Chapter 3: Shooting Modes for Still Images

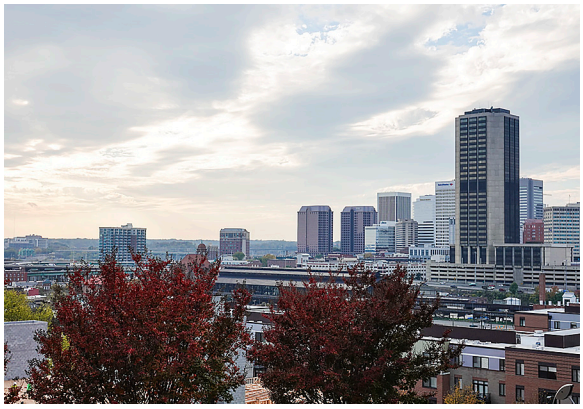

Figure 3-1. Intelligent Auto Mode Sample Image

Until now, I have discussed the basics of setting up the camera for quick shots, using Intelligent Auto mode to take pictures with settings controlled mostly by the camera's automation. As with other advanced cameras, though, with the Sony RX10 IV there is a large range of other options available. To explain this broad range of features, I need to discuss shooting modes and the Camera Settings1 and Camera Settings2 menu options. In this chapter, I'll discuss the shooting modes; in Chapters 4 and 5, I'll discuss the Camera Settings1 and Camera Settings 2 menus.

Whenever you set out to capture still images, you need to select one of the shooting modes available on the mode dial: Intelligent Auto, Program Auto, Aperture Priority, Shutter Priority, Manual exposure, Memory Recall, Sweep Panorama, or Scene Selection. (The other two modes on the dial are for movies, which I will discuss in Chapter 9.) So far, I have discussed primarily the Intelligent Auto mode. Now I will discuss the others, after some review of the first one.

Intelligent Auto Mode

I've already discussed this shooting mode in some detail. This is a good choice if you need to take a quick shot and don't have much time to fuss with settings such as ISO, white balance, aperture, shutter speed, or focus. It's also a good mode to select when you hand the camera to someone else to take a photo of you and your companions. For example, I used Intelligent Auto mode for a shot of the city skyline, as seen in Figure 3-1.

To make this setting, turn the mode dial to the green AUTO label, as shown in Figure 3-2. When you select this mode, the camera makes several decisions for you and limits your options in some ways. The camera will select the shutter speed, aperture, and ISO setting, along with several other settings over which you will have no control.

Figure 3-2. Mode Dial at Auto

For example, you can't set white balance to any value other than Auto, and you can't choose a metering method or use exposure bracketing. You can, however, use quite a few features, as discussed in Chapter 2, including flash mode, some settings of drive mode, Smile/Face Detection, and others. You also can use sophisticated options such as the Raw format, which I will discuss in Chapter 4 when I discuss the items on the Camera Settings1 menu.

One interesting aspect of this mode is that the camera tries to figure out what sort of subject or scene you are shooting. Some of the subjects the camera will attempt to detect are Infant, Portrait, Night Portrait, Night Scene, Landscape, Backlight, Low Light, and Macro. It also will try to detect certain conditions, such as whether a tripod is in use or whether the subject is walking, and it will display appropriate icons for those situations. So, if you see different icons when you aim at various subjects in this shooting mode, that means 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.

The camera will not detect the portrait-oriented scenes (Infant, Portrait, Night Portrait, etc.) unless Face Detection is turned on in screen 14 of the Camera Settings1 menu.

For Figure 3-3, the camera evaluated a scene with two human faces and appropriately used its Portrait setting. A Portrait icon is in the upper-left corner of the screen.

Figure 3-3. Scene Recognition - Portrait

Figure 3-4 shows the use of automatic scene recognition for a small subject 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.

Figure 3-4. Scene Recognition - Macro

In addition, the camera correctly detected that it was attached to a tripod, as indicated by the tripod icon to the lower right of the macro symbol.

Of course, scene recognition depends on the camera's programming, which may not interpret every scene the same way that you would. If that becomes a problem, you may want to make individual settings using one of the more advanced shooting modes, such as Program, Aperture Priority, Shutter Priority, or Manual. Or, you can use the SCN setting on the mode dial and select a scene setting that better fits the current situation.

