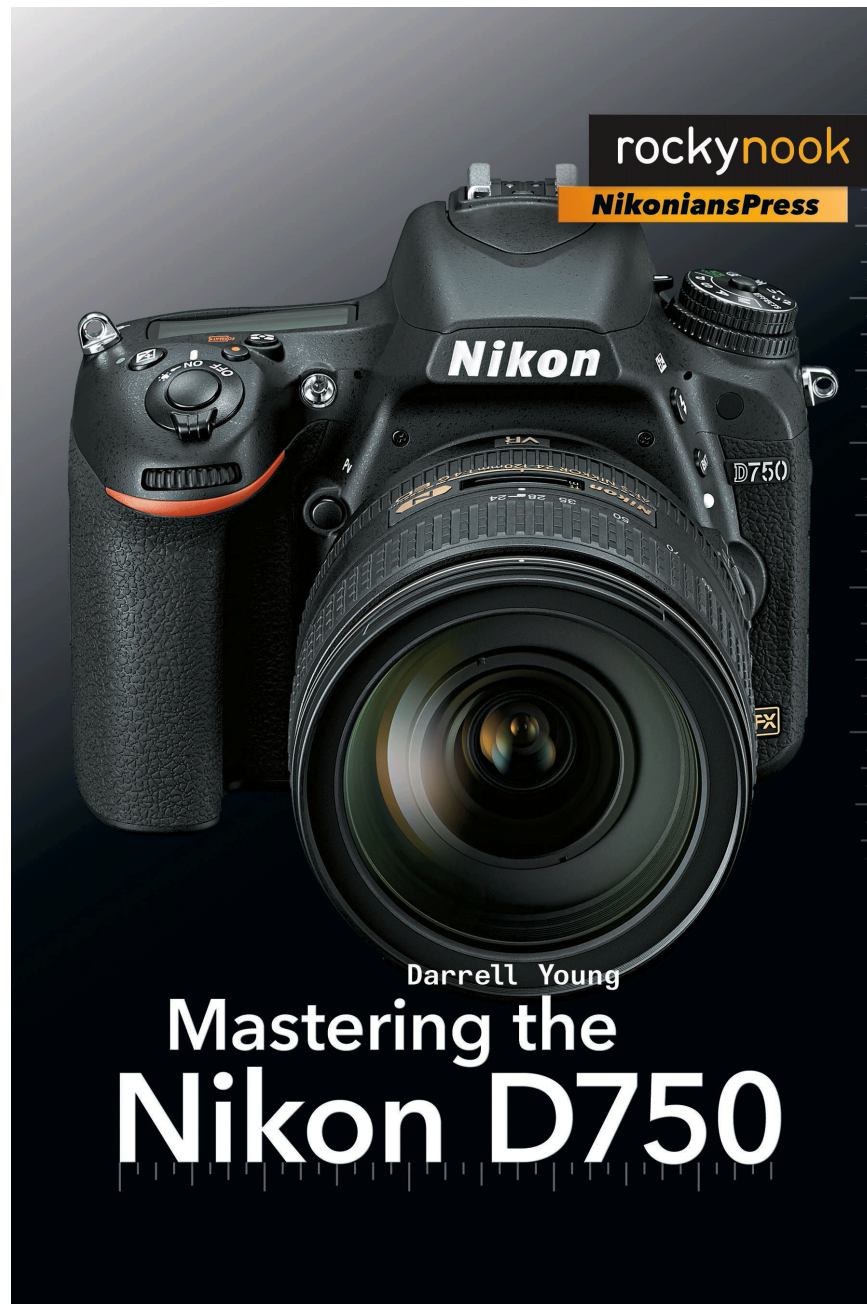


Speedlight Flash

Supplement to Mastering the Nikon D750

This supplemental information is intended for readers of *Mastering the Nikon D750* only. Please do not distribute this extra material to anyone other than a legitimate owner of the book. *Mastering the Nikon D750* is available at the following website: <http://www.rockynook.com/shop/photography/mastering-the-nikon-d750/?ref=13/>



Light is the photographer's friend! Controlling light is the primary thing that separates excellent from not-so-excellent photographers. On beautiful, balmy summer evenings, the light wraps around the land and gives us that so-called golden hour that we crave. However, some days are rainy, and some are dark and gloomy.

As photographers, we want to take pictures. We don't want to stop just because the sun won't cooperate. We need light that we can take with us, and we want it to be available quickly. We need a Speedlight!

Fortunately, your D750 has a built-in Speedlight (figure 14.1). The little pop-up unit that's built in to your camera is a Nikon Speedlight flash. Speedlight is Nikon's name for its flash units, large and small.



Figure 14.1: Nikon D750 with pop-up Speedlight flash open

You have several choices, from the tiny pop-up Speedlight flash on your camera to the flagship Nikon SB-910 Speedlight flash. You can even create a wireless flash array using your camera, a commander unit, and several Speedlight flash units. This type of setup is called the Nikon Creative Lighting System (CLS). We'll look at CLS later in the chapter. First, let's examine some general flash information and explore how the D750 uses flash. How can you determine which flash will work best for your style of shooting? Will the pop-up flash be enough with its limitations in range, or do you need more power to reach out and light up more distant subjects? How is the power output of a flash unit rated?

This chapter contains information that will help you make a good choice in flash units. First, we'll look at how to rate the power output of a flash by examining the guide number.

