Nikon

Z 9 Reference Guide

(Supplement for Firmware Version 5.00)

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Features Available with "C" Firmware Version 5.00

The Z 9 Reference Guide is for "C" firmware version 3.00 (the latest version of the *Z 9 Reference Guide* is available on the Nikon Download Center).

- The *Z 9 Reference Guide* (*Supplement for Firmware Versions 4.00 and 4.10*) details the new features and changes introduced with camera "C" firmware versions 4.00 and 4.10. The supplementary documentation can be downloaded from the Nikon Download Center.
- This chapter details the new features and changes introduced with camera "C" firmware version 5.00.

"Firmware Version"

To view the camera firmware version or update the camera firmware, select [**Firmware version**] in the setup menu.

> Updates can be performed using a computer or smart device.
> - **Computer**: Check the Nikon Download Center for new versions of the camera firmware. Information on performing updates is available via the firmware download page. https://downloadcenter.nikonimglib.com/
> - **Smart device**: If the smart device has been paired with the camera using the SnapBridge app, the app will automatically notify you when updates become available, and you can then download the update to the camera memory card via the smart device. For information on performing updates, see SnapBridge online help. Note that automatic notifications may not be displayed at exactly the same time as the updates are made available on the Nikon Download Center.

Changes Made with "C" Firmware Version 5.00

The features added or updated with camera "C" firmware version 5.00 are summarized below. More information is available on the pages listed. For information on the menu items and defaults for "C" firmware version 5.00, see 'Menu Items and Defaults for "C" Firmware Version 5.00' (📖 56).

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New Picture Control Item: "Rich Tone Portrait"

The ☒RP [**Rich Tone Portrait**] item has been added to [**Set Picture Control**] in the photo shooting and video recording menus. This option produces more vivid results than [**Portrait**] while capturing details of the subject's complexion and avoiding loss of detail in highlights. It is also suitable for pictures that will later be processed or retouched.
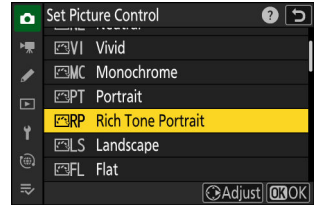
- [**Rich Tone Portrait**] has also been added to [**Manage Picture Control**] in the photo shooting and video recording menus. You can adjust the settings according to your preferences and save it as a custom Picture Control.
- When [**Rich Tone Portrait**] is selected, the following settings are adjusted.
  - [**Quick sharp**]
    - [**Sharpening**]
    - [**Mid-range sharpening**]
    - [**Clarity**]
  - [**Contrast**]
  - [**Brightness**]
  - [**Saturation**]
  - [**Hue**]

New High-Speed Frame Capture + Option: C15

Use the new [**C15**] high-speed frame capture + option to take pictures at 15 frames a second.

- With the release mode dial rotated to ⊒ᵢ, hold the ⊒ᵢ button and rotate the main command dial to select [**C15**].
- Photos can be taken at the following settings:
  - Shutter speed: $^1/_{32000}$–$^1/_{60}$ s
  - [**Image area**]: [**FX (36×24)**] or [**DX (24×16)**]
  - [**Image size**]: Fixed at [**Large**]
- Pre-Release Capture is also supported.

New Image Quality Item Added for High-Speed Frame Capture + Shooting

The name of the [**Image quality**] item in the photo shooting menu has been changed to [**Image quality settings**], and the image quality for high-speed frame capture + can now be configured separately from other release modes.

Option	Description
[**Image quality**]	Configure the image quality for the [**Single frame**], [**Continuous low-speed**], [**Continuous high-speed**], and [**Self-timer**] release modes. Functions the same as the [**Image quality**] menu in earlier versions of the camera firmware.
[**Image quality (HSFC)**]	Configure the image quality for release modes [**C15**] through [**C120**]. • The image quality can be set to [**JPEG fine**] or [**JPEG normal**].

If any of the actions below are performed, the setting for [**Image quality (HSFC)**] will be changed with a release mode of [**C15**] through [**C120**], and with other release modes, the setting for [**Image quality**] will be changed.

• The main command dial is rotated while the **QUAL** button is pressed.
• The main command dial is rotated while pressing the button assigned the role of [**Image quality/size**] in Custom Setting f2 [**Custom controls (shooting)**].
• Changes are made to the *i* menu [**Image quality**] settings in photo mode.

New Photo Shooting Menu Item to Select Noise Reduction Mode: "High ISO NR Mode"

The [**High ISO NR mode**] item has been added to the photo shooting menu. This setting allows you to select the noise reduction processing mode for [**High ISO NR**].
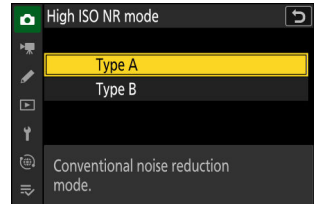
Option	Description
[**Type A**]	This mode applies a conventional noise reduction process.
[**Type B**]	In this option, the noise appears differently from the conventional mode.

• The noise reduction processing mode applied to pictures can be viewed on the [**Other shooting data**] page in the photo information display.
• To display the [**Other shooting data**] page, select (☑) both [**Shooting data**] and [**Other shooting data**] for [**Playback display options**] in the playback menu.
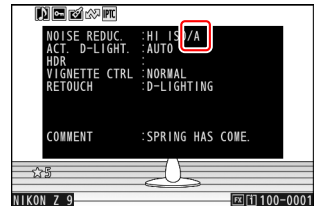
Tip: RAW Processing
The [**High ISO NR mode**] item is added to the settings that can be adjusted for [**Retouch**] > [**RAW processing (current picture)**] or [**RAW processing (multiple pictures)**] in the playback *i* menu.

"Skin Softening" Added to Photo Shooting and Video Recording Menus

The [**Skin softening**] item has been added to the photo shooting and video recording menus. Pictures taken when the face of a human portrait subject is detected will automatically be processed to soften the subject's complexion.

Option	Description
[**Same as photo settings**] (video recording menu only)	Use the option currently selected for photos.
[**High**] [**Normal**] [**Low**]	Choose the amount of skin softening performed from (in order from high to low) [**High**], [**Normal**], and [**Low**]. • The camera can perform skin softening on up to three subjects at a time. • If more than one human portrait subject is detected, a gray focus point will appear over each of the subjects. If [**Auto-area AF**] is selected for [**AF-area mode**], ◄ and ► icons will appear on the focus point selected by the camera. The focus point can be positioned by pressing ⊛ or ⊛ to choose the subject to which skin softening applies.
[**Off**]	Skin softening off.

☑ Restrictions on Skin Softening in Photo Mode

Skin softening cannot be combined with some camera features, including:
• high-speed frame capture +,
• multiple exposures, and
• HDR overlay.

Restrictions on Skin Softening in Video Mode

Skin softening will not be performed if:

- [**N‑RAW 12‑bit (NEV)**] or [**ProRes RAW HQ 12‑bit (MOV)**] is selected for [**Video file type**] in the video recording menu, or
- [**N‑Log**] is chosen for tone mode when [**ProRes 422 HQ 10‑bit (MOV)**] or [**H.265 10‑bit (MOV)**] is selected for [**Video file type**] in the video recording menu.

"Portrait Impression Balance" Added to Photo Shooting and Video Recording Menus

The [**Portrait impression balance**] item has been added to the photo shooting and video recording menus. Fine-tune hue and brightness settings for human portrait subjects and save the results for application during shooting as [**Mode 1**], [**Mode 2**], or [**Mode 3**].

Creating Portrait Impression Balance Modes

1 **Select [Portrait impression balance] in the photo shooting menu.**
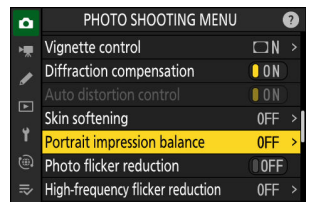
2 **Highlight a mode from [Mode 1] through [Mode 3] and press ⑨.**

Options for the selected mode will be displayed.
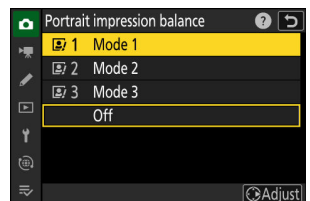
3 **Adjust the hue and brightness.**

- Press ⊕ or ⊛ to adjust hue on the M (magenta)–Y (yellow) axis. Magenta increases as you move toward M, amber (yellow) as you move toward Y.
- Press ⊕ or ⊕ to adjust the brightness. Brightness increases as the values go up and decreases as they go down.
- The selected values are displayed to the right of the grid.
- Press the 🗑 (⏏) button to restore default settings.
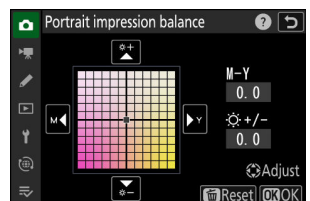
4 **Save changes.**

- Press ⊛ to save changes and exit to the menus.
- Modes that have been altered from default values are indicated by asterisks ("✱").
- Repeat Steps 1 through 4 to create additional modes.

Applying Saved Modes

To enable portrait impression balance during shooting, select the desired mode ([**Mode 1**] through [**Mode 3**]) for [**Portrait impression balance**] in the photo shooting menu.

☑ Restrictions on Portrait Impression Balance
[**Portrait impression balance**] is disabled if [**Monochrome**] or [**Creative Picture Control**] is selected for [**Set Picture Control**].

Tip: Making Adjustments While Previewing the Results
If [**Portrait impression balance**] has been assigned a place in the *i* menu using Custom Setting f1 [**Customize 🖼 menu**], you can select this option, rotate the main command dial to choose a mode, and then adjust hue and brightness using the multi selector while previewing their effects on the subject framed in the display.

Tip: RAW Processing
The [**Portrait impression balance**] item is added to the settings that can be adjusted for [**Retouch**] > [**RAW processing (current picture)**] or [**RAW processing (multiple pictures)**] in the playback *i* menu.

Frequency Setting Mode Added to High-Frequency Flicker Reduction Function

A frequency setting mode has been added to the high-frequency flicker reduction function in photo mode, allowing you to configure the frequency of the light source. Reduce the flicker effect by selecting a frequency that is suitable for the light source.

- Once you have configured a frequency, only values that are integer multiples of the cycle of the configured frequency can be selected for the shutter speed during shooting. The shutter speed can be changed without affecting the flicker reduction effect.
- Since the frequencies of LED lighting and high-frequency LED displays vary from product to product, you can save multiple frequencies that are each tailored to a product and switch between them according to the situation.
- By default, four frequency settings are available from [**PRE1**] (7680 Hz) through [**PRE4**] (1920 Hz). The frequencies can also be adjusted.
- If you have configured a frequency, the shutter speed should be slower than 1/(frequency) s.

Switching the Frequency

Four frequency settings are available by default. By assigning [**High-frequency flicker reduction**] to a desired control in Custom Setting f2 [**Custom controls (shooting)**], you can switch frequencies while viewing the shooting display.

1. **Assign [High-frequency flicker reduction] to a control using Custom Setting f2 [Custom controls (shooting)].**
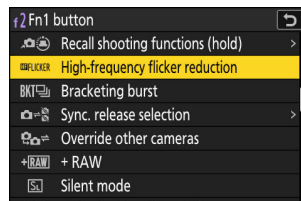
2. **Press and hold the control to which [High-frequency flicker reduction] is assigned.**

   The camera will enter frequency setting mode.
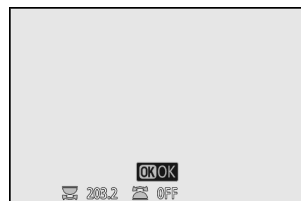
3 **Switch the frequency.**

- Rotate the sub-command dial to switch between [**PRE1**], [**PRE2**], [**PRE3**], [**PRE4**], and [**OFF**].
- [**PRE1**] through [**PRE4**] are configured to the following frequencies by default. Reduce the flicker effect by selecting a frequency suited to the light source or high-frequency LED display.
  - [**PRE1**]: 7680 Hz
  - [**PRE2**]: 3840 Hz
  - [**PRE3**]: 2880 Hz
  - [**PRE4**]: 1920 Hz
- If none of the options from [**PRE1**] to [**PRE4**] are successful in reducing the flicker effect, use a custom frequency value (□ 18).
- Selecting [**OFF**] will result in the same behavior as in earlier versions of the camera firmware.
- While in frequency setting mode, pressing the shutter-release button will not take a picture.