Two more points are worth noting for Intelligent Auto mode: First, the camera is programmed to avoid apertures more narrow than f/11.0 in this mode. Therefore, it will vary the shutter speed and ISO settings to avoid having to set the aperture to f/16.0 or other aperture settings above f/11.0. Second, in this shooting mode, the RX10 IV will not use a shutter speed slower than 1/4 second.

Superior Auto Mode

With some Sony cameras, such as the RX100, RX100 II, and RX100 III, there are two Auto settings on the mode dial—one for Intelligent Auto and one for a slightly different mode called Superior Auto. With the RX10 IV, Sony has included this second automatic mode, but has not given it a separate position on the mode dial. Instead, you have to go to screen 3 of the Camera Settings1 menu and select the Auto Mode menu option. When you select that item, you will see a screen for choosing Intelligent Auto or Superior Auto. If you select the lower icon for Superior Auto, as shown in Figure 3-5, the camera will be set to that mode.

Figure 3-5. Icon for Superior Auto Mode Highlighted

Superior Auto mode includes all features of Intelligent Auto mode, but adds an extra function. In Superior Auto mode, as with Intelligent Auto mode, the camera

uses its scene recognition capability to try to determine what subject matter or conditions are present, such as a portrait, a dimly lit scene, and the like.

For many of these scenes, the camera will function just as it does in Intelligent Auto mode. However, in a few specific situations, when lighting is dim, the camera takes a different approach: It captures a rapid burst of shots and combines them internally into a single composite image.

The camera is likely to raise the ISO setting to a fairly high level in order to permit the use of a fast enough shutter speed to capture the scene clearly. The use of this high ISO setting introduces visual "noise" into the image. By taking multiple shots and combining them, the camera averages out and cancels some of the noise, thereby increasing the quality of the final image.

One problem with this system is that you have no control over when the camera decides to use this burst shooting technique. There are three situations in which the camera will do this: when it detects the need for settings called Anti Motion Blur, Hand-held Twilight, or Backlight Correction HDR. When the camera believes this special feature is needed, it fires a burst of shots; you will hear the rapid firing. Then, it will take longer than usual for the camera to process the multiple shots into a single composite image; you will likely see a message saying "Processing" on a black screen for several seconds. When the camera is using this feature, which Sony calls "Overlay," you will see a small white icon in the upper-left corner of the display that looks like a stack of frames with a plus sign at its upper-right corner, as shown in Figure 3-6.

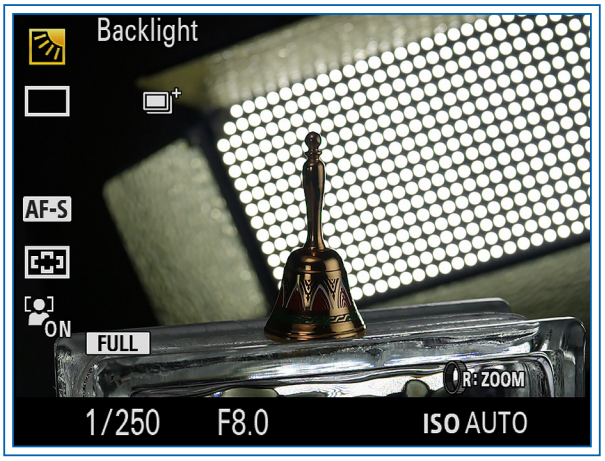

Figure 3-6. Overlay Icon on Shooting Screen

Two of the settings the camera may use in Superior Auto mode—Anti Motion Blur and Hand-held Twilight—are available also as selections in Scene mode, discussed later in this chapter. The third—Backlight Correction HDR—is available only in Superior Auto mode, and only when the camera decides to use it. None of the multiple-shot settings will function when Quality is set to Raw or Raw & JPEG.

I have not found much advantage in using the Superior Auto setting. However, there may be cases when the burst-shooting feature will improve image quality, so it is not a bad idea to use Superior Auto mode when shooting in low light or backlit conditions. As a general rule, though, I prefer to use a mode such as Program, discussed below, and set my own values for items such as DRO, HDR, ISO, and metering mode.