What Is a Guide Number?

The guide number (GN) for a flash unit measures how well it can light a subject at a specific ISO sensitivity and with a precise angle of view (wide angle versus telephoto). To put it simply, a higher guide number means the flash is more powerful, all other things being equal.

Be careful when you are deciding on an external flash unit, whether it is a Nikon Speedlight or an aftermarket unit. Simply comparing the GN is not enough. You must understand the settings on which the GN is based. Many flash units have zoom capability and can light up subjects farther away when they are zoomed out.

However, imagine buying a flash unit from a manufacturer who publishes the GN based on a longer zoom position, and then comparing it to a different flash unit based on a shorter nonzoom position. The GN rating on the flash that is zoomed out would seem to be higher than the same unit not zoomed out.

Unless you are comparing flash unit GNs with exactly the same settings, it is truly like comparing apples to oranges. For instance, to get an exact comparison of GNs, you would have to know the following:

- Distance from flash head to the subject
- Aperture in use on your camera
- ISO sensitivity of your camera's image sensor
- Angle-of-view setting on the flash zoom head
- Actual angle of view your lens provides (must match flash head)
- Temperature of ambient air

In reality, the camera has little to do with figuring the GN other than providing an f-stop number and ISO sensitivity. So how can you decide what GN is best without whipping out a scientific calculator? Just look at the flash unit specifications to see what the GN is based on. Here are the most important figures:

- Flash zoom angle-of-view setting (e.g., 24 mm or 75 mm)
- ISO sensitivity

If you see a flash unit advertised as GN 98, realize that this is not enough information to make a decision. In this instance, 98 is the GN. It represents the number of feet from the flash head to the subject (98 feet). In countries that use the metric system, the equivalent GN is 30, which is the number of meters from the flash head to the subject. That number by itself is simply incomplete. Don't buy a flash unit based solely on a GN like 98 or 100 or 111.

Let's think about this for a second. Let's say I'm a manufacturer who is desperate to sell you a flash unit. I might stretch things a little bit. I might say my Super-Duper flash unit has a GN of 98 (feet) or 30 (meters) and hope you won't ask about the settings I used to arrive at that number. Here is a comparison of two flash units with a so-called comparable guide number:

Super-Duper flash unit GN information:

- GN 98 (30)
- 80 mm zoom-head setting
- ISO 200 sensitivity

Nikon SB-400 flash unit GN information (real values):

- GN 98 (30)
- 35 mm zoom-head setting
- ISO 100 sensitivity

Both of the flash units have the same GN, so which one is really more powerful? The Nikon SB-400 will literally blow away the Super-Duper unit. Yet the Super-Duper manufacturer lists the same GN! The Super-Duper unit must have its zoom head set to 80 mm, a much narrower beam, and have twice the camera ISO sensitivity to equal the Nikon SB-400 unit. Mr. Super-Duper is hoping you won't check the fine print at the bottom of the specifications so you'll think his much less powerful unit equals the Nikon SB-400. Surprisingly, there are flash unit manufacturers who do exactly this.

What can you learn from this example? The GN itself is not enough to make a decision on which flash unit to use. You must know what the GN is based on in order to make an informed decision. Take your time when buying a flash unit. You're safe in sticking with Nikon Speedlights, because the ratings are well known and they're designed to support all the features of your D750.

There are also excellent aftermarket flash units available from manufacturers like Vivitar, Sigma, Sunpak, Metz, Braun/Leitz, and others. Examine the underlying settings and not just the GN. What the GN is based on is as important as the actual number.

For comparison purposes, the GN of the D750's pop-up Speedlight is 39 (feet) or 12 (meters) at ISO 100. Nikon's flagship Speedlight, the SB-910, is 111.5 (feet) or 34 (meters) at ISO 100. Obviously, the larger external flash unit has a lot more power and can light up subjects that are farther away.

Now, let's examine the various flash modes found in the Nikon D750. Since I have no way of knowing which flash unit you'll be using, I'll write from the perspective of the built-in flash. Almost everything mentioned next applies to the built-in flash and most Accessory shoe-mounted Nikon-brand Speedlight units, plus many Nikon-specific aftermarket flash units.

Note: The built-in flash unit provides coverage for the angle of view of a 24 mm lens in FX mode and a 16 mm lens in DX mode.

Technical GN Information

The GN is based on a specific formula: $GN = \text{distance} \times f\text{-stop}$. It is based on the inverse-square law, which states that doubling the GN requires four times more flash power. So, a flash with a GN of 100 is four times more powerful than a flash with a GN of 50. The guide number represents an exposure constant for a flash unit. For example, a GN of 80 feet at ISO 100 means that a subject 20 feet away can be completely illuminated with an aperture of $f/4$ ($80 = 20 \times 4$) using a sensitivity of ISO 100. For the same guide number and an aperture of $f/8$, the light source should be 10 feet from the subject ($80 = 10 \times 8$). Fortunately, your camera and flash combination is capable of figuring the correct values for you when you use TTL mode.

