

Chapter 3: The Shooting Modes

Until now I have discussed the basics of setting up the camera for quick shots, relying heavily on features such as AUTO mode to take pictures whose settings are controlled mostly by the camera's automation. As with other sophisticated digital cameras, though, with the PowerShot S100 there is a large range of options available for setting the camera, particularly for taking still images. One of the main goals of this book is to explain the broad range of features available. To do this, we need to turn our attention to two subjects—shooting modes and the Shooting menu options. First, I'll discuss the shooting modes.

Whenever you set out to record still images, you need to select one of the available shooting modes: AUTO, Program, Shutter Priority, Aperture Priority, Manual, Scene, Creative Filters, or Custom. (The only other mode available is for movies.) So far, we have worked with the AUTO and Program modes. Now we will look at the others, after some review of the first two.

AUTO Mode



I've already discussed this shooting mode. This is the one you probably want to select if you just need to have the camera ready for a quick shot, maybe in an environment with fast-paced events when you won't have much time to fuss with settings of things such as ISO, white balance, aperture, or shutter speed.

To set this mode, turn the mode dial, on top of the camera

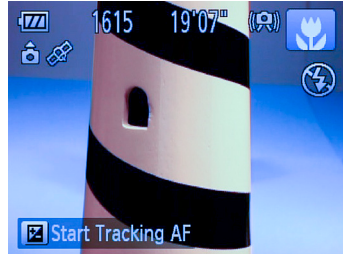
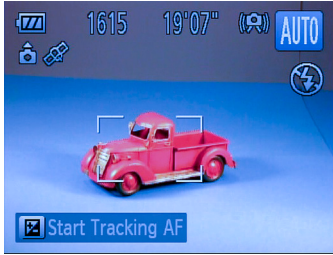
to the right of the shutter button, to the green label with the word "AUTO" in it. When you select this mode, the camera makes quite a few decisions for you and limits your options in several ways. For example, you can't set ISO or white balance to any value other than Auto, and you can't choose the metering method or use exposure bracketing. You can, however, use Tracking AF, which is discussed in Chapter 4. To turn on that feature in AUTO mode, just press the exposure compensation button (top direction button) once.

The inability to set white balance in AUTO mode can present a problem for certain types of shooting. In my experience, the PowerShot S100's Auto White Balance setting does not do well with tungsten lighting. When I shoot with tungsten light bulbs illuminating a subject indoors, I have found that the Auto White Balance setting is considerably different than the Tungsten setting, which is available only if I switch to a shooting mode such as Program or Aperture Priority. So, if you need to shoot indoors under artificial light of this sort, you may want to avoid using AUTO mode. (If you use flash or another daylight-balanced light source, there should not be a problem, because the Auto White Balance setting does well with flash and daylight.)

Perhaps most important, in AUTO mode you cannot select RAW for the image quality setting, which is set automatically to JPEG. I'll discuss RAW later, in Chapter 4, but if you want to have the highest possible quality of images or intend to process them using one of the more sophisticated photo editing programs, like Adobe Photoshop, you won't like having to do without the RAW quality setting.

One interesting aspect of AUTO mode is that, in this mode, the camera uses its built-in programming to attempt to figure out what sort of subject or scene you are shooting. (See the chart of icons displayed and what they mean at page 206 of the Canon user's manual.) So, if you see different icons, or the AUTO icon with different-colored backgrounds, that means

that the camera is evaluating the scene for factors such as brightness, backlighting, the presence of human subjects, and the like, so it can use the best possible settings for the situation.



For the image on the left above, the camera used its generic AUTO setting, while, for the one on the right, where the subject was closer to the lens, the camera interpreted the scene as a macro, or closeup shot, and switched automatically into Macro mode, indicated by the flower icon. At other times, the camera may decide that the subject is a backlit human, a human in a spotlight, or a sunset. (It's interesting to note that the camera does not have a dedicated “sunset” setting as a Scene type that you can select; but, if you want the camera to use good settings for a sunset scene, you can try using AUTO mode, and the camera presumably will attempt to set itself so as to optimize the scene, by emphasizing reddish hues, for example.)

Program Mode



Choose this mode by turning the mode dial to the P setting. Program mode lets you control many of the settings available with the camera, apart from shutter speed and aperture. (You still can override the camera's automatic exposure to a fair extent, by using exposure compensation, as discussed in Chapter 2, as well as exposure bracketing, discussed in Chapter 4, and Program Shift, discussed in Chapter 5.) You don't have to make a lot of decisions if you don't want to, though, because the camera will make reasonable choices for you as defaults. However, you

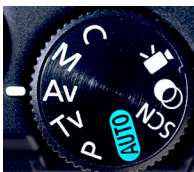
should note that, even though shutter speeds as slow as 15 seconds are available in Shutter Priority and Manual exposure mode, the camera will never choose a shutter speed longer than one second in Program mode.

