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J. Dennis Thomas

Nikon® D7100™

Digital Field Guide



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J. Dennis Thomas

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Nikon® D7100™ Digital Field Guide

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When not out photographing or in front of his computer writing about photography, he can be found gracing the stages of the Live Music Capital of the World and popping up randomly in films and television shows.

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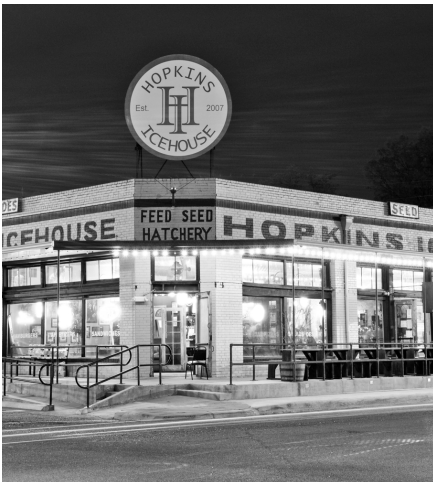
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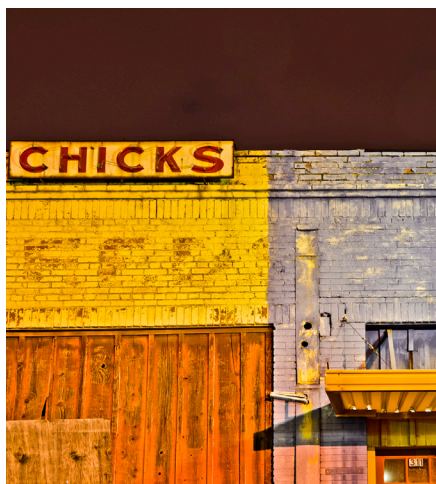
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Introduction

With the ultra-high resolution of the D800 and the D800E, the incredible and affordable full-frame camera in a small package the D600, and then the brand-new magnificently performing 24MP sensor of the D5200, Nikon has been turning the camera world upside down and giving everything a good shaking up.

With all of these great new cameras with impressive features, people weren't expecting a major upgrade to the D7000. Sure, it was expected that the resolution would be increased to at least 24MP, but what more could Nikon do?

Nikon dropped another bomb on the photo world and surprised everyone once again. Nikon took the best aspects from the newest and best high-end cameras, put these great features in the familiar compact body style and produced the D7100 — another game-changing DX camera. Nikon added more magnesium to the camera frame to make it even stronger and also increased the weather sealing making it on par with the D300s/D700 camera bodies. Nikon also put in the Multi-CAM 3500DX from the D300/s and updated it with features from the D4. This is now the top-of-the-line DX AF-system with 51-points (15 cross-type) and 3D-focus tracking. The D7100 also inherits the top-of-the-line Expeed 3 image processor and the 2016-pixel Color Matrix Metering II metering system. The D7100 also is the first Nikon camera to sport an OLED readout in the viewfinder, and the brand-new high-speed 1.3X crop mode. Further establishing itself as being as close to a professional camera as you can get at this price level, the D7100 has the same 24MP sensor first seen in the D5200, but with a big twist — the D7100 has no Optical Low-Pass Filter. This is something that D800E owners had to pay \$300 *extra* for. This means even sharper images than even the 24MP D3X can give you.

The D7100 has everything advanced and even professional photographers need, but there's more: Nikon hasn't forgotten about newer photographers, either. The D7100 offers lots of scene and effect modes to allow you to open up your creativity and capture great images in any shooting situation, no matter how much photography experience you have. The D7100 also allows in-camera editing so you don't necessarily need to be computer savvy to add great effects to your images. It even allows you to edit RAW files.

The D7100 should appeal to videographers as well. It matches the D800 in almost every way in terms of video capabilities, including the ability to record uncompressed video through the HDMI port. The other features that should appeal to the videographer — besides the lower price point — are the stereo microphone input; the stereo headphone output; the ability to control ISO, shutter speed, and aperture; and the plethora of fast lenses that Nikon offers to achieve the shallow depth of field that is the hallmark of high-quality video production.

In the end, Nikon created an amazing, full-featured, full-frame camera that isn't out of reach of regular folks.

About the Digital Field Guide

The Nikon Digital Field Guide book series is intended to act as an adjunct to the manual that comes with your camera. While the manual gives you a great overview of the camera, a photographer didn't write it. The *Nikon D7100 Digital Field Guide* gives you all the information you need about the camera from a working photographer's perspective.