Flash Modes

(User's Manual: Page 183)

The built-in pop-up flash has two types of flash metering:

- **i-TTL balanced fill flash:** The flash fires in two stages. Nikon calls stage 1 *monitor preflash*. The built-in flash emits a series of almost invisible flashes before the main flash burst fires (stage 2). The preflashes allow the 1,005-pixel RGB flash sensor to examine all areas of the frame for reflectivity. The camera uses the Matrix meter and distance information from a D or G lens to calculate a flash output that is balanced between the main subject and the ambient lighting. You must use Matrix or Center-weighted metering to use this mode.
- **Standard i-TTL:** When the Spot meter is used, the camera automatically switches to standard i-TTL. This mode ignores the background and concentrates on whatever the camera's selected AF point is focused on. For the most accurate flash output for a specific subject, just set your camera to use its Spot meter, and the flash will meter for the subject only.

In addition to the types of flash metering, the camera has several Flash modes that affect how it controls light. We'll consider each of them shortly, but first let's talk about how the shutter blades work when the flash fires. This is basic information that will help you understand the Flash modes. To fully know what's happening when the flash fires, you must understand a little bit about the shutter curtains in your camera.



Figure 14.2: A Nikon shutter assembly and front shutter curtain

Your D750 exposes the sensor to light for specific periods of time. This is controlled by the camera's shutter speed. The actual exposure is handled by two moving objects called curtains. The D750 has two shutter curtains. You can see a front curtain in figure 14.2 (red arrow). It's composed of several narrow blades and is in the closed position.

How do the curtains work? One curtain gets out of the way of the sensor to start the exposure, and the other curtain replaces it to stop the exposure. The first one is called the front curtain, and the second one is called the rear curtain. In this context, front and rear are not important as indicators of position but as indicators of which moves first and which moves second. The flash must fire when the first, or front, curtain is fully open and before the second, or rear, curtain starts closing. The time between the front curtain opening and the rear curtain closing is the actual shutter speed.

The whole sensor must be uncovered when the flash fires in normal Flash modes (non-Auto FP). If the shutter speed is too fast, the rear curtain will closely follow the front curtain and partially block the sensor when the flash fires. That's why the shutter speed is normally limited to a maximum of 1/200s on the D750 when a flash is used. With faster shutter speeds, the sensor is always partially covered by one of the shutter curtains. If the flash fires while one of the curtains covers part of the sensor, then that part of the sensor will not get a proper exposure from the flash and there will be an underexposed black band in your image.

The whole point of the Flash modes is to determine at what point during shutter curtain movement the flash fires and whether it's the main source of light or whether some ambient light is mixed in. Keep this information in mind as we discuss the Flash modes.

Be sure to read the upcoming sidebar called **Auto FP High-Speed Sync** because Auto FP affects the maximum shutter sync speed, allowing you to take it higher than 1/200s. Also, see the section **Custom Setting e1: Flash Sync Speed** in the chapter titled **Custom Setting Menu (page XXX)**, where this mode is discussed in great detail.



Figure 14.3: Selecting a Flash mode

Here are the steps to select one of the Flash modes:

1. Hold down the **Flash mode button** on the front of your camera, just above the **BKT button** (figure 14.3, image 1).
2. Turn the rear **Main command dial** while watching the various modes change on the **Information display** (figure 14.3, image 2 and image 3, top arrow). **Note:** The Nikon D750 does not show the flash modes on the top **Control panel**, as previous Nikons did. You must use the Information display instead, which appears on the **Monitor** automatically when you press and hold the **Flash mode button**. The flash symbols that used to appear on the **Control panel** now appear at the bottom left of the Information display (bottom arrow).
3. Release the **Flash mode button** to lock in the **Flash mode**.

The five basic Flash modes and how they work are described next. The camera will often combine these Flash modes if you use the AUTO, SCENE, or EFFECTS modes on the Mode dial.

Front-Curtain Sync

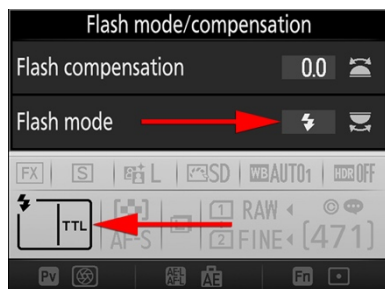


Figure 14.4: Front-curtain sync

In *Front-curtain sync* mode, the camera tries its best to balance the light if you're using a lens that has a CPU in it (figure 14.4). Older non-CPU lenses cause the camera to ignore the ambient light completely and use only the flash to expose the subject. A CPU lens, like an AF-S Nikkor G, D, or E lens, can balance ambient light and light from the flash equally and makes the lighting look very natural. If you use this correctly outdoors, it will be hard to tell that you were using flash, except for the catch light in your subject's eyes and the lack of damaging shadows. The flash simply fills in some extra light without overpowering the ambient light. In a situation where there is very little ambient light, the camera will use only the flash to get a correct exposure. It balances with ambient light only if there is enough.

There is a side effect to using this mode with slow shutter speeds. Front-curtain sync causes the flash to fire as soon as the front shutter curtain is out of the way before the rear shutter curtain starts closing. If there is some ambient light, the shutter speed is long (like 1/2 second), and the subject is moving, you'll see a well-exposed subject with a blurry trail in front of it. The flash correctly exposes the subject as soon as the front curtain gets out of the way, but the ambient light continues exposing the subject before the rear curtain closes. Since the subject is moving, you may see a ghostlike blur before or in front of the well-exposed moving subject in the picture. This can be seen at shutter speeds as fast as 1/60s if the ambient light is strong enough and the subject is moving.