One way to look at Program mode is that it greatly expands the choices available through the Shooting menu and the Function menu. You will be able to make choices involving picture quality, image stabilization, ISO sensitivity, metering method, and others. I won't discuss all of those choices here; if you want to explore that topic, go to the discussions of the Function menu and the Shooting menu in Chapter 4 and check out all of the different selections that are available.

It is worth mentioning here that Program mode has the great advantage of letting you choose RAW quality for your still images. To do that, activate the Function menu by pressing the Func./Set button in the center of the control dial. Using the up and down direction buttons, navigate down to the third-to-bottom item on the list of icons on the left side of the screen. Then use the right button or the control dial to select RAW from the list on the bottom of the screen, as opposed to JPEG.

(JPEG stands for Joint Photographic Experts Group, an industry group that sets standards for photographic file formats.) Or, if you prefer, select RAW+JPEG. With that setting, the camera actually records two images as noted, so you will have both the RAW and the non-Raw (JPEG) image available. This choice can be useful if you won't have immediate access to software for editing the RAW images, and want to be able to use the lesser-quality images quickly.

Aperture Priority Mode



You set the camera to the Aperture Priority shooting mode by turning the mode dial to the Av setting; the Av stands for Aperture value. Before discussing the nuts and bolts of the settings for this mode, let's talk about

what aperture is and why you would want to control it. The camera's aperture is a measure of the width of its opening that lets in light. The aperture's width is measured numerically in f-stops. For the PowerShot S100, the range of f-stops is from $f/2.0$ (wide open) to $f/8.0$ (most narrow). The amount of light that is let into the camera to create an image on the camera's sensor is controlled by the combination of aperture (how wide open the lens is) and shutter speed (how long the shutter remains open to let in the light).

For some purposes, you may want to control the width of the aperture but still let the camera choose the corresponding shutter speed. Here are a couple of examples involving depth of field. Depth of field is a measure of how well a camera is able to keep multiple objects or subjects in focus at different distances (focal lengths). For example, say you have three of your friends lined up so you can see all of them, but they are standing at different distances—five, seven, and nine feet (1.5, 2.1, and 2.7 meters) from the camera. If the camera's depth of field is quite shallow at a particular focal length, such as five feet (1.5 meters), then, in this case, if you focus on the friend at that distance, the other two will be out of focus and blurry. But if the camera's depth of field when focused at five feet is broad, then it may be possible for all three friends to be in sharp focus in your photograph, even if the focus is set for the friend at five feet.

What does all of that have to do with aperture? One of the rules of photographic optics is that the wider open the camera's aperture is, the smaller its depth of field is at a given focal length. So in our example above, if you have the camera's aperture set to its widest opening, $f/2.0$, the depth of field will be relatively small, and it will be possible to keep fewer items in focus at varying distances from the camera. If the aperture is set to the narrowest opening, $f/8.0$, the depth of field will be greater, and it will be possible to have more items in focus at varying distances.

With a camera like the PowerShot S100, with its relatively small sensor and wide-angle lens, the effects of aperture on depth of field are not as pronounced as with some other cameras. However, the following images generally illustrate the effects of aperture settings on depth of field, using a model car, model truck, and automotive sign as subjects.



In these photos, the car was about 16 inches (35.5 cm) from the S100's lens, with the truck at 4 feet 4 inches (132 cm) and the sign at 10 feet 10 inches (3.3 m). In all three cases, focus was set on the car. For the first image, at the top, the aperture of the S100 was $f/2.0$, the widest possible. With this setting, much of the image is out of focus, because the depth of field at this aperture was quite narrow, and the truck and sign were outside of the range of sharp focus.

The second image was taken with the aperture set to $f/2.8$, resulting in a broader depth of field, and consequently more of the image is in focus. The final image was taken with the aperture set to $f/5.6$. These photos should illustrate fairly clearly the advantage of “stopping down” to a narrow aperture such as $f/5.6$ or even $f/8.0$ when you want to enjoy a broad depth of field and keep as many subjects as possible in sharp focus.

In practical terms, if you want to have the sharpest picture possible, especially when you have subjects at varying distances from the lens and you want them to be in focus to the greatest extent possible, then you may want to control the aperture, and make sure it is set to the highest number (narrowest opening) possible.

On the other hand, there are occasions when photographers prize a narrow depth of field. This situation arises often in the case of outdoor portraits. For example, you may want to take a photo of a subject outdoors with a background of trees and bushes, and possibly some other, more distracting objects, such as a swing set or a tool shed. If you can achieve a narrow depth of field, you can keep your subject in sharp focus, but leave the background quite blurry and indistinct. This effect is sometimes called “bokeh,” a Japanese term describing an aesthetically pleasing blurriness of the background. You have undoubtedly seen images using this effect. In this situation, the blurriness of the background can be a great asset, reducing the distraction from unwanted objects and highlighting the sharply focused portrait of your subject. In the next example I