The goal of this guide is to help photographers, from novices to advanced amateurs, to get a grasp on all the features of this great new camera. It includes tips learned from working with the camera in the field, as well as some basic information to help newer photographers get up to speed quickly.

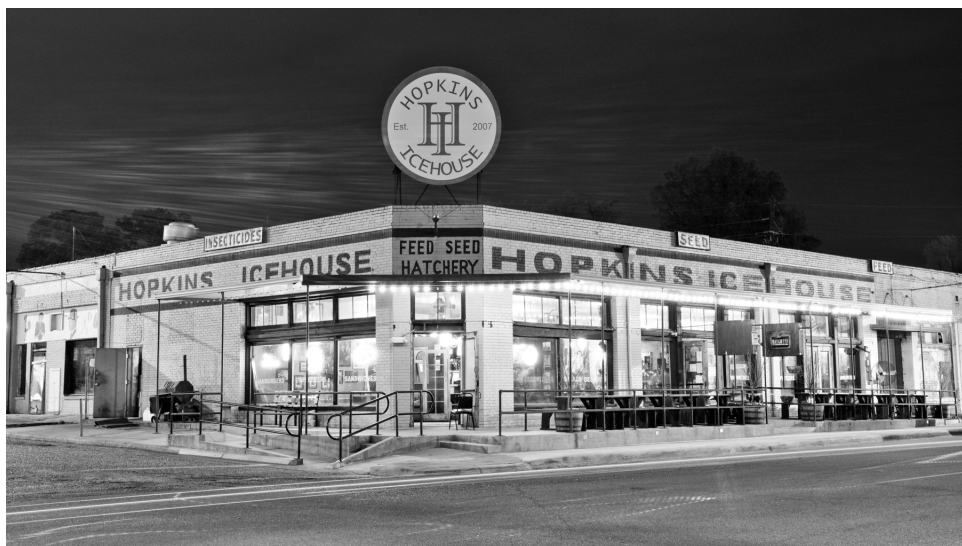
This full-color guide walks you through setting up your camera and offers insights into which settings to use, as well as why each setting is useful in a particular situation. It includes full-color images that demonstrate different photography concepts, and shows you some of the things that the D7100 is able to accomplish under different circumstances.

In the end, the *Nikon D7100 Digital Field Guide* is designed to help you quickly learn to navigate and handle your camera better, as well as help you to reach your goals and achieve your photographic visions more easily.

Exploring the Nikon D7100

This chapter covers the key components of the D7100 — the buttons, switches, dials, and knobs. These are the features you will need to master because you will be using them all the time to modify settings in order to adapt to changing shooting conditions.

The D7100 is very similar to its precursor, the D7000, and also very similar to its FX sibling, the D600. If you're upgrading from the D7000 or you purchased the D7100 as an adjunct to the D600, you'll feel right at home. If you're stepping up from a D5100 or a D3200, the number of controls may surprise you. If you are accustomed to using one of Nikon's compact pro bodies, such as the D300s, D700, or D800, then you will definitely notice the difference in the control layout.



Getting to know all your camera's menus, buttons, and dials allows you to capture your images just as you envision them.

Key Components of the D7100




You use the exterior controls of the D7100 to access features that you change often. Being a higher-end model than the D3200 and D5100 series, the D7100 offers a lot more buttons and dials to allow you to change your settings more quickly, which is a good thing. On the other hand, the D7100 has fewer buttons than the professional-grade cameras, so a lot of the buttons perform double or even triple duty, depending on what mode the camera is in.






The good news is that you can customize a number of buttons so that you can control the settings that you need to access most often.


Top of the camera


A lot of important buttons are on the top of the D7100. This makes it easier to find them, especially when you have your eye to the viewfinder. This is where you find the dials to change the shooting modes, as well as the all-important shutter-release button and the relatively new Movie record button.