Red-Eye Reduction

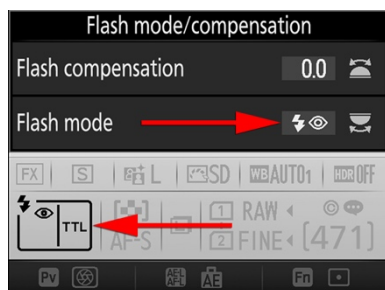


Figure 14.5: Red-eye reduction

Red-eye reduction is not really a flash mode, per se (figure 14.5). It simply means that the AF-assist illuminator on the front of the camera shines brightly in the face of your subject for one second before Front-curtain sync flash fires. The intention is that the bright AF-assist illuminator will cause your subject's pupils to close somewhat and reduce the red-eye effect. Otherwise it performs the same as Front-curtain sync.

Red-Eye Reduction with Slow Sync

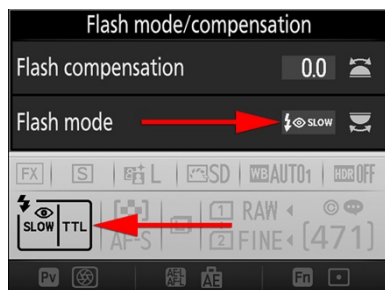


Figure 14.6: Red-eye reduction with slow sync

Red-eye reduction with slow sync combines two modes, Red-eye reduction and Slow sync, so that you can take portraits at night while still recording some of the surroundings (figure 14.6). Slow sync flash allows the camera to leave its shutter open for a normal non-flash exposure time in low ambient light, thereby exposing the surroundings well, and just before the flash fires to light the subject, the AF-assist illuminator shines in your subject's face for one second to reduce pupil size.

When you are shooting with a slow shutter speed in a dark environment, you should have your camera on a tripod to prevent blurry pictures. You should also ask your subject to stand perfectly still, or there is a chance of subject ghosting.

Slow Sync

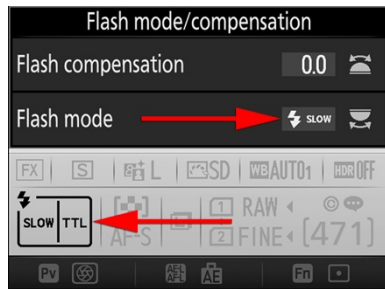


Figure 14.7: Slow sync

Slow sync mode lets the camera use ambient light to make a good exposure and then fires the flash to add some extra light, rounding out the shadows or better exposing a foreground subject (figure 14.7). Use this mode in people shots outdoors or where you want ambient light to provide the primary exposure and the flash to add a sparkle to your subjects' eyes and remove dark shadows from their faces.

This is closely related to Fill flash, except the ambient light is more important than the light from the flash. Be careful when using this mode indoors because it will expose for ambient light and only assist with some flash light. You can get some terrible ghosting and blurred handheld shots when using Slow sync indoors at slow shutter speeds. Ambient light rules in this mode!

Rear-Curtain Sync

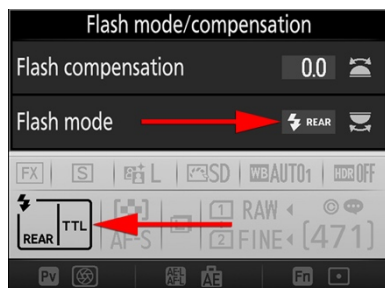


Figure 14.8: Rear-curtain sync

Rear-curtain sync (figure 14.8) is the opposite of Front-curtain sync. The flash waits to fire until just before the rear curtain starts to close. The entire shutter speed time is just ending when the flash fires. This causes a ghosting effect for moving subjects in higher ambient light with slow shutter speeds.

When you press the Shutter-release button, the front curtain opens, ambient light starts hitting the sensor, and the sensor starts recording the subject. Just as the shutter's rear curtain is about to close, the flash fires, exposing the subject at its current position. The subject was fully exposed by the flash at the end of the shutter speed time, so the ambient light had time to register the subject before the flash fired. If the subject is moving, this can produce a blurred ghost behind or after the well-exposed subject.

No-Flash Mode



Figure 14.9: No-flash mode

No-flash mode is designed to prevent the camera from using the flash (figure 14.9, image 1). For convenience, it is also available as a selection on the mode dial (image 2). When you set the camera to No-flash mode, the camera will refuse to use the flash, even if the pop-up flash happens to be raised or an external Speedlight flash unit is on the camera and turned on.

Use this mode to temporarily disable the flash system when you absolutely cannot use flash in a sensitive environment.

Note: If you set the No-flash mode via the Information display and also set the No-flash mode on the Mode dial, you will have to set both of the No-flash modes to some other setting before the flash will again be enabled. These two No-flash modes work independently of each other in disabling the flash.

Settings Recommendation: I use Front-curtain sync (Fill flash) for normal, everyday flash. It balances ambient light with flash light. I'll often switch to Spot metering mode when using Fill flash for extremely accurate exposures of a particular subject.

External Speedlight flash units offer modes like TTL BL, TTL BL FP, TTL FP, or just TTL. TTL stands for "through the lens" and represents an i-TTL mode (intelligent though the lens). BL stands for balanced. FP stands for Auto FP high-speed sync mode. Refer to the flash unit user's manual for exact details on how to switch between modes on the flash unit.