4 **Press ⊗ to exit frequency setting mode.**

Exit frequency setting mode and return to the shooting display to enable photography.

☑ **Cautions: High-Frequency Flicker Reduction**

- Even if you have configured a frequency, the effects of flicker in the shooting display may differ from those seen in photographs.
- Even if you have reduced the flicker effect by configuring a frequency, the flicker effect may return after changing the shutter speed.
- We recommend that you take test shots to identify the shutter speed that minimizes flicker and banding.

Frequency Setting Mode Added to High-
Frequency Flicker Reduction Function

Adjusting the Frequency Value

The frequencies configured for [**PRE1**] through [**PRE4**] can be adjusted.

1 **Press and hold the control to which [High-frequency flicker reduction] is assigned to enter frequency setting mode.**
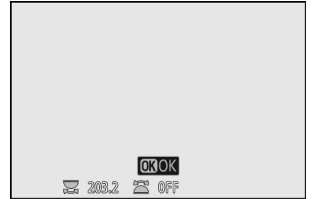
2 **Select an option from [PRE1] through [PRE4] to adjust the frequency.**

3 **Press the DISP button.**
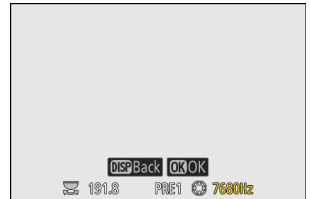
4 **Enter the frequency value.**

- Press ◀ or ▶ to highlight digits and press ▲ or ▼ to change.
- The frequency can be set between 30 and 9999 Hz.

5 **Press the DISP or the ⊛ button.**

- Press the **DISP** button to save the frequency and return to frequency setting mode.
- Press the ⊛ button to save the frequency, exit frequency setting mode, and return to the shooting display.

Using the Photo Shooting Menu

The frequency can also be configured from [**High-frequency flicker reduction**] in the photo shooting menu.

1 **Highlight [High-frequency flicker reduction] in the photo shooting menu and press ⊛.**
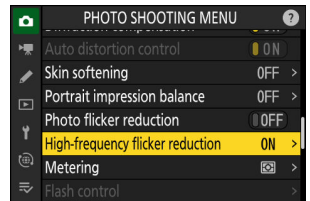
2 **Highlight [On (shutter speed fine-tuning)] and press ⊛.**

The setting of the currently selected frequency will be displayed.
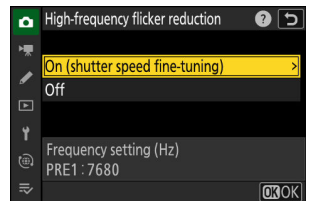
3 **Select the frequency from [PRE1] through [PRE4], or [Off].**

Press the ⊛ button to save the frequency and return to the menu.
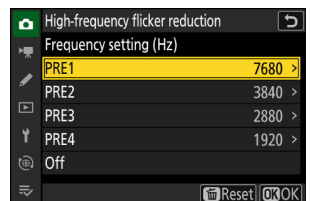
☑ Adjusting the Frequency from "High-Frequency Flicker Reduction" in the Photo Shooting Menu

Highlight an option from [**PRE1**] through [**PRE4**] in [**High-frequency flicker reduction**] > [**On (shutter speed fine-tuning)**] and press ⑨ to adjust the frequency.

- Press ⑨ or ⑨ to highlight digits and press ⑨ or ⑨ to change.
- The frequency can be set between 30 and 9999 Hz.
- Press the ⑯ button to save the frequency and return to the menu.
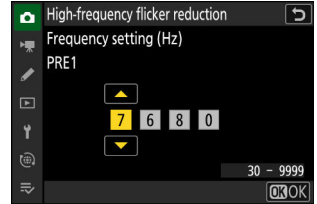
☑ Resetting Frequencies to Default Values

The values for all options ([**PRE1**] through [**PRE4**]) can be reset using [**High-frequency flicker reduction**] > [**On (shutter speed fine-tuning**].

- Press 🗑 (⬛), highlight [**Yes**], and press ⑯ to reset the frequencies to their default values.
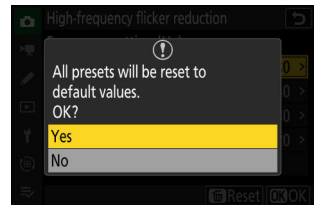
Changes and Additions to Auto Capture Functions

Changes and additions have been made to the [**Auto capture**] functions in the photo shooting and video recording menus.

Compatibility with the Camera's Manual Focus Setting

In earlier versions of the camera firmware, when shooting with manual focus, the camera required you to set the lens focus-mode switch to [**M**], but starting with "C" firmware version 5.00, you can focus manually by simply selecting manual focus on the camera.

- The area used for subject detection can now be enabled and disabled with [**Target area**] if [**Capture criteria**] > [**Distance**] is deselected in manual focus mode.

✅ **Cautions: "Capture Criteria" > "Distance"**

- Pressing the **AF-ON** button or the shutter-release button to set the distance in manual focus saves the current focus position. Before pressing either button, adjust the focus position by rotating the focus or control ring on the lens.
- The accuracy of the camera detecting the distance to a subject may drop if the subject is significantly out of focus.

DX Image Area Support

In earlier versions of the camera firmware, only FX could be selected for the image area when using auto capture, but starting with "C" firmware version 5.00, DX image area is also supported.

- Auto capture cannot be used when the image area is set to [**1:1 (24×24)**] or [**16:9 (36×20)**] in photo mode.

New Release Mode Options : "C15" and "C60"

- You can now use release mode [**C15**] with camera "C" firmware version 5.00.
- Earlier versions of the camera firmware changed the [**C60**] option to [**C120**] when selected; camera "C" firmware version 5.00 provides support for [**C60**].

Changes to Settings Displays and Setting Names

Some settings displays and setting names have been changed.

▌ Motion Settings Display

- [**Speed**] has been changed to [**Slowest**].
- [**Subject Size**] has been changed to [**Smallest**].

▌ Subject Detection Display

[**Subject Size**] has been changed to [**Smallest**].
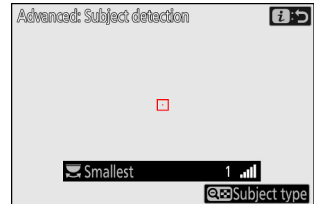
▌ Distance Criteria Display

- [**Near**] has been changed to [**Nearest**].
- [**Far**] has been changed to [**Farthest**].
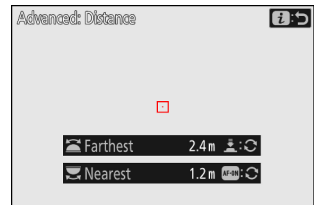
Range Extended for "Advanced: Distance"

In earlier versions of the camera firmware, the values that could be configured for the range over which the camera would detect a subject depended on the focal length. Starting from "C" firmware version 5.00, this setting can be configured within a range of 0.1 to 999 m, regardless of the focal length.

• The value for [**Nearest**] can be adjusted by rotating the main command dial, and the value for [**Farthest**] can be adjusted by rotating the sub-command dial.

• We recommend that you configure [**Nearest**] and [**Farthest**] within the range of values indicated by the numbers in white. Setting these options to values indicated in yellow may reduce how accurately the camera can detect the distance to the subject.
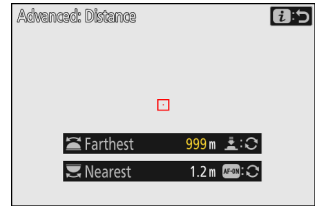
Airplanes Added to Subject Detection Types

"Airplanes" has been added as a subject type for [**Advanced: Subject detection**].
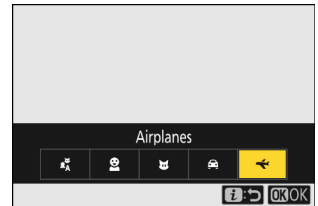
"Set Start Day/Time" Added

You can now configure the date and time to start auto capture by pressing the ♁ (**Fn4**) button on the settings confirmation dialog. Auto capture will be performed for the configured duration starting on the set date and time.
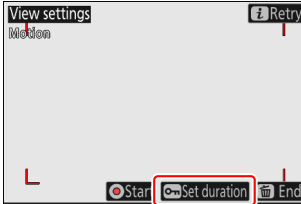
Option	Description
[**Set start day/time**]	Select [**Yes**] to perform auto capture shooting for the configured duration starting on the set date and time.
[**Start day/time**]	Specify the date, hour, and minute to start shooting.
[**Shooting duration**]	Select the duration to perform auto capture from the following options: [**No limit**], [**1 hour**], [**2 hours**], [**3 hours**]. If [**No limit**] is selected, auto capture will continue until it is terminated manually.

Yellow Frame During Auto Capture

A yellow frame will be displayed around the shooting display if the camera does not detect a subject that meets the configured criteria after starting auto capture. This makes it clear that the camera is in standby for auto capture.

• A red frame will be displayed around the shooting display while the camera detects and captures the subject.
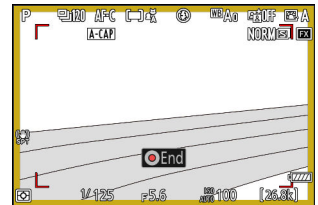
Profoto A10 Now Usable as AF-Assist Illuminator

The Profoto A10's continuous LED light can now be used as an AF-assist illuminator when the Profoto A10 (on-camera flash) is attached to the camera. When a Profoto A10 configured to act as an AF-assist illuminator is attached, it will light regardless of the setting for Custom Setting a12 [**Built-in AF-assist illuminator**].

- If the Profoto A10 is not configured to act as an AF-assist illuminator, the camera's AF-assist illuminator will light in accordance with the setting set for Custom Setting a12.
- To use the Profoto A10 as an AF-assist illuminator, you will need to install the latest firmware version for the Profoto A10. Refer to the documentation for the Profoto A10 for instructions on how to update the firmware and use the Profoto A10.

Changes to Hi-Res Zoom

The Hi-Res Zoom function for videos has been changed.

New Color for the In-Focus Display

The color of the in-focus AF-area brackets shown on the shooting display when [**ON**] is selected for [**Hi-Res Zoom**] in the video recording menu has been changed. While in earlier versions of the camera firmware, these brackets were shown in red, from "C" firmware version 5.00 they are shown in green.
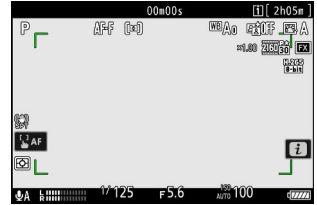
Sub-selector Operation Enabled

Hi-Res Zoom operations can now be performed by tilting the sub-selector to the left or right in addition to ◁ or ▷ on the multi selector.

New Video Playback *i* Menu Item: "Playback Speed"

A [**Playback speed**] item has been added to the video playback *i* menu. Select the video playback speed from [**Original speed**], [**1/2× speed**], and [**1/4× speed**]. Playback will proceed in slow motion at 1/2× speed or 1/4× speed if [**1/2× speed**] or [**1/4× speed**] is selected, respectively. Additionally, video playback speed can be changed during playback when the video is paused, using [**Playback speed**] in the playback *i* menu.