- ▶ **Shutter-release button.** In my opinion, this is the most important button on the camera. Pressing this button halfway activates the camera's autofocus and light meter. Fully depressing this button releases the shutter, and a photograph is taken. When the camera has been idle and has "gone to sleep," lightly pressing the shutter-release button wakes it up. When the image review is on, lightly pressing the shutter-release button turns off the LCD and prepares the camera for another shot.
- ▶ **On/Off switch.** This switch, located concentric to the shutter-release button, is used to turn the camera on and off. Push the switch all the way to the left to turn the camera off; pull the switch to the right to turn the camera on. The On/Off switch also has a spring-loaded momentary switch, which, when pulled to the far right, turns on the control panel backlight.
- ▶ **Movie record button.** When the camera is in Live View movie mode (🎬), pressing this button (which has a simple red dot on it) causes the camera to start recording video. Pressing it a second time stops the video recording. In Live View still photography mode (📷) and standard shooting mode or scene modes, this button has no function at all.
- ▶ **Metering mode button (☐).** Pressing this button and rotating the Main Command dial allows you to change the metering mode among Matrix (☐), Center-weighted

() and Spot metering (). This is also one of the buttons for the two-button formatting option used to format the active memory card. Press and hold this button in conjunction with the Delete button () until FOR blinks on the LCD control panel, and then press the buttons in conjunction a second time to complete formatting. This second button press is required as a fail-safe against accidental formatting.

- **Exposure Compensation button** (). Pressing this button in conjunction with spinning the Main Command dial allows you to modify the exposure that is set by the D7100's light meter when it is set to Programmed auto () , Shutter-priority auto () , or Aperture-priority auto () mode. Turning the Main Command dial to the right increases the exposure, while turning the dial to the left decreases the exposure. You may also notice a green dot next to this button. Pressing and holding this button in conjunction with the Thumbnail/zoom out button () /ISO resets the camera to the default settings.

CAUTION When shooting in Manual exposure () , exposure compensation can also be applied. Because you are controlling the exposure manually, there is no need to apply exposure compensation; it's simpler to adjust the aperture or shutter speed if you need to under or over expose.

NOTE The Exposure Compensation button () serves no function when shooting in automatic or scene modes.

- **Mode dial.** This is an important dial. Pressing the Mode dial lock release button and rotating the Mode dial allows you to quickly change your shooting mode. You can choose the scene mode, one of the semiautomatic modes, or Manual exposure () , which lets you pick the exposure settings.
- **Mode dial lock release button.** Press this button to unlock the Mode dial so that you can rotate the dial to change the settings.

CROSS REF For a detailed description of all the exposure modes, see Chapter 2.

- **Focal plane mark.** The focal plane mark shows you where the plane of the image sensor is inside the camera. The sensor is directly behind the shutter. The minimum focus distance for lenses is measured from this point. When measuring distance for calculating flash output, you should measure the subject-to-focal-plane distance.



Image courtesy of Nikon, Inc.

1.1 Top-of-the-camera controls.

- **Hot shoe.** This is where you attach an accessory flash to the camera body. The hot shoe has an electronic contact that tells the flash to fire when the shutter is released. A number of other electronic contacts allow the camera to communicate with the flash, enabling the automated features of a dedicated flash unit such as the SB-700.
- **Stereo microphone.** This built-in stereo microphone allows you to record sound to go along with your video.
- **Control panel.** This LCD panel displays numerous controls and settings. The control panel is covered in depth later in the chapter.

On the kit lens, you find three key features:

- ▶ **Focus ring.** Rotating the focus ring allows you to focus the lens manually. The location of the focus ring varies by lens. With old AF (non-AF-S) lenses, and even older manual-focus lenses, you turn the ring to focus the lens. Newer AF-S lenses, such as the kit lens, have a switch labeled A and M. Select M before attempting to manually focus. If you don't switch it over first, you can damage the lens. Some higher-end AF-S lenses have a switch labeled A/M and M. With these lenses set to the A/M position, you can manually override the autofocus at any time without damaging the lens.

CROSS REF For more information on lenses and compatibility, see Chapter 4.

- ▶ **Zoom ring.** Rotating the zoom ring allows you to change the focal length of the lens. Prime lenses do not have a zoom ring.
- ▶ **Focal length indicators.** These numbers indicate which focal length in millimeters your lens is zoomed to.

Back of the camera

The back of the camera is where you find the buttons that mainly control playback and menu options, although a few buttons control some of the shooting functions. Most of the buttons have more than one function — a lot of them are used in conjunction with the Main Command dial or the multi-selector. On the back of the camera, you also find several key features, including the all-important LCD screen and viewfinder.

- ▶ **Release Mode dial lock release.** Press the Release Mode dial lock release and rotate the Release Mode dial to change the settings.
- ▶ **Release Mode dial.** Although technically the Release Mode dial is located on the top of the camera, on recent Nikon cameras the Release modes are easier to view from the rear of the camera. The Release mode controls how the shutter is released when you press the shutter-release button. There are seven modes:
 - **Single frame (s).** This mode allows you to take a single photograph with each press of the shutter-release button. The camera does not fire multiple frames when the button is held down.
 - **Continuous low-speed shooting (cl).** When using this mode, pressing and holding the shutter-release button allows the camera to shoot multiple

frames at low speed. You can set the frame rate for this Release mode in Custom Setting menu (⚙) d5. You can select from 1 to 5 fps.