When I'm shooting outside (only) and want a great exposure of my subject's surroundings, along with the subject, I often use Slow sync mode. The only caveat is that you must be aware that slow shutter speeds will cause ghosting and blurring as the light falls.

I don't use the Red-eye reduction modes often because they seem to confuse people. They think the initial shine of the AF-assist illuminator is the flash firing and then look away just as the main flash fires. If you are going to use Red-eye reduction modes, you might want to tell your subject to wait for the main flash.

Rear-curtain sync creates a cool effect if you want to show a ghosted image stretching out behind your subject when you use slow shutter speeds. Rear-curtain sync is sometimes used by sports shooters in situations where there may be some blurring from fast movement in low light. It is much more acceptable to have a ghosted blur after the subject since it implies motion. Front-curtain sync makes the blur show up in front of the subject, which looks just plain weird.

I suggest experimenting with all of these modes. You'll want to use each of them at various times.

Auto FP High-Speed Sync

The D750 has an additional mode that lets it exceed the normal flash sync speed of 1/200s. It is called Auto FP high-speed sync mode. Remember how normally both the front and rear shutter curtains must be out of the way before the flash fires? Auto FP high-speed sync mode lets you use shutter speeds all the way up to 1/8000s. At these speeds, the rear shutter curtain follows the front shutter curtain so closely that only a traveling narrow horizontal slit exposes the sensor at any given time.

When you select a sync speed faster than the normal 1/200s, the camera fires the flash in thousands of short pulses instead of one big flash. The pulses fire as the narrow shutter curtain slit moves across the face of the sensor. The faster the shutter speed, the less power the flash can manage. You must be able to depend on ambient light in addition to flash when using Auto FP high-speed sync mode, especially at higher shutter speeds. However, this lets you use your fast lenses (e.g., f/1.4, f/2.8) wide open while in direct sunlight, due to the very fast shutter speed.

You can expose properly with a very shallow depth of field due to a large aperture, even though the light is very bright. We covered this mode in detail in the chapter titled **Custom Setting Menu**, under the heading **Custom Setting e1: Flash Sync Speed**.

To set your camera to Auto FP high-speed sync mode, choose *Custom Setting Menu > e Bracketing/flash > e1 Flash sync speed*. Select 1/250 s (Auto FP) or 1/200 s (auto FP) from the menu. Afterward, use Shutter-priority auto (S) mode or Manual (M) and adjust your camera's shutter speed to any speed between 30 seconds and 1/4000 second. An external Speedlight will fire its pulses to match the shutter blade slit traveling across the imaging sensor. The maximum shutter speed the built-in flash will allow is the Auto FP mode you've selected (200 or 250). You must use an external Speedlight flash unit (such as the SB-910 or SB-700) to use Auto high-speed sync mode.

Flash Compensation

No metering system works well in all conditions. When you are having some mild subject overexposures due to shooting against a dark background, you may want to dial in -0.3 EV or more *Flash compensation*. The D750 makes adding or subtracting flash exposure very simple.

You can add up to one full stop of overexposure to your subject (1.0 EV) and up to three stops (3.0 EV) underexposure.



14.10: Dialing in Flash compensation

Following are the steps to dial in Flash compensation with the Flash mode/compensation button and other camera controls:

1. Press and hold down the **Flash mode/compensation button** (figure 14.10, image 1).
2. Turn the front **Sub-command dial** while examining the **Information** for changes in the flash compensation (figure 14.10, image 2 and screen 3). In figure 14.10, image 3, I have $+1.0$ EV (1 stop) of compensation dialed in. The Flash compensation amount also appears on the top **Control panel**.
3. Release the **Flash mode/compensation button** and take your pictures. Be sure to set Flash compensation back to zero (0.0) when you are finished shooting.

Settings Recommendation: Any camera will tend to shoot a bit hot (overly bright) when photographing a light subject against a dark background. In that case you might want to dial in -0.3 or -0.7 EV compensation, especially when shooting up close. It can be hard to expose for a bride's white dress in a dark area, such as the romantic dance with the new husband. You will often have to use Flash compensation that varies with each shot. Learn to use this feature well, and your event images will be better for it.

Shooting flash with the subject over 10 feet away is not as critical for compensation with an external Speedlight. Most of my difficulties arise when up close. Your camera may respond differently, so experiment before shooting a wedding or event. Also, use the Highlight-weighted metering mode for excellent results.

Now let's look into the Nikon CLS, which allows your camera to control multiple flash units in a wireless array.

Nikon Creative Lighting System (CLS)

(User's Manual: Page 433)

CLS is an advanced wireless lighting technology that allows you to use your imagination in designing creative lighting arrangements. No wires are used because the CLS-compatible remote flash units are controlled by a commander device, or what Nikon refers to as a master flash unit. You can use the Commander mode built into the D750; an Accessory shoe-mounted commander, such as the SB-910, SB-900, SB-800, SB-700, and SB-500 Speedlights; or the SU-800 Wireless Speedlight Commander unit. The SB-600 has only a remote mode, so it cannot be used as a commander unit.

We'll consider only the camera's built-in Commander mode in this chapter. I suggest buying a copy of *The Nikon Creative Lighting System, 3rd Edition*, by Mike Hagen, published by Rocky Nook and NikoniansPress, 2015 (<http://amzn.to/1I9Ljjj>).

