Nikon

$\mathbb{Z}$ 7II / $\mathbb{Z}$ 6II Professional
Technical Guide
— N-Log Recording —

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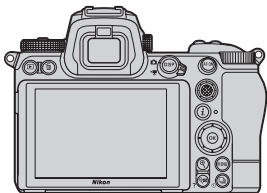
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N-Log: A Primer

The term "N-Log" is an amalgam of "N", for "Nikon", and "log", short for "logarithmic function". The logarithmic function in question is that used in digitizing light levels based on the density characteristics of negative film to render exposure differences much as humans perceive them. This is known as a "log curve".

The process of filming movies using a log curve is referred to as "logarithmic" or "log-format" recording. Log format recording preserves highlights and shadows in scenes in which they would otherwise be lost and is intended for footage that will be processed post-production, when color grading can be used to produce high-quality video with a wide color gamut that takes advantage of the large amount of tone information available for an expanded dynamic range and smooth color gradients.

Nikon's unique N-Log format was developed to take full advantage of sensor dynamic range. It offers excellent balance between highlights and shadows and is optimized for 10-bit movie recording.

● **Why Use N-Log?**

Shooting in N-Log format preserves details in highlights and shadows and expands the range of effects available through color grading.
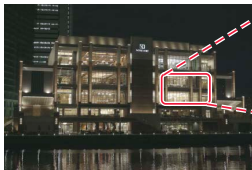
Preserving Details in Highlights and Shadows

N-Log preserves highlights and shadows in high-contrast shots, such as those that mix indoor and outdoor lighting.
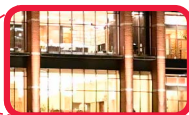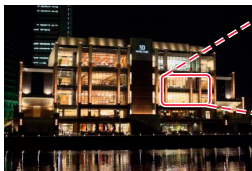

Non–N-Log

Footage shot without N-Log shows loss of detail in highlights.

N-Log

N-Log produces colors with less apparent contrast but more variation.
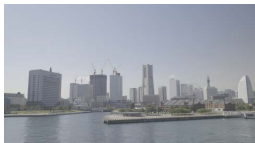

N-Log + color grading

Highlights, shadows, and color variation preserved.

Improved Color Grading

Third-party movie-editing software that supports color grading can be used to process the same footage in a variety of different ways, as is shown in the examples below.
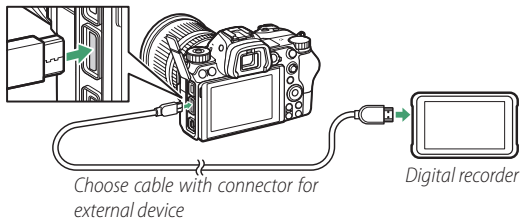

No color grading

Filming N-Log Footage

To record N-Log footage, connect the camera to a digital recorder that supports 10-bit video. Use a Type C HDMI cable (available from third-party suppliers) and be sure the camera is off before connecting or disconnecting the cable.

Choose cable with connector for external device

Digital recorder

To film N-Log footage:

1 Select **10 bit** for **Output data depth**.

N-Log footage can only be recorded at a bit depth of 10 bits. In the setup menu, select **10 bit** for **HDMI** > **Advanced** > **Output data depth**.
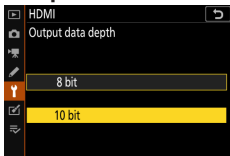
2 **Enable N-Log recording.**
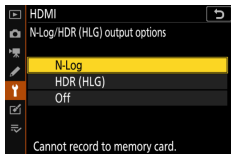Return to **HDMI** > **Advanced** in the setup menu and select **N-Log** for **N-Log/HDR(HLG) output options**. Note that N-Log footage is recorded only to the external device, not to the camera memory card.

3 **Configure the recorder for HDMI input.**
For details, see the documentation supplied with the device.

4 **Start filming.**
If **On** is selected for **HDMI** > **Advanced** > **External recording control** in the camera setup menu, you can start and stop recording using the camera movie-record button (page 10). Contrast can be enhanced for display on the camera during recording (view assist; page 11).

When the camera standby timer expires, the monitor will turn off and HDMI output will end. Choose **No limit** or a time longer than the anticipated recording time for Custom Setting c3 (**Power off delay**) > **Standby timer**.

N-Log Recording

While N-Log recording is in effect, Picture Controls cannot be used, ISO sensitivity cannot be set lower than ISO 800 or to values of from Hi 0.3 to Hi 2, Active D-Lighting and high ISO noise reduction turn off automatically, and photographs will not be taken when the shutter-release button is pressed all the way down. The camera may also have trouble focusing; this is not a malfunction. The subject will be displayed in the monitor, not the viewfinder, regardless of the display mode selected, and flicker or noise may be visible in the display.

Note that because HDMI output is not available when the camera is connected to devices running SnapBridge or Camera Control Pro 2, these applications cannot be used for N-Log recording.

Frame Size/Frame Rate

Note the following when choosing a frame size and frame rate for N-Log recording:

| Frame size/frame rate	Notes
3840 × 2160 60p (Z 7II only)	N-Log recording not available.
3840 × 2160 50p (Z 7II only)	
3840 × 2160 30p	• Icons and characters in the monitor display at low resolution, but this has no effect on the footage actually recorded.
3840 × 2160 25p	• The angle of view is reduced to about 90% (Z 6II only; on the Z 7II, the angle of view is reduced only when the DX image area is selected).
3840 × 2160 24p	
1920 × 1080 120p	N-Log recording not available.
1920 × 1080 100p	
1920 × 1080 60p	No restrictions apply.
1920 × 1080 50p	
1920 × 1080 30p	
1920 × 1080 25p	
1920 × 1080 24p	
1920 × 1080 slow-motion	N-Log recording not available.

● **Using Camera Controls**

If **On** is selected for **HDMI** > **Advanced** > **External recording control** in the camera setup menu, you can start and stop recording using the camera movie-record button (for further information, contact the manufacturer). The camera displays ⏺STBY in movie live view and ⏺REC during movie recording. During recording, check the recorder and recorder display to ensure that footage is being saved to the device.
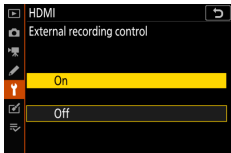
● **View Assist**

Although it increases the range of tones recorded, at default settings N-Log reduces the apparent contrast between colors when the footage is viewed in the camera monitor. If desired, the display of colors in the

camera monitor can be simplified to enhance contrast for ease of viewing by selecting **On** for **HDMI** > **Advanced** > **View assist** in the camera setup menu.
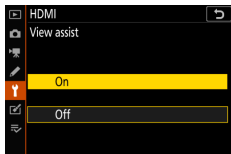
View assist on   *View assist off (default)*

View Assist

View assist applies to the display in the camera monitor only and has no effect on the footage output to the external recorder.

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● **Ensuring Consistent Exposure**

If your recorder features a waveform display, you can film an 18% gray color chart and adjust exposure for a video signal level (IRE) of 35%, equivalent to a 10-bit code value of around 372.
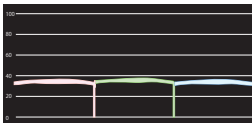
N-Log Specifications

N-Log specifications are available from the following website:

https://downloadcenter.nikonimglib.com/en/products/558/Z_7II.html

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