Tip: Changing the Playback Speed Using the Main and Sub-command Dials
A [**Playback speed**] item has also been added to Custom Setting f3 [**Custom controls (playback)**]. When assigned to the main or sub-command dial, the playback speed can be changed during video playback by turning the command dial ().

Tip: Changing the Playback Speed
- If the playback speed is changed via the *i* menu, the new playback speed will apply to all video playbacks.
- If the playback speed is changed using a command dial to which [**Playback speed**] is assigned via Custom Setting f3 [**Custom controls (playback)**], the new playback speed only applies to the current video playback.

"Customize Retouch Options" Added to "Retouch" Playback *i* Menu

[**Customize retouch options**] has been added to [**Retouch**] in the playback *i* menu. This allows you to configure the retouch options displayed in the [**Retouch**] menu.

- Highlight options and press ⊛ to select (☑) or deselect (☐). Only items marked with a check (☑) will appear in the [**Retouch**] menu.
- Press ⊛ to save the changes.

Customize retouch options	↩	12
☑ RAW processing (current picture)		
☑ RAW processing (multiple pictures)		
☑ Trim		
☑ Resize (current picture)		
☑ Resize (multiple pictures)		
☑ D-Lighting		
	⊛Select	OKOK
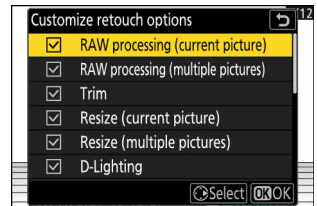
New Item for "Series Playback" in Playback Menu: "Auto Series Playback Options"

[**Auto series playback options**] has been added to the options available for [**Series playback**] in the playback menu. Choose options for viewing bursts when [**Auto series playback**] is set to [**ON**].

Option	Description
[**Loop playback**]	If [**ON**] is selected, the current series will playback repeatedly.
[**Wait before playback**]	Choose the time until auto series playback begins once the first picture in the series is displayed: [**Normal**], [**Long**], [**Short**], or [**Start immediately**].
[**Auto series playback speed**]	Select the playback speed for auto series playback. • [**5 fps**], [**15 fps**], [**30 fps**]: Playback proceeds at the selected speed. • [**At current release mode speed**]: Playback proceeds at the speed selected for the current release mode. - Playback proceeds at 3 fps when single frame or self-timer release mode is selected.

New Playback Menu Item: "Auto Image Rotation"

[**Auto image rotation**] has been added to the playback menu.

- When set to [**ON**], the orientation information of the camera at the time of shooting is stored in pictures. When viewed on a camera or computer, the pictures are automatically rotated according to the stored orientation information.

- When set to [**OFF**], the orientation information of the camera at the time of shooting is not stored in pictures. As such, pictures will not be automatically rotated during playback and always displayed in landscape (wide) orientation.

✅ Caution: Auto Image Rotation

If the camera is facing upward or downward or is panned while shooting, the correct orientation information may not be stored.

✅ "Auto-Rotate Pictures" in the Playback Menu

- When [**Auto-rotate pictures**] is set to [**OFF**], images are always displayed in landscape (wide) orientation when played back on the camera, regardless of whether [**Auto image rotation**] is set to [**ON**] or [**OFF**].
- If [**Auto-rotate pictures**] is set to [**ON**] while [**Auto image rotation**] is set to [**OFF**], pictures will not be automatically rotated during playback and always displayed in landscape (wide) orientation.

Separate Shooting Modes Now Configurable for Photo and Video Modes

When [**Extended menu banks**] is set to [**ON**] in the photo shooting menu or video recording menu, separate shooting modes can now be set for photo mode and video mode.

- The shooting modes in all shooting banks "A" through "D" are set to **P** right after the firmware is upgraded.

"Focus Point Border Width" Added to Custom Setting a11 "Focus Point Display"

[**Focus point border width**] has been added to Custom Setting a11 [**Focus point display**]. This option allows you to configure the thickness of the focus point border from [**1**] to [**3**].

New Custom Setting: a14 "Max. Aperture Lv During MF"

A [**Max. aperture Lv during MF**] item has been added to the Custom Settings menu at position a14. When set to [**On**], the shooting display in the viewfinder or monitor is always displayed with the maximum aperture when the focus mode is set to **MF**. When the shutter-release button is pressed all the way down, the aperture will be adjusted to the configured aperture value before shooting.

✅ **Cautions: When "Max. Aperture Lv During MF" Is Set to "On"**
- Regardless of the aperture setting, the lens will always be at maximum aperture when in **MF** mode. Be sure to avoid pointing the camera at the sun or other powerful light sources. Failure to observe this precaution could result in damage to the camera's internal circuitry.
- The timing of the shutter release may be slightly delayed.
- The frame advance rate may drop.
- Flicker may appear on the shooting display in following conditions:
  - just before or after the shutter is released,
  - if a control assigned the role of [**Preview**] in Custom Setting f2 [**Custom controls (shooting)**] is pressed, or
  - if you have switched between autofocus and manual focus.
- The maximum aperture will not be applied when the lens focus ring is rotated to switch from autofocus to manual focus.

New Custom Settings: d19/g17 "Half-Press to Cancel Zoom (MF)"

A [**Half-press to cancel zoom (MF)**] item has been added to the Custom Settings menu at positions d19 and g17. If [**ON**] is selected while focus mode is set to manual focus and the view through the lens is zoomed in, zoom can be cancelled by pressing the shutter-release button halfway.

New Options for Custom Settings f1/g1 "Customize 🖪 Menu"

The following items can now be assigned to the _i_ menu in Custom Settings f1 and g1 [**Customize 🖪 Menu**].

- [**Skin softening**]
- [**Portrait impression balance**]
- [**Auto capture**]

Exposure Compensation and White Balance Now Changeable During Shooting Function Recall

Exposure compensation and white balance settings can now be changed while recalling the shooting function settings by pressing the button assigned the role of [**Recall shooting functions (hold)**] in Custom Setting f2 [**Custom controls (shooting)**].

- To change the exposure compensation value, rotate a command dial while pressing the ⊠ button (or the button to which the exposure compensation role is assigned). The changed value will be retained with the [**Recall shooting functions (hold)**] item if [**Exposure compensation**] is selected (☑) in the dialog where settings to be recalled are selected.
- To change the white balance setting, rotate a command dial while pressing the **WB** button (or the button to which the white balance role is assigned). The changed setting will be retained with the [**Recall shooting functions (hold)**] item if [**White balance**] is selected (☑) in the dialog where settings to be recalled are selected.

New Roles for Custom Settings f2 "Custom Controls (Shooting)" and g2 "Custom Controls"

Additions have been made to the roles available for Custom Settings f2 [**Custom controls (shooting)**] and g2 [**Custom controls**].

	Option	Description
〔⊷〕	[**Cycle AF-area mode**]	Press the control to cycle the AF-area mode. • To choose the AF-area modes to be cycled, highlight [**Cycle AF-area mode**] and press ⊛. • Highlight options and press ⊛ or ⊛ to select (☑) or deselect (☐). Only items marked with a check (☑) will be cycled when the control is pressed.
🙂	[**Skin softening**]	Press the control and rotate a command dial to adjust skin softening.
🙂	[**Portrait impression balance**]	Press the control and rotate a command dial to choose a portrait impression balance mode.

• For f2 [**Custom controls (shooting)**], 🔁 [**Focus mode button**] can now also be customized.

New Roles for Custom Setting f3 "Custom Controls (Playback)"

Additions have been made to the roles available and the controls to which they can be assigned for Custom Setting f3 [**Custom controls (playback)**].

Newly Customizable Controls

The following controls can now be customized:

- ⊠ [**Exposure compensation button**]
- ⊡ [**ISO sensitivity button**]

New Roles

Additional roles can now be assigned to buttons or the command dials.

Roles Available for Buttons

	Option	Description
▦	[**RAW processing (current picture)**]	
▦	[**RAW processing (multiple pictures)**]	
✂	[**Trim**]	
▧	[**Resize (current picture)**]	
▨	[**Resize (multiple pictures)**]	
▧	[**D-Lighting**]	
▧	[**Straighten**]	
⊕	[**Distortion control**]	Press the control to display retouch options for the assigned role.
▲	[**Perspective control**]	
◨	[**Monochrome**]	
▧ADD	[**Overlay (add)**]	
▧LIGHT	[**Lighten**]	
▧DARK	[**Darken**]	
▧MOT	[**Motion blend**]	

Roles Available for "Main Command Dial"/"Sub-Command Dial"

Option	Description
[**Frame advance zoom position**]	Choose how the camera centers the display when either the main or sub-command dial is rotated to scroll through pictures during playback zoom. • [**Keep current zoom position**]: Center the display on the current zoom location. • [**Prefer focus point**]: Center the display on the focus point active when the photograph was taken. • [**Prefer focus point (face priority)**]: Center the display on the focus point active when the photograph was taken. However, if a person's face is detected in the photograph, playback zoom will be performed with the face at the center.
[**Playback zoom face selection**]	If [**ON**] is selected, when multiple faces are detected in the picture during playback zoom, the sub-command dial can be rotated to switch between the detected faces. • This role can only be assigned to the [**Sub-command dial**].

Functions Added to "Main Command Dial"/"Sub-Command Dial" > "Frame Advance"

Option	Description
[**Uploaded to FTP**]	Skip to the next or previous picture that has been uploaded to an FTP server.
[**Uploaded to computer**]	Skip to the next or previous picture that has been uploaded to a computer.

Functions Added to "Main Command Dial"/"Sub-Command Dial" > "Video Playback"

Option	Description
[**Playback speed**]	Choose the video playback speed. You can switch between original speed, 1/2x speed, and 1/4x speed.

Changes in Full Formatting Procedures for "Format Memory Card" in the Setup Menu

Changes have been made to how a full format is performed with [**Format memory card**] in the setup menu when using a CFexpress memory card compatible with full format.

1 Highlight [Format memory card] in the setup menu and press ⏵.

SETUP MENU	
Format memory card	>
Language	🌐 >
Time zone and date	>
Monitor brightness	0 >
Monitor color balance	>
Viewfinder brightness	AUTO >
Viewfinder color balance	>
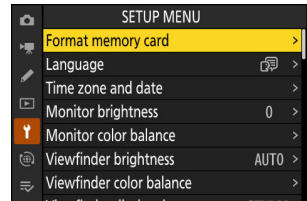
2 Highlight [Slot 1] or [Slot 2] and press ⏵.

Format memory card

Slot 1
Slot 2
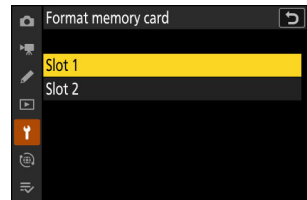
3 Press 🗑 (🔲) to proceed when the options are displayed.

All pictures on memory card will be deleted. OK?
For a full format, press the 🗑 button.
Yes (quick format)
No

4 Highlight [Yes] and press ⊛.

A full format may take some time to complete. OK?
Yes
No
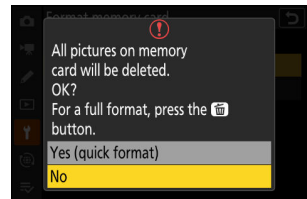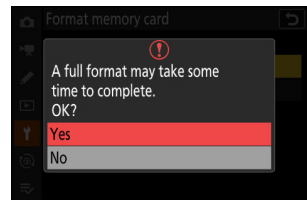
Shooting Display Maximum Zoom Now 400%

While in earlier versions of the camera firmware, the maximum shooting display zoom was 200%, from "C" firmware version 5.00 the maximum magnification is 400%. Use the ⊕ and ⊖ (**?**) buttons to zoom in and out.