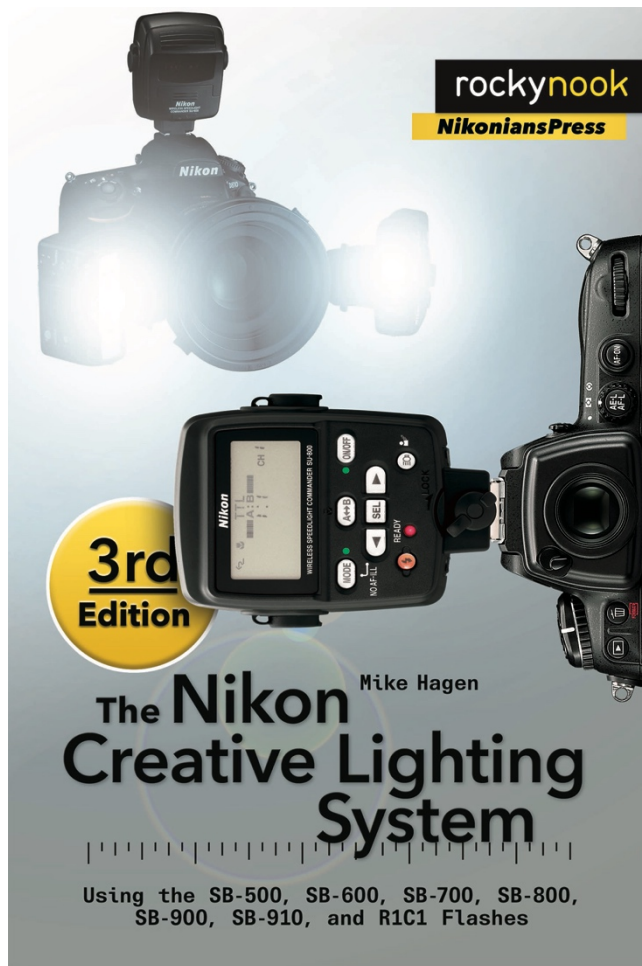


Figure 14.11: The Nikon Creative Lighting System, 3rd Edition, by Mike Hagen, Rocky Nook and NikoniansPress
<http://amzn.to/119ILjj>

Hagen's book (figure 14.11) goes into excellent detail on how to use CLS with multiple groups of external Nikon Speedlight flash units. I have read Hagen's book cover to cover and really enjoyed learning all about CLS. If you want to successfully control complex arrangements of Nikon Speedlights easily, you need this book. It's worth the price merely for the knowledge you gain on configuring your complex flash unit(s).

Using CLS, you can easily experiment with setups and flash output. You can obtain a visual preview of how things will look by pressing the Depth-of-field preview button, which will fire the pulsed modeling capability within Nikon Speedlights.

There is no need to calculate complex lighting ratios when you can control your flash banks right from the camera and see the results immediately. CLS simplifies the use of multiple flash-unit setups for portraiture, interiors, nature, or any situation in which several Speedlights need to work in unison.

You can simply position the flash units where you'd like them to be and let CLS automatically calculate the correct exposure, or you can change the lighting ratios directly from the *Custom Setting Menu > e3 Flash cntrl for built-in flash > Commander mode* menu of your D750.

Nikon's CLS is world class in power and not too difficult to use. The Nikon D750 contains everything you need to control a simple or complex CLS setup. Let's learn how to use it!

How Does the D750 Fit into the CLS Scheme?

In Commander mode, the camera functions as a controller for multiple Nikon Speedlight flash units. Although the professional-level Nikon D4S/D4/D3/D3S/D3X requires the separate purchase of an Accessory shoe-mounted commander device (SU-800), the D750 body has full Nikon CLS technology built right in.

You can use normal i-TTL flash technology with the camera's built-in flash, or use Commander mode and the built-in flash to control up to two groups of an unlimited number of external Nikon Speedlight flash units. Nikon currently makes the powerful SB-910 flash unit, along with its slightly less powerful SB-700 or SB-500 brothers, and other smaller Speedlight units such as the SB-300 and SB-R200. You can also still acquire older flash units such as the SB-900, SB-800, and SB-600. The small SB-400 is not CLS compatible, while the SB-R200 is designed especially for CLS.

Many people who use the D750 have an external flash unit or two—usually the SB-910, SB-900, SB-800, SB-700, SB-600, or SB-500. The SB-R200 flash is designed to be used on various brackets available from Nikon and will work in conjunction with the bigger Speedlight flash units. The Nikon D750 is happy to let you arrange professional lighting setups using these relatively inexpensive and very portable Speedlights.

The cool thing about the D750 is that it can serve as a CLS flash commander device or use Nikon's other CLS flash commander device (SU-800) at will. You have great control with this fine camera!

What Is Commander Mode and How Does It Work?

Commander mode is controlled through a menu on your D750. If you examine the Commander mode screen shown in figure 14.12, you'll note that you have controls for the built-in flash and two groups (A and B), or banks, of external flash units.



Figure 14.12: Commander mode

You'll also see that you can set Exposure compensation for either of these groups (Comp.). If the main flash is too bright, you can either move it farther away or dial its power down by setting Exposure compensation (Comp.) to underexpose a little. You can set Comp. in 1/3-stop increments, so you have very fine control of each group's flash output. You can experiment until you get the image just the way you want it. Sure, you can do things the old way and use a flash meter, or get your calculator and figure out complex fill ratios. Or you can simply use CLS to vary your settings visually until the image is just right (figure 14.13).



