newer Sachtler tripods

- The newer Sachtler ACE tripod has a much simpler quick release mechanism. Tighten/loosen the plate with the side screw. Press the red button to release the plate. The plate can only go into the tripod in one direction (look for the arrow).

Tripod Tips: ACE plate

In addition to a screw, the quick release plate of the ACE tripod has a pin. You can adjust the position of this pin to make sure it aligns with the hole for the pin on the bottom of the FX6.

You can also remove the pin when using the tripod with a DSLR.



Tripod Tips: adjusting the tripod head

The whole tripod head is on a bowl that can be adjusted. This is for small adjustments that cannot be done by adjusting the height of the legs.

Make sure the pan and tilt are locked. Adjust the handle at the bottom of the tripod head. Use the spirit level to ensure that the tripod is level. Line up the bubble within the circle of the level.

It’s best to do this operation without the camera mounted but if the camera is mounted **keep one hand on the camera handle.** The tripod handle should be tight when finishing.

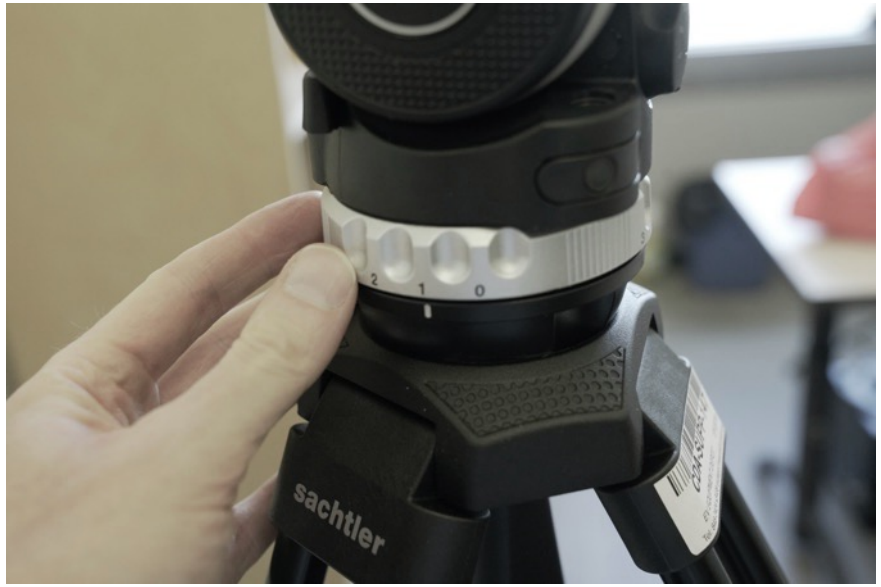
Tripod tips: legs

Once the legs are at the correct height tighten the supports between the legs. This step is easy to forget. It increases stability and is important!