Memory Card High-Temperature Warning Position Changed

The position of the memory card high-temperature warning that appears when the memory card becomes hot during video recording has been changed.
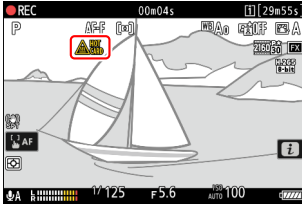
"C" firmware version 4.xx and earlier
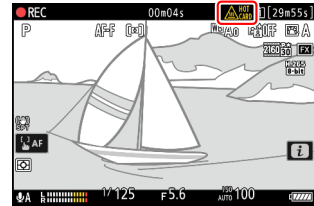
"C" firmware version 5.00 and later

New Smart Device Connection Method: "Wi-Fi Connection (STA Mode)"

Wi-Fi station mode has been added as a connection method, allowing you to connect the camera to the smart device via a wireless LAN access point. The existing method of connecting the camera and the smart device directly has been renamed Wi-Fi access point mode.

- A compatible version of SnapBridge is required to establish connections in Wi-Fi station mode and Wi-Fi access point mode. Be sure to use the latest version of the SnapBridge app.
- Some operations are performed using the camera, others on the smart device.
- Additional instructions are available via SnapBridge online help.
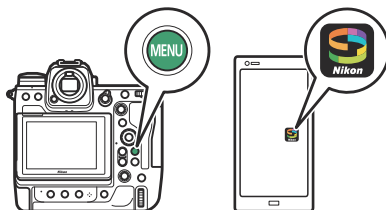
Connecting to an Existing Network (Wi-Fi Station Mode)

The camera connects to a smart device on an existing network (including home networks) via a wireless LAN access point. The smart device can still connect to the Internet while connected to the camera.

✅ Wi-Fi Station Mode
Connection to smart devices beyond the local area network is not supported. You can connect only to smart devices on the same network.

---

1 **Camera: Select [Connect to smart device] > [Wi-Fi connection (STA mode)] in the network menu, then highlight [Create profile] and press ⊗.**
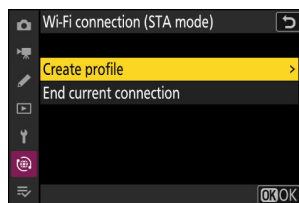
2 **Camera: Name the new profile.**

- To proceed to the next step without changing the default name, press ⊕.
- Whatever name you choose will appear in the network menu [**Connect to smart device**] > [**Wi-Fi connection (STA mode)**] list.
- To rename the profile, press ⊛.
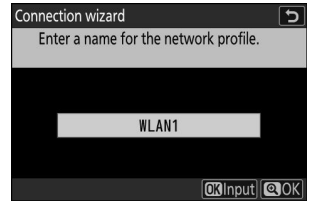
3 **Camera: Highlight [Search for Wi-Fi network] and press ⊛.**

The camera will search for networks currently active in the vicinity and list them by name (SSID).
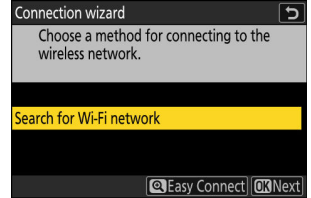
☑ **"Easy Connect"**

To connect without entering an SSID or encryption key, press ⊕ in Step 3. Next, highlight one of the following options and press ⊛. After connecting, proceed to Step 6.
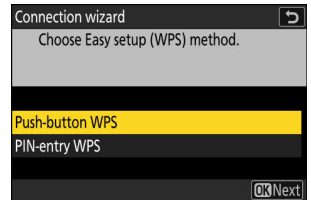
Option	Description
[**Push-button WPS**]	For routers that support push-button WPS. Press the WPS button on the router and then press the camera ⊛ button to connect.
[**PIN-entry WPS**]	The camera will display a PIN. Using a computer, enter the PIN on the router. For more information, see the documentation provided with the router.

4 **Camera: Choose a network.**

- Highlight a network SSID and press ⊛.
- The band on which each SSID operates is indicated by an icon.
- Encrypted networks are indicated by a 🔒 icon. If the selected network is encrypted (🔒), you will be prompted to enter the encryption key. If the network is not encrypted, proceed to Step 6.
- If the desired network is not displayed, press ⊕ to search again.
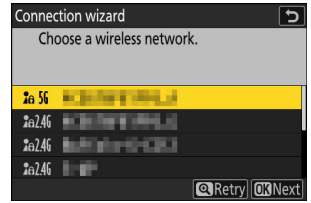
☑ Hidden SSIDs

Networks with hidden SSIDs are indicated by blank entries in the network list.

- To connect to a network with a hidden SSID, highlight a blank entry and press ⊛. Next, press ⊛; the camera will prompt you to provide an SSID.
- Enter the network name and press ⊕. Press ⊕ again; the camera will now prompt you to enter the encryption key.

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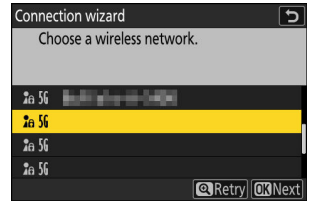
5 **Camera: Enter the encryption key.**

- Press ⊛ and enter the encryption key for the wireless router.

- For more information on the wireless router encryption key, see the documentation for the wireless router.
- Press ⊕ when entry is complete.

- Press ⊕ again to initiate the connection. A message will be displayed for a few seconds when the connection is established.
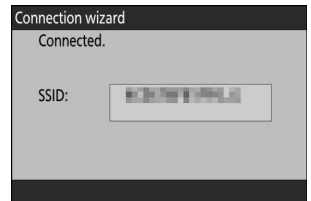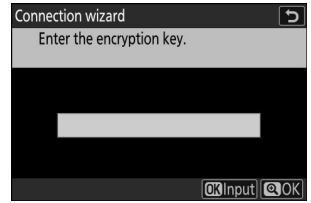
6 Camera: Obtain or select an IP address.

Highlight one of the following options and press ⊛.

Option	Description
[**Obtain automatically**]	Select this option if the network is configured to supply the IP address automatically. A "configuration complete" message will be displayed once an IP address has been assigned.
[**Enter manually**]	Enter the IP address and sub-net mask manually. • Press ⊛; you will be prompted to enter the IP address. • Rotate the main command dial to highlight segments. • Press ⊳ or ⊲ to change the highlighted segment and press ⊛ to proceed. • Next, press ⊕; a "configuration complete" message will be displayed. Press ⊕ again to display the sub-net mask. • Press ⊕ or ⊖ to edit the sub-net mask and press ⊛; a "configuration complete" message will be displayed.

7 Camera: Press ⊛ to proceed when the "configuration complete" message is displayed.

8 Camera: Start a Wi-Fi connection with the smart device.

When prompted, launch the SnapBridge app on the smart device.
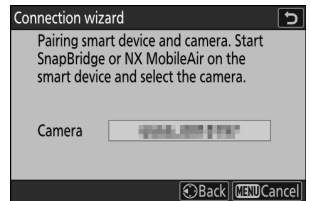
9 Smart device: Launch the SnapBridge app, open the ⊙ tab, tap ⛶, and select [Wi-Fi STA Mode Connection].

If this is the first time you have launched the app, you should instead tap [**Connect to camera**] in the welcome display.

10 **Smart device: Select the camera.**

Select the camera name displayed on the camera in Step 8.

11 **Camera/smart device: Establish the Wi-Fi connection.**

• When the camera displays the dialog as shown, press ⊛.
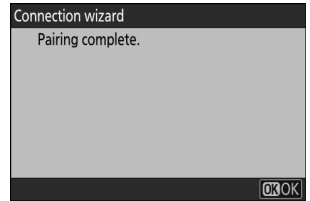
• After establishing a Wi-Fi connection to the camera, the smart device will display Wi-Fi station mode options.

• The camera will display a message stating that the connection is complete.
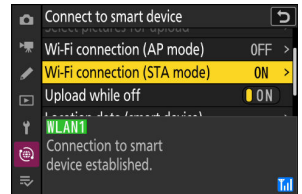
The camera and smart device are now connected via Wi-Fi.

For information on using the SnapBridge app, see online help.

Direct Wireless Connection to a Smart Device (Wi-Fi Access Point Mode)

Connect the camera and a smart device directly via Wi-Fi. The camera acts as a wireless LAN access point, allowing you to connect when working outdoors and in other situations in which the smart device is not already connected to a wireless network and eliminating the need for complicated adjustments to settings. The smart device cannot connect to the Internet while connected to the camera.

1 **Smart device: Launch the SnapBridge app, open the 🔘 tab, tap ⚙, and select [Wi-Fi AP Mode Connection].**

If this is the first time you have launched the app, you should instead tap [**Connect to camera**] in the welcome display. When prompted, tap the category for your camera and then tap the "Wi-Fi" option when prompted to choose the connection type.

2 **Camera/smart device: Turn the camera on when prompted.**

Do not use any of the controls in the app at this point.

3 **Camera: Select [Connect to smart device] > [Wi-Fi connection (AP mode)] in the network menu, then highlight [Establish Wi-Fi connection] and press ⊛.**
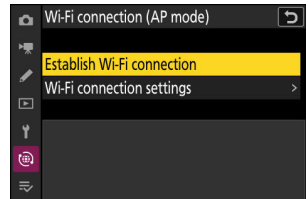
The camera SSID and password will be displayed.
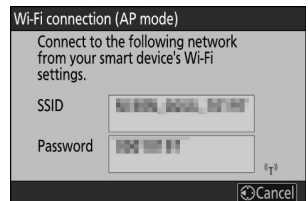
4 **Smart device: Follow the on-screen instructions to establish a Wi-Fi connection.**

- On iOS devices, the "Settings" app will launch. Tap [**< Settings**] to open [**Settings**], then scroll up and tap [**Wi-Fi**] (which you'll find near the top of the settings list) to display Wi-Fi settings.
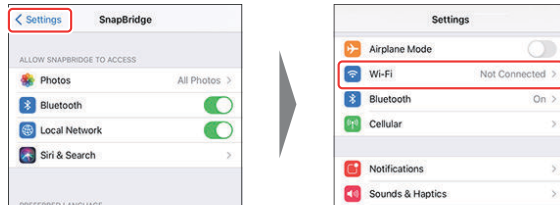
- In the Wi-Fi settings display, select the camera SSID and enter the password displayed by the camera in Step 3.

5 **Smart device: After adjusting device settings as described in Step 4, return to the SnapBridge app.**

- After establishing a Wi-Fi connection to the camera, the smart device will display Wi-Fi access point mode options.
- The camera will display a message stating that the connection is complete.
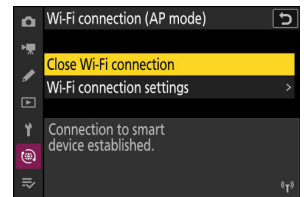
The camera and smart device are now connected via Wi-Fi.

For information on using the SnapBridge app, see online help.

Terminating Wi-Fi Station/Wi-Fi Access Point Mode

To end the Wi-Fi connection, tap 🛜 in the SnapBridge 📷 tab. After the icon changes to ⬜, tap ⚙, and select [**Disconnect**] or [**Exit Wi-Fi STA mode**].

FTP Port Number Now Specifiable in FTP Connection Settings

Port numbers can now be specified when configuring a connection to an FTP server using the connection wizard in [**Connect to FTP server**] in the network menu. After entering the FTP server address, press the ⍤ button to connect the camera to the FTP server. When a connection is successfully established, you will be prompted to enter a port number.

• A value between 0 and 65535 can be configured.