If you want to use Superior Auto mode, there is an easier way to get access to it than selecting Auto Mode from screen 3 of the Camera Settings1 menu. Instead, use the Function Menu Settings option on screen 9 of the Camera Settings2 menu, and set one of the 12 settings for the Function menu to Shoot Mode. Then, whenever you turn the mode dial to the AUTO setting, just press the Function button, and you will see on the Function menu the icon for the current setting for Auto Mode, either Intelligent Auto or Superior Auto. At this point, move the highlight block to that icon using the direction buttons, and, when the icon is highlighted, turn the Control wheel to cycle through the choices. When your new selection (either Intelligent Auto or Superior Auto) is highlighted, press the Function button to exit to shooting mode.

Program Mode

Choose this mode by turning the mode dial to the P setting, as shown in Figure 3-7.

Figure 3-7. Mode Dial at Program

Program mode (sometimes called Program Auto mode) lets you control many of the settings available with the RX10 IV, apart from shutter speed and aperture, which the camera chooses on its own. You still can adjust the camera's automatic exposure to a fair extent by using exposure compensation, as discussed in Chapter 6, as well as exposure bracketing, discussed in Chapter 4, and Program Shift, discussed later in this section. You don't have to make a lot of decisions if you don't want to, because the camera will make reasonable choices for you as defaults.

The camera can choose a shutter speed as long as 30 seconds or as short as 1/32000 second, but there are limitations on that range. First, the longest shutter speeds are available only when ISO is set to a fairly low value, such as 200. At higher ISO values, the longest shutter speed available decreases, until the slowest setting available is four seconds at the highest ISO settings. Second, the fastest shutter speed available is 1/2000 second when Shutter Type is set to Mechanical on screen 5 of the Camera Settings2 menu, but that value decreases to 1/1000 second at apertures wider than f/8.0 (that is, apertures such as f/6.4 and f/4.0).

In this shooting mode, the camera can choose any aperture in its full range from f/2.4 to f/16.0.

The Program Shift function is available only in Program mode; it works as follows. Once you have aimed the camera at your subject, the camera displays its chosen settings for shutter speed and aperture in the lower left corner of the screen. At that point, you can turn the Control dial at the upper right of the camera's back, and the values for shutter speed and aperture will change, if possible under current conditions, to select different values for both settings while keeping the same overall exposure of the scene.

With this option, the camera "shifts" the original exposure to your choice of any of the matched pairs that appear as you turn the Control dial. For example, if the original exposure was f/2.8 at 1/30 second, you may see equivalent pairs of f/3.2 at 1/25, f/3.5 at 1/20, and f/4.0 at 1/15, among others. When Program Shift is in effect, the P icon in the upper left corner of the screen will have an asterisk to its right, as shown in Figure 3-8.

Figure 3-8. Asterisk on Screen Indicating Program Shift

To cancel Program Shift, turn the Control dial until the original settings are in effect or move the mode dial to another mode, then back to Program. You also can cancel by pressing the flash pop-up button to raise the flash; Program Shift cannot function with flash in use.

When would you use Program Shift? You might want a slightly faster shutter speed to stop action better or a wider aperture to blur the background more, or you might have some other creative reason. This option lets the camera quickly evaluate the exposure, but gives you the option to tweak the shutter speed and aperture to suit your current needs.

Of course, if you need to use a specific shutter speed or aperture, you probably are better off using Aperture Priority, Shutter Priority, or Manual exposure mode. However, having Program Shift available is useful when you're taking pictures quickly using Program mode, and you want a fast way to tweak the settings somewhat.

Another important aspect of Program mode is that it expands the choices available through the Camera Settings1 menu, which controls many of the camera's settings that directly affect your images. You will be able to make choices involving ISO sensitivity, metering mode, DRO/HDR, Creative Style, Picture Effect, and others that are not available in the Auto modes. I won't discuss those settings here; if you want to explore that topic, see the discussion of the Camera Settings1 menu in Chapter 4 for information about all of the different selections that are available.

Aperture Priority Mode

You select Aperture Priority shooting mode by turning the mode dial to the A setting, as shown in Figure 3-9.