Figure 14.13: J. Ramón Palacios (*JRP*) used a Commander device and two SB-800 Speedlights to take this CLS photo

Isn't it more fun to simply enter some initial settings into your Commander mode screen and then take a test shot? If it doesn't look right, change the settings and do it again. Within two or three tries you'll probably get it right, and you will have learned something about the performance of your CLS. In a short time, you'll have a feel for how to set the camera and flash units and will use your flash/camera combo with authority.

Note: If you leave *Custom Setting Menu > e Bracketing/flash > e5 Modeling flash* set to On, you can test fire the built-in modeling light of your single Speedlight—or all Speedlights in Groups A and B—by pressing and holding the camera's Depth-of-field preview button.

Using Commander Mode

Let's start by putting your camera into Commander mode. We'll do that by changing *Custom Setting Menu > e Bracketing/flash > e3 Flash cntrl for built-in flash* to Commander mode (CMD). Look at figure 14.14 for the steps to set this option.

Since this section is about controlling multiple flash units, we'll have to change the settings in Commander mode, using the screen shown in figure 14.14, image 4. We'll examine each of the settings available in Commander mode.

First, we'll consider TTL. It's the easiest to use because it allows you to set Exposure compensation for the built-in flash as well as each of your flash groups. Second, we'll briefly look at AA mode, which is an old-fashioned mode not often used by new photographers. Third, we'll examine M mode, because that gives you fine control of your flash from full power (1/1) to 1/128 power. Finally, we'll consider the -- (flash-disable) mode, which prevents the camera's built-in flash from firing the main flash output but does not stop the necessary monitor preflashes or the firing of the external flash units. Flash-disable mode turns off the main flash bursts for a group of Speedlights when it is selected; however, it does not turn off the monitor preflashes.

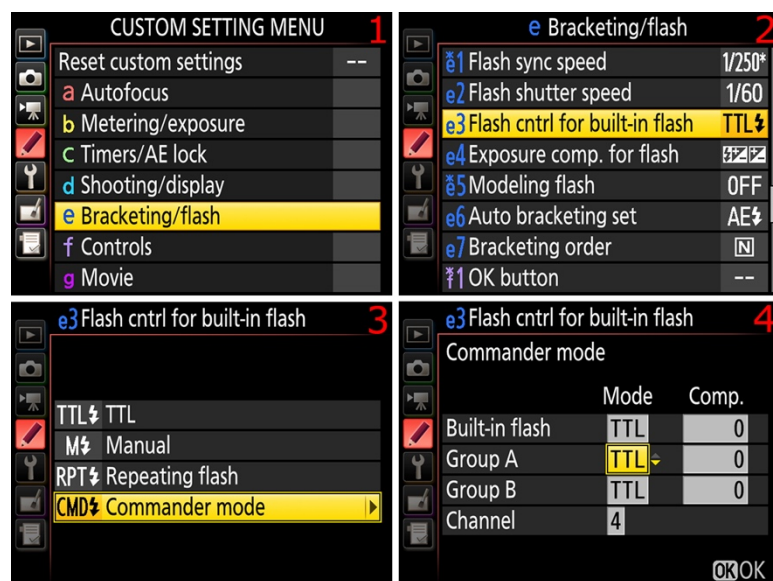


Figure 14.14: Setting the camera to Commander mode

When your camera is controlling external Speedlights using its built-in Commander mode, you must raise the built-in flash on your D750. The camera communicates with the external flash units during the monitor preflash cycle.

Always position the small round sensor windows on the external Speedlights where they will pick up the monitor preflashes from the built-in flash. Take particular care when you are not using a tripod.

Commander Mode Settings

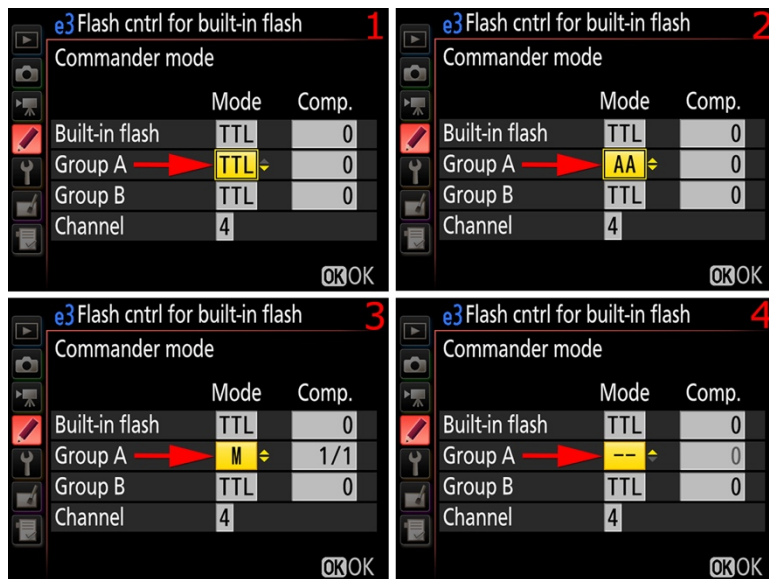


Figure 14.15: Commander mode screen with four Mode settings

Basically, the Mode fields on the Commander mode screen will display the selections in the following list. Use the Multi selector to change the values, as shown in figure 14.15. Here are the four Commander mode settings:

- TTL, or i-TTL mode
- AA, or Auto Aperture mode
- M, or Manual mode
- --, or Flash-disable mode

You'll find each mode in the Mode box shown in yellow in figure 14.15. Use the Multi selector to scroll up or down and select a mode. AA mode is not available for the Built-in flash, so you will see AA only in the Mode boxes following Groups A and B. Now, let's examine each mode in more detail:

- **TTL mode:** The TTL setting allows you to use the full power of i-TTL technology. By leaving Mode set to TTL (as shown in figure 14.15, image 1) for the Built-in flash, Group A, and Group B, you derive maximum flexibility and accuracy from all your flash units. In this mode, the Comp. setting will display exposure values from -3.0 EV to +3.0 EV, a full six-stop range of exposure compensation for each group of Speedlights. You can set the Comp. in 1/3 EV steps for very fine control.
- **AA mode:** The AA mode is an older non-i-TTL technology included for people who are accustomed to using it. It is not available for the built-in Speedlight on the D750 or for the SB-600. You can safely ignore the AA mode unless you want to experiment with it. It may not provide as accurate a flash exposure as TTL mode because it is not based on the amazing i-TTL technology. Otherwise, it works pretty much the same as TTL mode.
- **M mode:** This allows you to set different levels of flash output in 1/3 EV steps for the Built-in flash or the Speedlights in Group A or B. The settings you can put in the Comp. field are between 1/1 (full) and 1/128. The intermediate 1/3-stop settings are presented as decimals within the fractions. For example, 1/1.3 and 1/1.7 are 1/3 and 2/3 stops below 1/1 (full). Many people are used to working with flash units this way, so it seems more familiar to them. CLS is willing to oblige people who have experience with working manually.
- **-- mode (Flash-disable mode):** The built-in Speedlight will not fire the main flash burst in this mode. It will fire the monitor preflashes because it uses them to determine exposure and communicate with the external flash groups. Be sure you always raise the camera's built-in flash in any of the Commander modes; otherwise, the external flash groups will not receive a signal and won't fire their flashes. When you set Mode for Group A or B to Flash-disable (-- mode), that entire group of flashes will not fire any flash output. You can use this mode to temporarily turn off one of the flash groups for testing purposes.

Since the preflashes of the built-in flash always fire, be careful that they do not influence the lighting of your image. Use a smaller aperture, or move the camera farther away from your subject if the preflashes add unwanted light.

Setting the Channel for Communication

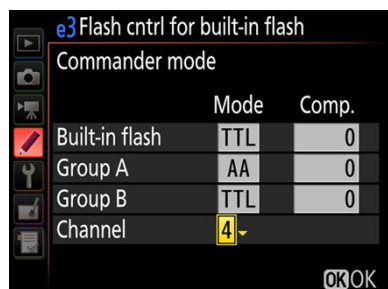


Figure 14.16: Commander mode channel selection

Look at figure 14.16, the camera's Commander mode screen, and you'll notice that just below Group B there is a Channel selection. The number 4 that is selected in the yellow box is the communication channel my D750 will use to talk to the external flash groups (the factory default is 1).

There are four channels available (1 through 4), just in case you happen to be working in the vicinity of another Nikon photographer who is also using Commander mode. By using separate channels, you won't interfere with each other.

Note: It is important to realize that all external flashes in all groups must be on the same channel. This involves setting up your individual flash units to respond on a particular channel. They might be in separate groups, but they must be on the same channel. Each external Speedlight flash will have its own method for selecting a group and channel.

What Are Monitor Preflashes?

When you press the Shutter-release button with the pop-up flash open, the built-in Speedlight fires several brief preflashes and then fires the main flash burst. These preflashes fire whenever your camera is set to TTL mode, even if your D750 is controlling multiple flash units through CLS. The camera can determine a very accurate exposure by lighting your subject with a preflash, adjusting the exposure, and then firing the main flash burst.



Figure 14.17: Nikon CLS compared to direct flash

Author's Conclusions

The Nikon D750 gives you control over the world-class Nikon Creative Lighting System. It is the envy of many other camera brand manufacturers and users.

I recommend that you buy a copy of Mike Hagen's book *The Nikon Creative Lighting System, 3rd Edition*, as an excellent way to increase your knowledge of the Nikon CLS. It goes into great detail on using Nikon cameras to control several of the major Nikon flash units. *Mastering the Nikon D750* covers CLS only in relation to the Nikon D750 camera body. With these two books and some practice, you can become a Nikon CLS expert!

I also suggest that you find a good book on lighting techniques and study it well. You'll have to learn how to control shadows and reflections, plus you'll have to understand lighting ratios so you can recognize a good image when you see one.

Buy a couple of light stands and some cheap white flash umbrellas and set up some portrait sessions of your family, or even some product shots. With the Nikon D750 and just one extra Speedlight, you can create some very impressive images with much less work than ever before.

The really nice thing is that the Nikon CLS—executed by your camera's Commander mode and external Speedlight flashes—will allow you to shoot without worrying so much about detailed exposure issues. Instead, you can concentrate on creating a great-looking image.