• After entering the port number, press ⍤ to display the screen to select the login method.
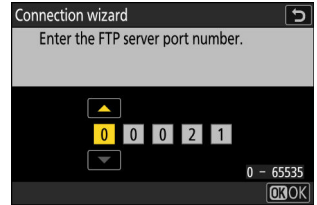
New Option for "Connect to FTP Server" in Network Menu: "Upload in HEIF Format"

[**Upload in HEIF format**] has been added to the [**Connect to FTP server**] > [**Options**] in the network menu.

- The options are [**High compression**], [**Medium compression**], [**Low compression**], and [**Off**]. When a setting other than [**Off**] is selected, the captured RAW or JPEG image is converted to HEIF format with the specified compression ratio before it is uploaded to the FTP server.
- Converted HEIF images are not stored on the memory card.

Using AirGlu Accessories While MC-N10 Remote Grips Connected

In earlier versions of the camera firmware, all Bluetooth functions were disabled while an MC-N10 was connected to the camera, but from "C" firmware version 5.00, Atomos UltraSync BLUE AirGlu accessories can be used via Bluetooth.

Menu Items and Defaults for "C" Firmware Version 5.00

The menus and default settings following upgrade to "C" firmware version 5.00 are listed below.

Photo Shooting Menu

- [**Shooting menu bank**]: A
- [**Extended menu banks**]: OFF
- [**Storage folder**]
  - [**Rename**]: NCZ_9
  - [**Select folder by number**]: 100
  - [**Select folder from list**]: –
- [**File naming**]: DSC
- [**Role played by card in Slot 2**]: Overflow
- [**Image area**]
  - [**Choose image area**]: FX (36×24)
  - [**DX crop alert**]: OFF
- [**Image quality settings**]
  - [**Image quality**]: JPEG normal
  - [**Image quality (HSFC)**]: JPEG normal
- [**Image size settings**]
  - [**Image size**]: Large
  - [**Enable DX image sizes**]: OFF
  - [**Image size (DX)**]: Large
- [**RAW recording**]: High efficiency ★
- [**ISO sensitivity settings**]
  - [**ISO sensitivity**]: 100
  - [**Auto ISO sensitivity control**]: ON
  - [**Maximum sensitivity**]: 25600
  - [**Maximum sensitivity with 🗲**]: Same as without flash
  - [**Minimum shutter speed**]: Auto
- [**White balance**]: Auto: Keep white (reduce warm colors)
- [**Set Picture Control**]: Auto
- [**Manage Picture Control**]: –
- [**Color space**]: sRGB
- [**Active D-Lighting**]: Off
- [**Long exposure NR**]: OFF
- [**High ISO NR mode**]: Type A

- [**High ISO NR**]: Normal
- [**Vignette control**]: Normal
- [**Diffraction compensation**]: ON
- [**Auto distortion control**]: ON
- [**Skin softening**]: Off
- [**Portrait impression balance**]: Off
- [**Photo flicker reduction**]: OFF
- [**High-frequency flicker reduction**]: Off
- [**Metering**]: Matrix metering
- [**Flash control**]
    - [**Flash control mode**]: TTL
    - [**Wireless flash options**]: Off
    - [**Remote flash control**]: Group flash
- [**Focus mode**]: Single AF
- [**AF-area mode**]: Single-point AF
- [**AF subject detection options**]: Auto
- [**Vibration reduction**]: Sport
- [**Auto bracketing**]
    - [**Auto bracketing set**]: AE & flash bracketing
    - [**Number of shots**]: 0
    - [**Increment**]: 1.0
- [**Multiple exposure**]
    - [**Multiple exposure mode**]: Off
    - [**Number of shots**]: 2
    - [**Overlay mode**]: Average
    - [**Save individual pictures (RAW)**]: ON
    - [**Overlay shooting**]: ON
    - [**Select first exposure (RAW)**]: –
- [**HDR overlay**]
    - [**HDR mode**]: Off
    - [**HDR strength**]: Auto
    - [**Save individual pictures (RAW)**]: OFF
- [**Interval timer shooting**]
    - [**Choose start day/time**]: Now
    - [**Interval**]: 1 min.
    - [**Intervals×shots/interval**]: 0001×1
    - [**Exposure smoothing**]: ON
    - [**Interval priority**]: OFF
    - [**Focus before each shot**]: OFF
    - [**Options**]: Off
    - [**Starting storage folder**]
        - [**New folder**]: ☐
        - [**Reset file numbering**]: ☐

- [**Time-lapse video**]
    - [**Interval**]: 5 s
    - [**Shooting time**]: 25 min.
    - [**Exposure smoothing**]: ON
    - [**Choose image area**]: FX
    - [**Video file type**]: H.265 8-bit (MOV)
    - [**Frame size/frame rate**]: 3840×2160; 30p
    - [**Interval priority**]: OFF
    - [**Focus before each shot**]: OFF
    - [**Destination**]: Slot 1
- [**Focus shift shooting**]
    - [**No. of shots**]: 100
    - [**Focus step width**]: 5
    - [**Interval until next shot**]: 0
    - [**First-frame exposure lock**]: ON
    - [**Focus position auto reset**]: OFF
    - [**Starting storage folder**]
        - [**New folder**]: ☐
        - [**Reset file numbering**]: ☐
- [**Auto capture**]
    - [**Select user preset**]: P-1

Video Recording Menu

- [**Shooting menu bank**]: A
- [**Extended menu banks**]: OFF
- [**Storage folder**]
    - [**Rename**]: NCZ_9
    - [**Select folder by number**]: 100
    - [**Select folder from list**]: –
- [**File naming**]: DSC
- [**Destination**]: Slot 1
- [**Video file type**]: H.265 8-bit (MOV)
- [**Frame size/frame rate**]: 3840×2160; 30p
- [**Video quality (N-RAW)**]: High quality
- [**Image area**]
    - [**Choose image area**]: FX
    - [**DX crop alert**]: OFF
- [**Extended oversampling**]: OFF
- [**ISO sensitivity settings**]
    - [**Maximum sensitivity**]: 25600
    - [**Auto ISO control (mode M)**]: ON

- [**ISO sensitivity (mode M)**]: 100
- [**White balance**]: Same as photo settings
- [**Set Picture Control**]: Same as photo settings
- [**Manage Picture Control**]: –
- [**HLG quality**]
  - [**Quick sharp**]: 0
  - [**Contrast**]: 0
  - [**Saturation**]: 0
  - [**Hue**]: 0
- [**Active D-Lighting**]: Off
- [**High ISO NR**]: Normal
- [**Vignette control**]: Normal
- [**Diffraction compensation**]: ON
- [**Auto distortion control**]: ON
- [**Skin softening**]: Same as photo settings
- [**Portrait impression balance**]: Off
- [**Video flicker reduction**]: Auto
- [**High-frequency flicker reduction**]: Off
- [**Metering**]: Matrix metering
- [**Focus mode**]: Full-time AF
- [**AF-area mode**]: Single-point AF
- [**AF subject detection options**]
  - [**Subject detection**]: Auto
  - [**AF when subject not detected**]: ON
- [**Vibration reduction**]: Same as photo settings
- [**Electronic VR**]: OFF
- [**Microphone sensitivity**]: Auto
- [**Attenuator**]: OFF
- [**Frequency response**]: Wide range
- [**Wind noise reduction**]: OFF
- [**Mic jack plug-in power**]: ON
- [**Headphone volume**]: 15
- [**Timecode**]
  - [**Record timecodes**]: Off
  - [**Count-up method**]: Record run
  - [**Timecode origin**]: –
  - [**Drop frame**]: ON
- [**External rec. cntrl (HDMI)**]: OFF
- [**Hi-Res Zoom**]: OFF
- [**Auto capture**]
  - [**Select user preset**]: P-1

Custom Settings Menu

- [**Custom Settings bank**]: A
- **a** [**Focus**]
  - a1 [**AF-C priority selection**]: Release
  - a2 [**AF-S priority selection**]: Focus
  - a3 [**Focus tracking with lock-on**]
    - [**Blocked shot AF response**]: 3
    - [**Subject motion**]: Steady
  - a4 [**Focus points used**]: All points
  - a5 [**Store points by orientation**]: Off
  - a6 [**AF activation**]: Shutter/AF-ON
  - a7 [**Focus point persistence**]: Auto
  - a8 [**Limit AF-area mode selection**]
    - [**Pinpoint AF**]: ☑
    - [**Single-point AF**]: ✔ (cannot be deselected)
    - [**Dynamic-area AF (S)**]: ☑
    - [**Dynamic-area AF (M)**]: ☑
    - [**Dynamic-area AF (L)**]: ☑
    - [**Wide-area AF (S)**]: ☑
    - [**Wide-area AF (L)**]: ☑
    - [**Wide-area AF (C1)**]: ☑
    - [**Wide-area AF (C2)**]: ☑
    - [**3D-tracking**]: ☑
    - [**Auto-area AF**]: ☑
  - a9 [**Focus mode restrictions**]: No restrictions
  - a10 [**Focus point wrap-around**]: OFF
  - a11 [**Focus point display**]
    - [**Manual focus mode**]: ON
    - [**Dynamic-area AF assist**]: ON
    - [**AF-C in-focus display**]: OFF
    - [**3D-tracking focus point color**]: White
    - [**Focus point border width**]: 1
  - a12 [**Built-in AF-assist illuminator**]: ON
  - a13 [**Focus peaking**]
    - [**Focus peaking display**]: OFF
    - [**Focus peaking sensitivity**]: 2 (standard)
    - [**Focus peaking highlight color**]: Red
  - a14 [**Max. aperture Lv during MF**]: Off
  - a15 [**Focus point selection speed**]: Normal
  - a16 [**Manual focus ring in AF mode**]: ON

- **b** [**Metering/exposure**]
  - b1 [**ISO sensitivity step value**]: 1/3 step
  - b2 [**EV steps for exposure cntrl**]: 1/3 EV steps (comp. 1/3 EV)
  - b3 [**Easy exposure compensation**]: Off
  - b4 [**Matrix metering face detection**]: ON
  - b5 [**Center-weighted area**]: Standard
  - b6 [**Fine-tune optimal exposure**]
    - [**Matrix metering**]: 0
    - [**Center-weighted metering**]: 0
    - [**Spot metering**]: 0
    - [**Highlight-weighted metering**]: 0
  - b7 [**Keep exp. when f/ changes**]: Exposure maintenance off
- **c** [**Timers/AE lock**]
  - c1 [**Shutter-release button AE-L**]: Off
  - c2 [**Self-timer**]
    - [**Self-timer delay**] 10 s
    - [**Number of shots**]: 1
    - [**Interval between shots**]: 0.5 s
  - c3 [**Power off delay**]
    - [**Playback**]: 10 s
    - [**Menus**]: 1 min
    - [**Picture review**]: 4 s
    - [**Standby timer**]: 30 s
- **d** [**Shooting/display**]
  - d1 [**Continuous shooting speed**]
    - [**Continuous high-speed**]: 20 fps
    - [**Continuous low-speed**]: 5 fps
  - d2 [**Maximum shots per burst**]: ∞
  - d3 [**Limit release mode selection**]
    - [**Single frame**]: ✔ (cannot be deselected)
    - [**Continuous L**]: ☑
    - [**Continuous H**]: ☑
    - [**C30**]: ☑
    - [**C60**]: ☑
    - [**C120**]: ☑
    - [**Self-timer**]: ☑
  - d4 [**Pre-Release Capture options**]
    - [**Pre-release burst**]: None
    - [**Post-release burst**]: Max.
  - d5 [**Sync. release mode options**]: Sync
  - d6 [**Exposure delay mode**]: Off
  - d7 [**Extended shutter speeds (M)**]: OFF
  - d8 [**Limit selectable image area**]