Figure 3-9. Mode Dial at Aperture Priority

In this mode, you select the aperture and the camera chooses a shutter speed for proper exposure. With this mode, you can exercise control over depth of field of your shots. When you select a narrow aperture, such as f/16.0, the depth of field will be broad, with the result that more items will appear to be in sharp focus at varying distances from the lens. On the other hand, with a wide aperture, such as f/2.4, the depth of field will be relatively shallow, and you may be able to keep only one subject in sharp focus.

Figure 3-10. Aperture Set at f/2.4

Figure 3-11. Aperture Set at f/16.0

In Figures 3-10 and 3-11, the settings were the same except for aperture values. I focused on the neck of a large glass bottle in each case. For Figure 3-10, I set the aperture of the RX10 IV to f/2.4, the widest possible. With this setting, because the depth of field at this aperture was quite shallow, the items in the background are fairly blurry. I took Figure 3-11 with the camera's aperture set to f/16.0, the narrowest possible setting, resulting in a broader depth of field, making the background appear considerably sharper.

These photos illustrate the effects of varying aperture by setting it wide (low numbers) to blur the background or narrow (high numbers) to enjoy a broad depth of field and keep subjects at varying distances in sharp focus. A need for shallow depth of field arises often in the case of outdoor portraits or photographs of subjects such as flowers. If you can achieve a shallow depth of field by using a wide aperture, you can keep the subject in sharp focus but leave the background blurry, as in Figure 3-12.

Figure 3-12. Bokeh Example

This effect is sometimes called "bokeh," a Japanese term for a pleasing blurriness of the background. In this situation, the fuzzy background can be an asset, minimizing distraction from unwanted objects and highlighting the sharply focused portrait of the subject.

Here is the procedure for using this shooting mode. With the mode dial at the A setting, use the aperture ring to select the aperture value. The major settings are f/2.4, f/4, f/5.6, f/8, f/11, and f/16, but you can also make intermediate settings by turning the ring to one of the white lines between the numbered values. For example, between f/2.4 and f/4, you can select f/2.8, f/3.2, or f/3.5.

When you are shooting stills in either Aperture Priority or Manual exposure mode, I recommend setting the aperture click switch to its Click On position, as shown in Figure 3-13.

Figure 3-13. Aperture Click Switch in On Position

With that setting, the aperture ring clicks firmly into place for each available aperture setting, so you get definite feedback when the setting is made. The only reason to turn the click setting off is when you are shooting videos and might change the aperture during the recording, because the sounds of the clicks are likely to be heard on the audio track.

Figure 3-14. Aperture Value on Shooting Screen

When you set the aperture, as seen in Figure 3-14, the f-stop (f/3.2 in this case) will appear at the bottom of the screen next to the shutter speed. The camera will select a shutter speed that will result in a normal exposure given the aperture you have set. When the Shutter Type option on screen 5 of the Camera Settings2 menu is set to Auto or Electronic, the camera can choose shutter speeds from 30 seconds to 1/32000 second. (The longest shutter speed available is restricted as the ISO setting increases. At the highest ISO values, the longest shutter speed available is four seconds.)

When Shutter Type is set to Mechanical, the range of available shutter speeds is from 30 seconds to 1/2000 second (depending on ISO setting), but this range is also dependent on the aperture setting. The camera can set the mechanical shutter speed to 1/2000 second only when the aperture is set to f/8.0 or narrower. When the aperture is wider than f/8.0 (lower numbers), the fastest mechanical shutter speed available is 1/1000 second.

Although in most cases the camera will be able to select a corresponding shutter speed that results in a normal exposure, there may be times when this is not possible. For example, if you are taking pictures in a very bright location with the aperture set to f/2.4, the camera may not be able to set a shutter speed fast enough to yield a normal exposure, especially if you are using the mechanical shutter instead of the electronic shutter. In that case, the fastest possible shutter speed (1/1000 second at that aperture) will flash on the display to show that a normal exposure cannot be made using the chosen aperture. The camera will let you take the picture, but it may be too bright to be usable.

Similarly, if conditions are too dark for a good exposure at the aperture you have selected, the slowest possible shutter speed (30", meaning 30 seconds, or lower if the ISO is at a high setting) will flash.