- **Continuous high-speed shooting (CH).** When you use this mode, pressing and holding the shutter-release button allows the camera to shoot multiple frames at high speed. The camera shoots at the maximum frame rate of 5.5 fps.

NOTE The actual maximum frame rate depends on the shutter speed, buffer, and memory card speed.

- **Quiet shutter release mode (Q).** This mode allows you to control the release of the reflex mirror. When you press the shutter-release button, the reflex mirror stays up until you release the button. This allows you to take pictures more quietly by moving to a different area or covering up the camera before you release the shutter-release button, allowing the mirror to reset.
 - **Self-timer release mode (⌚).** This mode activates the self-timer that allows a delay between when you press the shutter-release button and when the shutter is released. You can set the timer in the Remote control mode (📷) in the Shooting menu (📷).
 - **Remote (📷).** This mode allows you to use the optional ML-L3 wireless remote to release the shutter. You can change the settings in the Remote control mode (📷) in the Shooting menu (📷).
 - **Mirror up mode (MUP).** This mode raises the reflex mirror with one press of the shutter-release button and releases the shutter and resets the mirror with a second press of the button. You can use this mode to minimize camera shake from mirror movement when shooting long exposures on a tripod or when using a long telephoto lens.
- ▶ **LCD monitor.** This is the most prominent feature on the back of the camera. This 3-inch, 930,000-dot liquid crystal display (LCD) is a very bright, high-resolution screen. The LCD is where you view all your current camera settings and review your images after shooting, and it displays the video feed for Live View and video recording.
- ▶ **Viewfinder.** This is what you look through to compose your photographs. Light coming through the lens is reflected from a series of five mirrors (called a *pentamirror*), enabling you to see exactly what you're shooting. The rubber eyepiece around the viewfinder gives you a soft place to rest your eye and blocks any extra light from entering the viewfinder as you compose and shoot your images.

- ▶ **Diopter adjustment control.** Just to the right of the viewfinder (almost hidden behind the eyecup) is the diopter adjustment control. Use this control to adjust the viewfinder lens to suit your individual vision strength (not everyone's eyesight is the same). To adjust this control, look through the viewfinder at the menu bar and slide the diopter adjustment up or down until it appears sharp.
- ▶ **AE-L/AF-L button (AF-L).** The Auto-Exposure/Autofocus Lock button is used to lock the Autoexposure (AE) and Autofocus (AF). You can customize this button in the Custom Setting Menu (f5) to provide AE/AF Lock, AE Lock only, AE Lock (hold), AF Lock only, or AF-ON. AE Lock (hold) locks the exposure with one press of the shutter-release button; the exposure is locked until you press the button again or the shutter is released. AF-ON engages the AF in the same way that half-pressing the shutter-release button does. You can also set the button to FV lock when using an accessory Speedlight.
- ▶ **Main Command dial.** You use this dial to change a variety of settings, depending on which button you are using in conjunction with it. By default, it is used to change the shutter speed when the camera is in Shutter-priority auto (S), Programmed auto (P), and Manual exposure (M) mode. It is also used to adjust exposure compensation and change the flash mode.
- ▶ **Multi-selector.** The multi-selector is another button that serves a few different purposes. In Playback mode, you use it to scroll through the photographs you've taken, and you can also use it to view image information such as histograms and shooting settings. When the D7100 is in Single-point AF (L) or Dynamic-area AF (L) mode, you can use the multi-selector to change the active focus point. You can also use the multi-selector to navigate through the menu options.
- ▶ **OK button (OK).** When the D7100 is in Menu mode, you press the OK button (OK) to select the menu item that is highlighted. In Playback mode, pressing the OK button (OK) displays the Retouch Menu (R) options. In Shooting mode, you can set the OK button (OK) to a couple of different functions using the Custom Setting menu (f1), Select center focus point, Highlight active focus point, or you can disable the OK button (OK) by selecting Not used.
- ▶ **Focus selector lock.** This switch, located concentric to the multi-selector, locks the focus point so that it cannot be moved with the multi-selector.
- ▶ **Live View button.** Simply pressing the Live View button (LV) activates the Live View option.