Menu Items and Defaults for "C" Firmware Version 5.00

- [**FX (36×24)**]: ✔ (cannot be deselected)
- [**DX (24×16)**]: ☑
- [**1:1 (24×24)**]: ☑
- [**16:9 (36×20)**]: ☑
- d9 [**File number sequence**]: On
- d10 [**View mode (photo Lv)**]: Show effects of settings
  - [**Show effects of settings**]: Only when flash is not used
  - [**Adjust for ease of viewing**]: Auto
- d11 [**Starlight view (photo Lv)**]: OFF
- d12 [**Warm display colors**]
  - [**Warm display color options**]: Off
  - [**Warm color display brightness**]: 0
- d13 [**LCD illumination**]: OFF
- d14 [**View all in continuous mode**]: ON
- d15 [**Release timing indicator**]
  - [**Indicator type**]: Type B
  - [**Type A auto restore delay**]: 1/6 s
- d16 [**Image frame**]: ON
- d17 [**Grid type**]: 3×3
- d18: [**Virtual horizon type**]: Type A
- d19 [**Half-press to cancel zoom (MF)**]: OFF
- d20 [**Custom monitor shooting display**]
  - [**Display 1**]: ✔ (cannot be deselected)
  - [**Display 2**]: ☑
  - [**Display 3**]: ☑
  - [**Display 4**]: ☑
  - [**Display 5**]: ☑
- d21 [**Custom viewfinder shooting display**]
  - [**Display 1**]: ✔ (cannot be deselected)
  - [**Display 2**]: ☑
  - [**Display 3**]: ☑
  - [**Display 4**]: ☑
- d22 [**High fps viewfinder display**]: OFF
- **e** [**Bracketing/flash**]
  - e1 [**Flash sync speed**]: 1/200 s
  - e2 [**Flash shutter speed**]: 1/60 s
  - e3 [**Exposure comp. for flash**]: Entire frame
  - e4 [**Auto ⚡ ISO sensitivity control**]: Subject and background
  - e5 [**Modeling flash**]: ON
  - e6 [**Auto bracketing (mode M)**]: Flash/speed
  - e7 [**Bracketing order**]: MTR > under > over
  - e8 [**Flash burst priority**]: Prioritize precise flash control
- **f** [**Controls**]

- f1 [**Customize 🄫 menu**]: Set Picture Control, White balance, Image quality, Image size, AF-area mode/subj. detection, Focus mode, Metering, Vibration reduction, Shooting menu bank, Custom controls (shooting), Airplane mode, View memory card info
- f2 [**Custom controls (shooting)**]
  - [**Fn1 button**]: Shooting menu bank
  - [**Fn2 button**]: Choose image area
  - [**Fn3 button**]: Live view info display off
  - [**Fn button for vertical shooting**]: Exposure compensation
  - [**Vertical ISO sensitivity button**]: ISO sensitivity
  - [**Focus mode button**]: Focus mode/AF-area mode
  - [**Protect/Fn4 button**]: Set Picture Control
  - [**AF-ON button**]: AF-ON
  - [**Sub-selector center**]: AE/AF lock
  - [**DISP button**]: Cycle live view info display
  - [**Audio button**]: None
  - [**OK button**]: Select center focus point
  - [**WB button**]: White balance
  - [**QUAL button**]: Image quality/size
  - [**Vertical multi selector center**]: AE/AF lock
  - [**Playback button**]: Playback
  - [**Video record button**]: None
  - [**AF-ON button for vertical shooting**]: Same as AF-ON button
  - [**ISO sensitivity button**]: ISO sensitivity
  - [**Exposure compensation button**]: Exposure compensation
  - [**Flash mode button**]: Flash mode/compensation
  - [**Command dials**]
    - [**Exposure setting**]: **P**: 🄫--/🄫P*, **S**: 🄫--/🄫Tv, **A**: 🄫Av/🄫--, **M**: 🄫Av/🄫Tv
    - [**Focus/AF-area mode selection**]: 🄫[+]/🄫AF/MF
    - [**Sub-command dial zoom role**]: Exposure setting
  - [**Lens Fn button**]: AE/AF lock
  - [**BKT button**]: Auto bracketing
  - [**Lens Fn ring (counterclockwise)**]: Recall focus position
  - [**Lens Fn2 button**]: AF-ON
  - [**Lens memory set button**]: Save focus position
  - [**Lens Fn ring (clockwise)**]: Recall focus position
  - [**Lens control ring**]: (Varies with lens)
- f3 [**Custom controls (playback)**]
  - [**Fn1 button**]: None
  - [**Fn2 button**]: None
  - [**Fn3 button**]: None
  - [**Fn button for vertical shooting**]: None
  - [**Protect/Fn4 button**]: Protect
  - [**DISP button**]: Cycle info display

- [**Audio button**]: Voice memo
- [**OK button**]: Zoom on/off
- [**WB button**]: Select for upload to computer
- [**QUAL button**]: Rating
- [**Vertical shooting multi selector**]: Unswitch
- [**Playback button**]: Resume shooting
- [**Main command dial**]
  - [**Frame advance**]: 1 frame
  - [**Video playback**]: 10 frames
  - [**Frame advance zoom position**]: Keep current zoom position
- [**Sub-command dial**]
  - [**Frame advance**]: 1 frame
  - [**Video playback**]: 10 s
  - [**Frame advance zoom position**]: Keep current zoom position
  - [**Playback zoom face selection**]: ON
- [**Video record button**]: None
- [**Exposure compensation button**]: None
- [**ISO sensitivity button**]: None
- [**BKT button**]: None
- [**Flash mode button**]: None
- [**Lens Fn2 button**]: None
- [**Lens Fn button**]: None
- f4 [**Control lock**]
  - [**Shutter speed lock**]: OFF
  - [**Aperture lock**]: OFF
  - [**Focus-point lock**]: OFF
- f5 [**Reverse dial rotation**]
  - [**Exposure compensation**]: ☐
  - [**Shutter speed/aperture**]: ☐
- f6 [**Release button to use dial**]: OFF
- f7 [**Reverse indicators**]: ➖◂┅┅┅┆┅┅┅▸➕
- f8 [**Reverse ring for focus**]: OFF
- f9 [**Focus ring rotation range**]: Non-linear
- f10 [**Control ring response**]: High
- f11 [**Switch focus/control ring roles**]: OFF
- f12 [**Assign power zoom buttons**]
  - [**Use ⊕/⊖ buttons**]: OFF
  - [**Power zoom speed**]: +3
- f13 [**Full-frame playback flicks**]
  - [**Flick up**]: None
  - [**Flick down**]: None
  - [**Flick advance direction**]: Left→Right
- f14 [**Prefer sub-selector center**]: ON

- **g** [**Video**]
  - g1 [**Customize 🖫 menu**]: Set Picture Control, White balance, Frame size/frame rate, Microphone sensitivity, AF-area mode/subj. detection, Focus mode, Electronic VR, Vibration reduction, Shooting menu bank, Custom controls, Airplane mode, Destination
  - g2 [**Custom controls**]
    - [**Fn1 button**]: Shooting menu bank
    - [**Fn2 button**]: Choose image area
    - [**Fn3 button**]: Live view info display off
    - [**Fn button for vertical shooting**]: Exposure compensation
    - [**Vertical ISO sensitivity button**]: ISO sensitivity
    - [**Focus mode button**]: Focus mode/AF-area mode
    - [**Protect/Fn4 button**]: Set Picture Control
    - [**AF-ON button**]: AF-ON
    - [**Sub-selector center**]: AE/AF lock
    - [**DISP button**]: Cycle live view info display
    - [**Audio button**]: Microphone sensitivity
    - [**OK button**]: Select center focus point
    - [**WB button**]: White balance
    - [**QUAL button**]: None
    - [**Vertical multi selector center**]: AE/AF lock
    - [**Playback button**]: Playback
    - [**Video record button**]: Record videos
    - [**AF-ON button for vertical shooting**]: Same as AF-ON button
    - [**ISO sensitivity button**]: ISO sensitivity
    - [**Exposure compensation button**]: Exposure compensation
    - [**Shutter-release button**]: None
    - [**Command dials**]
      - [**Exposure setting**]: **A**: ☎Av/🖥--, **M**: ☎Av/🖥Tv
      - [**Focus/AF-area mode selection**]: ☎[+]/🖥AF/MF
      - [**Sub-command dial zoom role**]: Exposure setting
    - [**Flash mode button**]: None
    - [**BKT button**]: None
    - [**Lens Fn button**]: AE/AF lock
    - [**Lens Fn2 button**]: AF-ON
    - [**Lens Fn ring (counterclockwise)**]: Recall focus position
    - [**Lens Fn ring (clockwise)**]: Recall focus position
    - [**Lens memory set button**]: Save focus position
    - [**Lens control ring**]: (Varies with lens)
  - g3 [**Control lock**]
    - [**Shutter speed lock**]: OFF
    - [**Aperture lock**]: OFF
    - [**Focus-point lock**]: OFF
  - g4 [**Limit AF-area mode selection**]

- [**Single-point AF**]: ✔ (cannot be deselected)
- [**Wide-area AF (S)**]: ☑
- [**Wide-area AF (L)**]: ☑
- [**Wide-area AF (C1)**]: ☑
- [**Wide-area AF (C2)**]: ☑
- [**Subject-tracking AF**]: ☑
- [**Auto-area AF**]: ☑
- g5 [**Focus mode restrictions**]: No restrictions
- g6 [**AF speed**]: 0
  - [**When to apply**]: Always
- g7 [**AF tracking sensitivity**]: 4
- g8 [**Hi-Res Zoom speed**]: 0
- g9 [**Assign power zoom buttons**]
  - [**Use 🔍/🔍 buttons**]: OFF
  - [**Power zoom speed**]
    - [**Pre/post recording**]: +3
    - [**During recording**]: 0
- g10 [**Fine ISO control (mode M)**]: Off
- g11 [**Extended shutter speeds (mode M)**]: OFF
- g12 [**View assist**]: OFF
- g13 [**Zebra pattern**]
  - [**Pattern tone range**]: Zebra pattern off
  - [**Pattern**]: Pattern 1
  - [**Highlight threshold**]: 250
  - [**Mid-tone range**]: Value: 160; Range: ±10
- g14 [**Limit zebra pattern tone range**]: No restrictions
- g15 [**Grid type**]: 3×3
- g16 [**Brightness information display**]: Histogram
- g17 [**Half-press to cancel zoom (MF)**]: OFF
- g18 [**Custom monitor shooting display**]
  - [**Display 1**]: ✔ (cannot be deselected)
  - [**Display 2**]: ☑
  - [**Display 3**]: ☑
  - [**Display 4**]: ☑
- g19 [**Custom viewfinder shooting display**]
  - [**Display 1**]: ✔ (cannot be deselected)
  - [**Display 2**]: ☑
  - [**Display 3**]: ☑
- g20 [**Red REC frame indicator**]: ON

Playback Menu

- [**Delete**]: –
- [**Playback folder**]: All
- [**Playback display options**]
  - [**Focus point**]: ☐
  - [**Mark first shot in series**]: ☐
  - [**Exposure info**]: ☐
  - [**Highlights**]: ☐
  - [**RGB histogram**]: ☐
  - [**Shooting data**]: ☐
  - [**Overview**]: ☐
  - [**None (picture only)**]: ☑
  - [**File info**]: ☐
  - [**Basic shooting data**]: ☑
  - [**Flash data**]: ☑
  - [**Picture Control/HLG data**]: ☑
  - [**Other shooting data**]: ☑
  - [**Copyright info**]: ☑
  - [**Location data**]: ☑
  - [**IPTC data**]: ☑
- [**Delete pictures from both slots**]: Yes (confirmation required)
- [**Dual-format recording PB slot**]: Slot 1
- [**Filtered playback criteria**]
  - [**Protect**]: ☐
  - [**Picture type**]: ☐
  - [**Rating**]: ☐
  - [**Select for upload to computer**]: ☐
  - [**Select for upload (FTP)**]: ☐
  - [**Voice memo**]: ☐
  - [**Retouched pictures**]: ☐
- [**Series playback**]
  - [**Sub-selector displays first shot**]: ON
  - [**Auto series playback**]: OFF
  - [**Auto series playback options**]
    - [**Loop playback**]: OFF
    - [**Wait before playback**]: Normal
    - [**Auto series playback speed**]: 30 fps
  - [**List series as single thumbnails**]: OFF
- [**Picture review**]: Off
- [**After delete**]: Show next
- [**After burst, show**]: Last picture in burst