Tripod Tips: Pan and Tilt

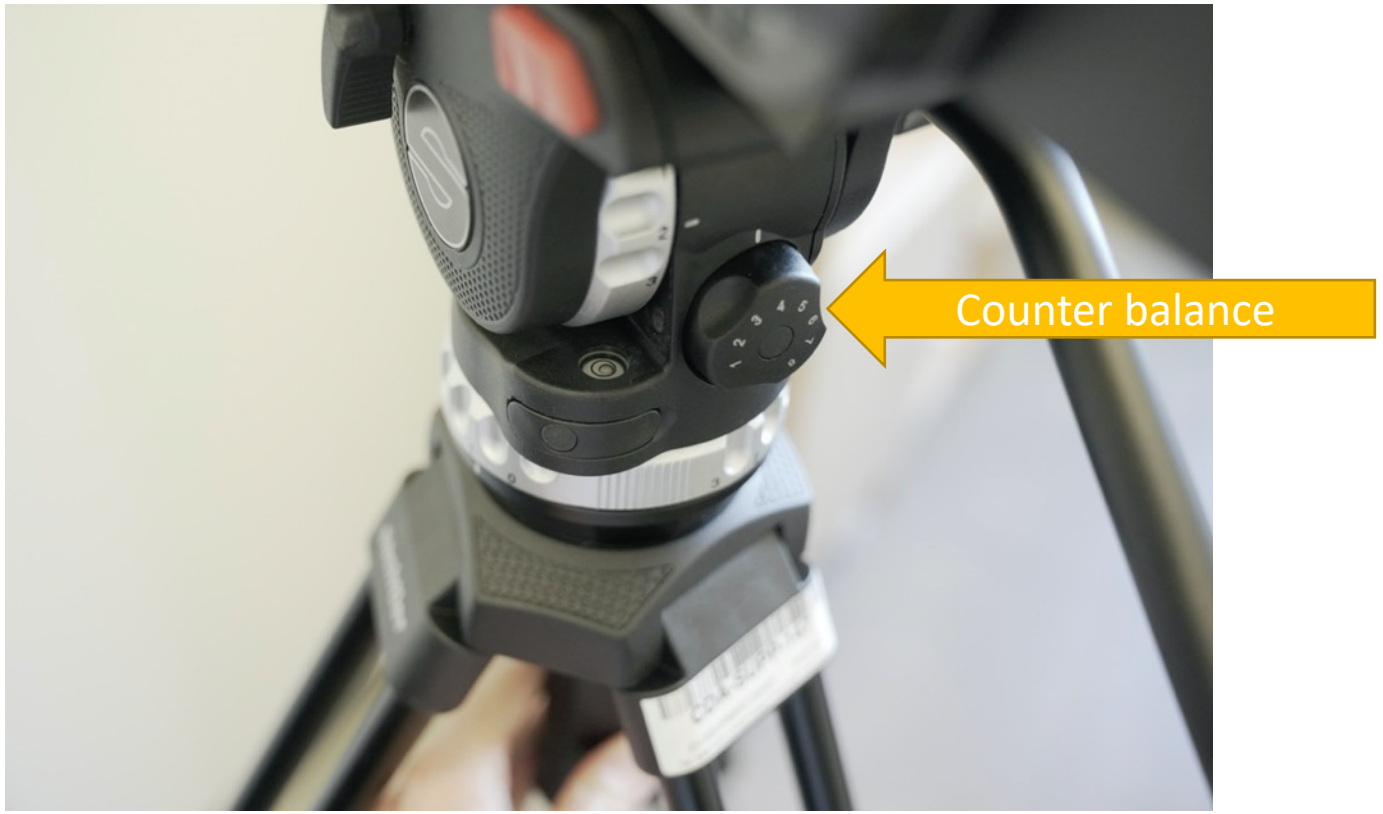
Both models have similar pan and tilt controls. Unlock the pan and tilt before adjusting. Keep one hand on the tilt handle.

The fluid head has three drag levels for tilt and pan. Zero is no drag.



Tripod Tips: counter balance

Adjust the tension on the counter balance to change how the head springs back when tilting.



Additional Resources

Sony FX6

Additional Resources: Sony User Manual

The first place to go is the Sony User Manual.

The manual defines all the aspects and options that this guide has overlooked.

Unfortunately, the language is somewhat opaque on the actual operation of the camera.

https://www.sony.ca/en/electronics/support/interchangeable-lens-camcorders-ilme-series/ilme-fx6v/manuals

Additional Resources: tutorials

Alister Chapman is a British cinematographer who has a lot of information on his site about the FX6 and other Sony cameras.

The exposure level advice in this guide is from his tutorials.

https://www.xdcam-user.com/category/fx6/

Doug Jensen is a nature cinematographer in the U.S. He has a lot of concise and clear video instruction on the FX6. The hybrid focus method in this guide is based on his tutorial.

https://www.youtube.com/watch?v=ASQXluuCWkQ

Additional Resources: reviews

Philip Bloom is a filmmaker from the UK who offers idiosyncratic but always informative reviews on cameras with lots of scenic imagery.

These are meandering but entertaining. I have not watched them all.

His review of the camera before the firmware update:

https://philipbloom.net/blog/sonyfx6review/

His review following the firmware version 2 update:

https://www.youtube.com/watch?v=Vy0LwZqsAws

Additional Resources: LUTs

Sony LUTs:

https://pro.sony/en_CA/technology/professional-video-lut-look-up-table

LUTs for other Sony video cameras. You can try them on Slog 3 images shot with the FX6:

https://sonycine.com/resources/luts/

Overview of other LUTs for the FX6:

https://filmplusgear.com/fx6-luts/

Thank you for reading this guide.

If you have any comments, questions or suggestions

please email:

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