Image courtesy of Nikon, Inc.

1.2 Back-of-the-camera controls.

- ▶ **Live View switch.** Flipping the switch allows you to choose between shooting still photos (📷) or video (🎥).
- ▶ **Memory card access lamp.** This light blinks when the memory card is in use. Under no circumstances should you remove the card when this light is on or blinking. You could damage your card or camera and lose any information in the camera's buffer. If the buffer is full when you switch the camera off, the camera will stay powered on and this button will continue blinking until the data finishes transferring from the buffer to the memory card.
- ▶ **Info button (Info).** Pressing this button displays the shooting information on the monitor.
- ▶ **Speaker.** This small speaker enables you to hear the audio recorded with the video you have shot. I must admit that the fidelity of the speaker isn't that great, and it's quite hard to get an accurate representation of what the sound is going to be like when it is played back through your TV or computer speakers.
- ▶ **Rear infrared receiver.** This receiver picks up the infrared signal from the optional wireless remote, the ML-L3.

- ▶ **Playback button (▶).** Pressing this button activates Playback mode and by default displays the most recently taken photograph. You can also view other pictures by pressing the multi-selector left (◀) and right (▶).
- ▶ **Delete button (🗑).** If you are reviewing your pictures and find some that you don't want to keep, you can delete them by pressing this button. To prevent you from accidentally deleting images, the camera displays a dialog box asking you to confirm that you want to erase the picture. Press the Delete button (🗑) a second time to permanently erase the image. This is also one of the buttons for the two-button formatting option used to format the active memory card. Press and hold this button in conjunction with the metering mode button (☒) until FOR blinks on the LCD control panel, and then press the buttons in conjunction a second time to complete formatting. As mentioned previously, this second button press is required as a fail-safe against accidental formatting.
- ▶ **Menu button (MENU).** Press this button to access the D7100 menu options. There are a number of menus, including Playback (▶), Shooting (📷), Custom Settings (⚙), and Retouch (🖋). Use the multi-selector to choose the menu you want to view and press the OK button (Ⓞ) to enter the specific menu screen.
- ▶ **Help/protect/white balance button (?/🔒/WB).** Pressing this button and rotating the Main Command dial allows you to change the white balance (WB) settings when in Shooting mode. Rotating the Sub-command dial allows you to fine-tune the selected WB setting by adding blue or amber to make the image cooler or warmer, respectively. You can add blue (b1–b6) by rotating the dial to the right and amber (a1–a6) by rotating to the left. When you're viewing the information display and a question mark appears, or when you're scrolling through the menu options and a question mark appears in the lower-left corner, you can press this button to get more information. When the D7100 is in Playback mode, press this button to protect (lock) the image from accidentally being deleted. Press it again to unlock it.
- ▶ **Zoom in/QUAL button (🔍/QUAL).** When the D7100 is in Shooting mode, pressing this button and rotating the command dials allows you to quickly change the image quality and size settings. Rotating the Main Command dial allows you to choose a format (RAW, JPEG, or RAW + JPEG) as well as the JPEG compression (Basic, Normal, Fine). Rotating the Sub-command dial allows you to choose the JPEG size but has no effect when the quality is set to RAW. When reviewing your images or using the Live View (LV) option, you can press the Zoom in button (🔍) to get a closer look at the details of your image. This is a handy feature for checking the sharpness and focus of your shot. When you are zoomed in, use the multi-selector to navigate within the image. To view your other images at the same zoom ratio, you can rotate the Main Command dial. To return to

full-frame playback, press the Zoom out (/ISO) button. You may have to press the Zoom out button (/ISO) multiple times, depending on how much you have zoomed in.

- ▶ **Thumbnail/Zoom out/ISO button (/ISO).** In Shooting mode, pressing this button and rotating the Main Command dial allows you to change the ISO settings. In Playback mode, pressing this button allows you to go from full-frame playback (or viewing the whole image) to viewing thumbnails. The thumbnails can be displayed as 4, 9, or 72 images on a page. You can also view images by calendar date. When you're viewing the menu options, pressing this button displays a help screen that explains the functions of that particular menu option. This button also allows you to zoom out after you have zoomed in on a particular image. Pressing and holding this button in conjunction with the Exposure compensation button () resets the camera to the default settings.
- ▶ **i button ().** This is a brand-new button introduced with the D7100. It allows you to quickly access the most important settings by immediately displaying the information edit menu.