- [**Auto image rotation**]: ON
- [**Auto-rotate pictures**]: ON
- [**Copy image(s)**]: –

Setup Menu

- [**Format memory card**]: –
- [**Language**]: (Default varies with country of purchase)
- [**Time zone and date**]
  - [**Time zone**]: (Default varies with country of purchase)
  - [**Date and time**]: –
  - [**Date format**]: (Default varies with country of purchase)
  - [**Daylight saving time**]: OFF
- [**Monitor brightness**]: 0
- [**Monitor color balance**]: A-B: 0, G-M: 0
- [**Viewfinder brightness**]: Auto
- [**Viewfinder color balance**]: A-B: 0, G-M: 0
- [**Viewfinder display size**]: Standard
- [**Limit monitor mode selection**]
  - [**Automatic display switch**]: ☑
  - [**Viewfinder only**]: ☑
  - [**Monitor only**]: ☑
  - [**Prioritize viewfinder (1)**]: ☑
  - [**Prioritize viewfinder (2)**]: ☑
- [**Auto rotate info display**]: ON
- [**AF fine-tuning options**]
  - [**AF fine-tune**]: OFF
  - [**Fine-tune and save lens**]: –
  - [**Default**]: –
  - [**List saved values**]: –
  - [**Choose value for current lens**]: –
- [**Non-CPU lens data**]
  - [**Lens number**]: 1
  - [**Focal length (mm)**]: – –
  - [**Maximum aperture**]: – –
  - [**Lens name**]: – –
- [**Distance units**]: Meters (m)
- [**Save focus position**]: OFF
- [**Save zoom position (PZ lenses)**]: OFF
- [**Auto temperature cutout**]: Standard
- [**Sensor shield behavior at power off**]: Sensor shield stays open
- [**Clean image sensor**]

- [**Automatic cleaning**]: Clean at shutdown
- [**Image Dust Off ref photo**]: –
- [**Pixel mapping**]: –
- [**Image comment**]
  - [**Attach comment**]: OFF
- [**Copyright information**]
  - [**Attach copyright information**]: OFF
- [**IPTC**]
  - [**Edit/save**]: –
  - [**Delete**]: –
  - [**Auto embed during shooting**]: Off
  - [**Load/save**]: –
- [**Voice memo options**]
  - [**Voice memo control**]: Press and hold
  - [**Audio output (playback)**]: Speaker/headphones
- [**Camera sounds**]
  - [**Shutter sound**]: ON
  - [**Volume**]: 3
  - [**Type**]: Type A
  - [**Beep**]: Off
  - [**Volume**]: 2
  - [**Pitch**]: Low
- [**Silent mode**]: OFF
- [**Touch controls**]
  - [**Enable/disable touch controls**]: Enable
  - [**Glove mode**]: OFF
- [**HDMI**]
  - [**Output resolution**]: Auto
  - [**Output range**]: Auto
  - [**Output shooting info**]: ON
  - [**Mirror camera info display**]: ON
- [**USB connection priority**]: Upload
- [**Location data (built-in)**]
  - [**Record location data**]: OFF
  - [**Standby timer**]: ON
  - [**Set clock from satellite**]: OFF
  - [**Create log**]: –
  - [**Log list**]: –
  - [**Position**]: –
- [**Wireless remote (WR) options**]
  - [**LED lamp**]: ON
  - [**Link mode**]: Pairing
- [**Assign remote (WR) Fn button**]: None

- [**Conformity marking**]: –
- [**Battery info**]: –
- [**USB power delivery**]: ON
- [**Energy saving (photo mode)**]: OFF
- [**Slot empty release lock**]: Enable release
- [**Save/load menu settings**]: –
- [**Reset all settings**]: –
- [**Firmware version**]: –

Network Menu

- [**Airplane mode**]: OFF
- [**Wired LAN**]: OFF
- [**Connect to smart device**]
  - [**Pairing (Bluetooth)**]
    - [**Bluetooth connection**]: OFF
  - [**Select pictures for upload**]
    - [**Auto select for upload**]: ON
  - [**Wi-Fi connection (AP mode)**]: –
  - [**Wi-Fi connection (STA mode)**]: –
  - [**Upload while off**]: ON
  - [**Location data (smart device)**]: –
- [**Connect to computer**]
  - [**Network settings**]: –
  - [**Connection type**]: Picture transfer
  - [**Options**]
    - [**Auto upload**]: OFF
    - [**Delete after upload**]: OFF
    - [**Upload RAW + JPEG as**]: RAW + JPEG
    - [**JPEG+JPEG slot selection**]: Slot 1
    - [**Upload RAW video as**]: RAW video + MP4
    - [**Upload folder**]: –
    - [**Deselect all?**]: –
- [**Connect to FTP server**]
  - [**Network settings**]: –
  - [**Options**]
    - [**Auto upload**]: OFF
    - [**Delete after upload**]: OFF
    - [**Upload RAW + JPEG as**]: RAW + JPEG
    - [**JPEG+JPEG slot selection**]: Slot 1
    - [**Upload RAW video as**]: RAW video + MP4
    - [**Overwrite if same name**]: OFF

- [**Protect if marked for upload**]: OFF
  - [**Upload marking**]: OFF
  - [**Upload in HEIF format**]: Off
  - [**Upload folder**]: –
  - [**Deselect all?**]: –
  - [**Keep connection**]: OFF
  - [**Manage root certificate**]: –
- [**Connect to other cameras**]
  - [**Synchronized release**]: ON
  - [**Network settings**]: –
  - [**Master/remote**]: Master camera
  - [**Group settings**]: –
  - [**Group name**]: –
  - [**Synchronize date and time**]: –
  - [**Overwrite copyright info**]: –
- [**ATOMOS AirGlu BT options**]
  - [**Connect to ATOMOS AirGlu BT**]: OFF
  - [**Save ATOMOS AirGlu BT pairing info**]: –
  - [**Delete ATOMOS AirGlu BT pairing info**]: –
  - [**Camera**]: NCZ9
- [**USB**]: MTP/PTP
- [**Start via LAN**]: OFF
- [**Router frequency band**]: (Default varies with country of purchase)
- [**MAC address**]: –

My Menu/Recent Settings

- [**Add items**]: –
- [**Remove items**]: –
- [**Rank items**]: –
- [**Choose tab**]: MY MENU

Post-Upgrade Specifications for "C" Firmware Version 5.00

Product specifications following upgrade to "C" firmware version 5.00 are listed below.

Type	
Type	Digital camera with support for interchangeable lenses
Lens mount	Nikon Z mount
Lens	
Compatible lenses	• Z mount NIKKOR lenses • F mount NIKKOR lenses (mount adapter required; restrictions may apply)
Effective pixels	
Effective pixels	45.7 million
Image sensor	
Type	35.9 × 23.9 mm CMOS sensor (Nikon FX format)
Total pixels	52.37 million
Dust-reduction system	Image sensor cleaning, Image Dust Off reference data (requires NX Studio)

Storage	

Image size (pixels)	• **[FX (36 × 24)] selected for image area**:
	  - 8256 × 5504 (Large: 45.4 M)
	  - 6192 × 4128 (Medium: 25.6 M)
	  - 4128 × 2752 (Small: 11.4 M)
	• **[DX (24 × 16)] selected for image area**:
	  - 5392 × 3592 (Large: 19.4 M)
	  - 4032 × 2688 (Medium: 10.8 M)
	  - 2688 × 1792 (Small: 4.8 M)
	• **[1:1 (24 × 24)] selected for image area**:
	  - 5504 × 5504 (Large: 30.3 M)
	  - 4128 × 4128 (Medium: 17.0 M)
	  - 2752 × 2752 (Small: 7.6 M)
	• **[16:9 (36 × 20)] selected for image area**:
	  - 8256 × 4640 (Large: 38.3 M)
	  - 6192 × 3480 (Medium: 21.5 M)
	  - 4128 × 2320 (Small: 9.6 M)

File format (image quality)	• **NEF (RAW)**: 14 bit; choose from lossless compression, high efficiency★, and high efficiency options • **JPEG**: JPEG-Baseline compliant with fine (approx. 1: 4), normal (approx. 1: 8), or basic (approx. 1: 16) compression; size-priority and optimal-quality compression available • **NEF (RAW)+JPEG**: Single photograph recorded in both NEF (RAW) and JPEG formats
Picture Control System	Auto, Standard, Neutral, Vivid, Monochrome, Portrait, Rich Tone Portrait, Landscape, Flat, Creative Picture Controls (Dream, Morning, Pop, Sunday, Somber, Dramatic, Silence, Bleached, Melancholic, Pure, Denim, Toy, Sepia, Blue, Red, Pink, Charcoal, Graphite, Binary, Carbon); selected Picture Control can be modified; storage for custom Picture Controls

Storage	
Media	CFexpress (Type B) and XQD memory cards
Dual card slots	The card in Slot 2 can be used for overflow or backup storage, for separate storage of NEF (RAW) and JPEG pictures, or for storage of duplicate JPEG pictures at different sizes and image qualities; pictures can be copied between cards.
File system	DCF 2.0, Exif 2.32
Viewfinder	
Viewfinder	1.27-cm/0.5-in. approx. 3690k-dot (Quad VGA) OLED electronic viewfinder with color balance, auto and 18-level manual brightness controls, and support for high frame rates
Frame coverage	Approx. 100% horizontal and 100% vertical
Magnification	Approx. 0.8× (50 mm lens at infinity, -1.0 m^{-1})
Eyepoint	23 mm (-1.0 m^{-1}; from rearmost surface of viewfinder eyepiece lens)
Diopter adjustment	$-4 - +3$ m^{-1}
Eye sensor	Automatically switches between monitor and viewfinder displays
Monitor	
Monitor	8-cm/3.2-in., approx. 2100k-dot vertically and horizontally tilting TFT touch-sensitive LCD with 170° viewing angle, approximately 100% frame coverage, and color balance and 15-level manual brightness controls

Shutter	
Type	Electronic shutter with shutter sound and sensor shield
Speed	$\frac{1}{32000}$ – 30 s (choose from step sizes of $\frac{1}{3}$, $\frac{1}{2}$, and 1 EV, extendable to 900 s in mode **M**), bulb, time
Flash sync speed	Flash synchronizes with shutter at speeds of $\frac{1}{250}$ or $\frac{1}{200}$ s or slower (but note that the guide number drops at speeds of $\frac{1}{200}$ to $\frac{1}{250}$ s); sync speeds as fast as $\frac{1}{8000}$ s are supported with auto FP high-speed sync
Release	
Release mode	Single frame, continuous low-speed, continuous high-speed, high-speed frame capture + with Pre-Release Capture, self-timer
Approximate frame advance rate	• **Continuous low-speed**: Approx. 1 – 10 fps • **Continuous high-speed**: Approx. 10 – 20 fps • **High-speed frame capture + (C15)**: Approx. 15 fps • **High-speed frame capture + (C30)**: Approx. 30 fps • **High-speed frame capture + (C60)**: Approx. 60 fps • **High-speed frame capture + (C120)**: Approx. 120 fps * Maximum frame advance rate as measured by in-house tests.
Self-timer	2 s, 5 s, 10 s, 20 s; 1–9 exposures at intervals of 0.5, 1, 2, or 3 s