Front of the camera

The front of the D7100 (with the lens facing you) is where you find the buttons to quickly adjust the flash settings as well as some camera-focusing options, and with certain lenses, you will also find some buttons that control focusing and Vibration Reduction (VR).




- ▶ **Sub-command dial.** You use the Sub-command dial to adjust a number of settings, but by default, you use it to change the aperture setting. You also use it to change various settings in conjunction with other buttons.
- ▶ **AF-assist illuminator.** This is an LED that shines on the subject to help the camera focus when the lighting is dim. The AF-assist illuminator only lights up when in Single-servo AF mode () or Full-time-servo mode () and the center AF point is selected. This LED also lights up when you set the camera to Red-Eye Reduction flash () using the camera's built-in flash.
- ▶ **Built-in flash.** This is a handy feature that allows you to take sharp pictures in low-light situations. Although not as versatile as one of the external Nikon Speedlights, such as the SB-700 or SB-400, the built-in flash can be used very effectively and is great for snapshots. I highly recommend getting a pop-up flash diffuser if you plan on using it often. You can also use it to control off-camera Speedlights, which is a great option that isn't included on some of the lower-end Nikon models.



Image courtesy of Nikon, Inc.

1.3 Front of the Nikon D7100.

- **Preview button (Pv).** By default, this button stops down the aperture so that you can see in real time what the depth of field will look like. It's a customizable button that you can change to a number of different settings. You can set the button to quickly change the image quality, ISO sensitivity, white balance, or Active D-Lighting settings via the Info display. Pressing the Preview button and rotating one of the Command dials changes the settings, depending on which option is selected. You can change the setting options in Custom Setting menu (⚙) f3.
- **Function button (Fn).** You can set the Function button (Fn) to a number of settings so that you can access them quickly, rather than searching through the menu options manually. You can set the button to change the image quality, ISO sensitivity, white balance, or Active D-Lighting settings via the Info display. Pressing the Function button (Fn) and rotating one of the Command dials changes the settings, depending on which option is selected. You can change the setting options in the Setup menu (⚙) in Custom Setting menu (⚙) f2 under the Buttons option.

CROSS REF For a complete list of options for the Preview (**Pv**) and Function (**Fn**) buttons, see Chapter 3.

- **Front infrared receiver.** This receiver picks up the infrared signal from the optional ML-L3 wireless remote.

Left side of the camera

On the left side of the camera (with the lens facing away from you) are the output terminals on the D7100. These terminals are used to connect your camera to a computer or to an external source for viewing your images directly from the camera. They are hidden under a rubber cover that helps keep out dust and moisture.

- **Flash pop-up/Flash mode/Flash compensation button** (⚡/⚡/⚡). When you're using Programmed auto (**P**), Shutter-priority auto (**S**), Aperture-priority auto (**A**), or Manual (**M**) exposure modes, press this button to open and activate the built-in Speedlight. Pressing this button and rotating the Main Command dial on the rear of the camera allows you to choose a flash mode. Depending on the Shooting mode, you can choose from among Front-Curtain Sync (default) (⚡), Red-Eye Reduction (⚡⊗), Red-Eye Reduction with Slow Sync (⚡⊗^{SR-L}), Slow Sync (⚡^{SLOW}), Rear-Curtain Sync (⚡^{REAR}), or Rear-Curtain Slow Sync (⚡^{SLOW REAR}). Once the flash pops up, pressing this button and rotating the Main Command dial allows you to adjust the flash compensation (⚡/⚡). This enables you to adjust the flash output to make the flash brighter or dimmer depending on your needs.

When you're shooting in Auto or scene modes, the flash is automatically activated and some flash sync modes aren't available depending on the scene mode.

- **Auto, Portrait, Child, Close-up.** When using these modes, you can select Auto-flash (⚡^{AUTO}), Auto with Red-Eye Reduction (⚡⊗^{AUTO}), or Off.
- **Night portrait.** With this mode, you can select Auto with Slow Sync and Red-Eye Reduction (⚡⊗^{SLOW}), Auto with Slow Sync (⚡^{AUTO SLOW}), or Off (⊗).
- **P, A.** With these modes, you can select Red-Eye Reduction (⚡⊗), Red-Eye Reduction with Slow Sync (⚡⊗^{SR-L}), Slow Sync (⚡^{SLOW}), or Rear-Curtain Slow Sync (⚡^{SLOW REAR}).
- **S, M.** These modes allow you to use Red-Eye Reduction (⚡⊗) or Rear-Curtain Sync (⚡^{REAR}).