Exposure	
Metering system	TTL metering using camera image sensor
Metering mode	• **Matrix metering** • **Center-weighted metering**: Weight of 75% given to 12 or 8 mm circle in center of frame or weighting can be based on average of entire frame • **Spot metering**: Meters circle with a diameter of approximately 4 mm centered on selected focus point • **Highlight-weighted metering**
Range [*]	−3 – +17 EV * Figures are for ISO 100 and f/2.0 lens at 20 °C/68 °F
Mode	**P**: programmed auto with flexible program, **S**: shutter-priority auto, **A**: aperture-priority auto, **M**: manual
Exposure compensation	−5 – +5 EV (choose from step sizes of $\frac{1}{3}$ and $\frac{1}{2}$ EV)
Exposure lock	Luminosity locked at detected value
ISO sensitivity (Recommended Exposure Index)	ISO 64–25600 (choose from step sizes of $\frac{1}{3}$ and 1 EV); can also be set to approx. 0.3, 0.7, or 1 EV (ISO 32 equivalent) below ISO 64 or to approx. 0.3, 0.7, 1, or 2 EV (ISO 102400 equivalent) above ISO 25600; auto ISO sensitivity control available
Active D-Lighting	Auto, Extra high 2, Extra high 1, High, Normal, Low, and Off
Multiple exposure	Add, average, lighten, darken
Other options	HDR overlay, photo flicker reduction, high-frequency flicker reduction

Autofocus	
Type	Hybrid phase-detection/contrast AF with AF assist
Detection range *	−7 – +19 EV (−9 – +19 EV with starlight view) * Measured in photo mode at ISO 100 and a temperature of 20 °C/68 °F using single-servo AF (**AF-S**) and a lens with a maximum aperture of f/1.2
Lens servo	• **Autofocus (AF)**: Single-servo AF (**AF-S**); continuous-servo AF (**AF-C**); full-time AF (**AF-F**; available only in video mode); predictive focus tracking • **Manual focus (M)**: Electronic rangefinder can be used
Focus points *	493 focus points * Number of focus points available in photo mode with single-point AF selected for AF-area mode and FX selected for image area
AF-area mode	Pinpoint (available in photo mode only), single-point, dynamic-area (S, M, and L; available in photo mode only), wide-area (S, L, C1, and C2), and auto-area AF; 3D-tracking (available in photo mode only); subject-tracking AF (available in video mode only)
Focus lock	Focus can be locked by pressing shutter-release button halfway (single-servo AF/**AF-S**) or by pressing the center of the sub-selector
Vibration reduction (VR)	
Camera on-board VR	5-axis image sensor shift
Lens on-board VR	Lens shift (available with VR lenses)

Flash	
Flash control	**TTL**: i-TTL flash control; i-TTL balanced fill-flash is used with matrix, center-weighted, and highlight-weighted metering, standard i-TTL fill-flash with spot metering
Flash mode	Front-curtain sync, slow sync, rear-curtain sync, red-eye reduction, red-eye reduction with slow sync, off
Flash compensation	−3 – +1 EV (choose from step sizes of $\frac{1}{3}$ and $\frac{1}{2}$ EV)
Flash-ready indicator	Lights when optional flash unit is fully charged; flashes as underexposure warning after flash is fired at full output
Accessory shoe	ISO 518 hot-shoe with sync and data contacts and safety lock
Nikon Creative Lighting System (CLS)	i-TTL flash control, radio-controlled Advanced Wireless Lighting, optical Advanced Wireless Lighting, modeling illumination, FV lock, Color Information Communication, auto FP high-speed sync, unified flash control
Sync terminal	ISO 519 sync terminal with locking thread
White balance	
White balance	Auto (3 types), natural light auto, direct sunlight, cloudy, shade, incandescent, fluorescent (3 types), flash, choose color temperature (2500–10,000 K), preset manual (up to 6 values can be stored), all with fine-tuning
Bracketing	
Bracketing	Exposure and/or flash, white balance, and ADL

Other options for still photography	
Other options for still photography	Vignette control, diffraction compensation, auto distortion control, skin softening, portrait impression balance, interval-timer photography, focus-shift photography, and auto capture
Video	
Metering system	TTL metering using camera image sensor
Metering mode	Matrix, center-weighted, or highlight-weighted
Frame size (pixels) and frame rate	• 7680 × 4320 (8K UHD): 30p (progressive)/25p/24p • 3840 × 2160 (4K UHD): 120p/100p/60p/50p/30p/25p/24p • 1920 × 1080: 120p/100p/60p/50p/30p/25p/24p • 1920 × 1080 (slow-motion): 30p (4×)/25p (4×)/24p (5×) * Actual frame rates for 120p, 100p, 60p, 50p, 30p, 25p, and 24p are 119.88, 100, 59.94, 50, 29.97, 25, and 23.976 fps respectively
Frame size (pixels) and frame rate (RAW video)	• 8256 × 4644: 60p/50p/30p/25p/24p • 5392 × 3032: 60p/50p/30p/25p/24p • 4128 × 2322: 120p/100p/60p/50p/30p/25p/24p • 3840 × 2160: 120p/100p/60p/50p * Actual frame rates for 120p, 100p, 60p, 50p, 30p, 25p, and 24p are 119.88, 100, 59.94, 50, 29.97, 25, and 23.976 fps respectively
File format	NEV, MOV, MP4
Video compression	N-RAW (12 bit), Apple ProRes RAW HQ (12 bit), Apple ProRes 422 HQ (10 bit), H.265/HEVC (8 bit/10 bit), H.264/AVC (8 bit)
Audio recording format	Linear PCM (48 KHz, 24 bit, for videos recorded in NEV or MOV format) or AAC (48 KHz, 16 bit, for videos recorded in MP4 format)

Video	
Audio recording device	Built-in stereo or external microphone with attenuator option; sensitivity adjustable
Exposure compensation	−3 – +3 EV (choose from step sizes of $\frac{1}{3}$ and $\frac{1}{2}$ EV)
ISO sensitivity (Recommended Exposure Index)	• **Mode M**: Manual selection (ISO 64–25600; choose from step sizes of $\frac{1}{6}$, $\frac{1}{3}$ and 1 EV); with additional options available equivalent to approximately 0.3, 0.7, 1, or 2 EV (ISO 102400 equivalent) above ISO 25600; auto ISO sensitivity control (ISO 64–Hi 2.0) available with selectable upper limit • **Modes P, S, A**: Auto ISO sensitivity control (ISO 64–Hi 2.0) with selectable upper limit
Active D-Lighting	Extra high, High, Normal, Low, and Off
Other options for video recording	Time-lapse video recording, electronic vibration reduction, time codes, N-Log and HDR (HLG) video, wave-form display, red REC frame indicator, video recording display zoom (50%, 100%, 200%, and 400%), extended shutter speeds (mode **M**), and dual-format (proxy-video) recording for RAW video; extended oversampling available; option to view video recording info available via 𝒊 menu; Hi-Res Zoom; auto capture
Playback	
Playback	Full-frame and thumbnail (up to 4, 9, or 72 pictures) playback with playback zoom, playback zoom cropping, video playback, slide shows, histogram display, highlights, photo information, location data display, auto picture rotation, picture rating, voice memo recording and playback, IPTC information embedding and display, filtered playback, skip to first shot in series, series playback, save consecutive frames, and motion blend

Interface	
USB	Type C SuperSpeed USB connector; connection to built-in USB ports is recommended
HDMI output	Type A HDMI connector
Audio input	Stereo mini-pin jack (3.5 mm diameter; plug-in power supported)
Audio output	Stereo mini-pin jack (3.5 mm diameter)
Ten-pin remote terminal	Built-in (can be used with MC-30A/MC-36A remote cords and other optional accessories)
Wired LAN	RJ-45 connector • **Standards**: IEEE 802.3ab (1000BASE-T), IEEE 802.3u (100BASE-TX), IEEE 802.3 (10BASE-T) • **Data rates** [*]: 1000/100/10 Mbps with auto detect • **Port**: 1000BASE-T/100BASE-TX/10BASE-T (AUTO-MDIX) * Maximum logical data rates according to IEEE standard; actual rates may differ.

Wi-Fi/Bluetooth	

Wi-Fi	• **Standards**:
	  - IEEE 802.11b/g/n (Africa, Asia, and Oceania)
	  - IEEE 802.11b/g/n/a/ac (Europe, U.S.A., Canada, Mexico)
	  - IEEE 802.11b/g/n/a (other countries in the Americas)
	• **Operating frequency**:
	  - 2412–2462 MHz (channel 11; Africa, Asia, and Oceania)
	  - 2412–2462 MHz (channel 11) and 5180–5825 MHz (U.S.A., Canada, Mexico)
	  - 2412–2462 MHz (channel 11) and 5180–5805 MHz (other countries in the Americas)
	  - 2412–2462 MHz (channel 11) and 5745–5805 MHz (Georgia)
	  - 2412–2462 MHz (channel 11) and 5180–5320 MHz (other European countries)
	• **Maximum output power (EIRP)**:
	  - 2.4 GHz band: 8.4 dBm
	  - 5 GHz band: 6.0 dBm (Georgia)
	  - 5 GHz band: 9.0 dBm (other countries)
	• **Authentication**: Open system, WPA2-PSK, WPA3-SAE

Bluetooth	• **Communication protocols**: Bluetooth Specification version 5.0
	• **Operating frequency**:
	  - Bluetooth: 2402–2480 MHz
	  - Bluetooth Low Energy: 2402–2480 MHz
	• **Maximum output power (EIRP)**:
	  - Bluetooth: 2.9 dBm
	  - Bluetooth Low Energy: 1.4 dBm

Range (line of sight)	Approximately 10 m (32 ft) [*] * Without interference. Range may vary with signal strength and presence or absence of obstacles.

Location Data	
Supported GNS systems	GPS (USA), GLONASS (Russia), QZSS (Japan)
Data acquired	Latitude, longitude, altitude, UTC (Universal Coordinated Time)
Clock synchronization	Camera clock can be set to time acquired via GNSS
Track logs	NMEA-compliant
Log interval	15 s, 30 s, 1 min., 2 min., 5 min.
Maximum log recording time	6, 12, or 24 hours
Log deletion	Supported
Power source	
Battery	One EN-EL18d rechargeable Li-ion battery [*] * EN-EL18c, EN-EL18b, EN-EL18a, and EN-EL18 batteries can also be used. Note, however, that fewer pictures can be taken on a single charge than with the EN-EL18d. The EH-7P charging AC adapter can be used to charge EN-EL18d, EN-EL18c, and EN-EL18b batteries only.
Charging AC adapter	EH-7P charging AC adapter
AC adapter	EH-6d; requires EP-6a power connector (available separately)
Tripod socket	
Tripod socket	0.635 cm (¼ in., ISO 1222)

Dimensions/weight	
Dimensions (W × H × D)	Approx. 149 × 149.5 × 90.5 mm/5.9 × 5.9 × 3.6 in.
Weight	Approx. 1340 g (2 lb. 15.3 oz.) with battery and memory card but without body cap and accessory shoe cover; approx. 1160 g/2 lb. 9 oz. (camera body only)
Operating environment	
Temperature	−10 °C– 40 °C (+14 °F – 104 °F)
Humidity	85% or less (no condensation)

- Unless otherwise stated, all measurements are performed in conformity with Camera and Imaging Products Association (CIPA) standards or guidelines.
- All figures are for a camera with a fully-charged battery.
- The sample images displayed on the camera and the images and illustrations in this document are for expository purposes only.
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