In situations where conditions are too bright or dark for a good exposure, the camera's display may become bright or dark, giving you notice of the problem. This will happen if the Live View Display item on screen 7 of the Camera Settings2 menu is set to Setting Effect On. If that option is set to Setting Effect Off, the display will remain at normal brightness, even if the exposure settings would result in an excessively bright or dark image. I will discuss that menu option in Chapter 5.

One more note on Aperture Priority mode: Not all apertures are available at all times. In particular, the widest aperture, f/2.4, is available only when the lens is zoomed out to its wide-angle setting (zoom lever moved toward the W). At the highest zoom levels, the widest aperture available is f/4.0.

To see an illustration of this point, here is a quick test. Zoom the lens out by moving the zoom lever all the way to the left, toward the W label. Then select Aperture Priority mode and set the aperture to f/2.4. Now zoom the lens in by moving the zoom lever to the right. After the zoom is finished, the aperture will have changed to f/4.0 because that is the limit for the aperture at the full-telephoto zoom level. (The aperture will change

back to f/2.4 if you zoom back to the wide-angle setting.)

Also, when you set an aperture as narrow as f/16 with this camera, lens diffraction comes into play and limits the sharpness of your images. So, unless you have a fairly strong reason to use f/16, such as a need to maximize depth of field in a brightly lighted area, you should try to use apertures no more narrow than f/8.0 if possible.

Shutter Priority Mode

In Shutter Priority mode, you choose the shutter speed you want and the camera will set the corresponding aperture to achieve a proper exposure of the image.

Figure 3-15. Mode Dial at Shutter Priority

In this mode, designated by the S position on the mode dial, as shown in Figure 3-15, you can set the shutter to be open for a time ranging from 30 seconds to 1/32000 of a second, if the Shutter Type menu option is set to Auto or Electronic. If that option is set to Mechanical, the fastest setting available is 1/2000 second. However, the range of settings with the mechanical shutter is also dependent on the aperture setting. You can set the mechanical shutter speed to 1/2000 second only when the aperture is set to f/8.0 or higher. When the aperture is wider than f/8.0, such as f/4.0, the fastest mechanical shutter speed that can be set is 1/1000 second.

So, if you set a mechanical shutter speed of 1/2000 second in somewhat dark conditions, the camera cannot select an aperture wider than f/8.0, which may result in an excessively dark image. If that happens, select a slower shutter speed so the camera can select an appropriate aperture for current lighting conditions. (Or, you can switch to using the electronic shutter by setting the Shutter Type option to Auto or Electronic, in which case this problem will not likely arise.)

If the built-in flash is in use, the fastest setting available is 1/100 second with the electronic shutter and either 1/2000 or 1/1000 second with the mechanical shutter, depending on the aperture setting. If an external flash is in use, you can set the shutter speed as high as 1/4000 second when Shutter type is set to Auto.

There is no limitation on slow shutter speeds available with high ISO settings in this shooting mode.

If you are photographing fast action, such as a bird in flight, a baseball swing, or a hurdles event at a track meet, and you want to stop the motion with a minimum of blur, you should select a fast shutter speed, such as 1/2000 of a second. For Figure 3-16 and Figure 3-17, I used different shutter speeds in photographing a group of colored beads as I poured them into a large bowl.

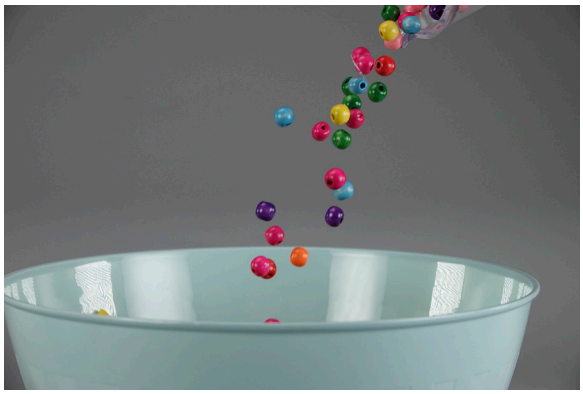

Figure 3-16. Shutter Speed Example: 1/2000 Second

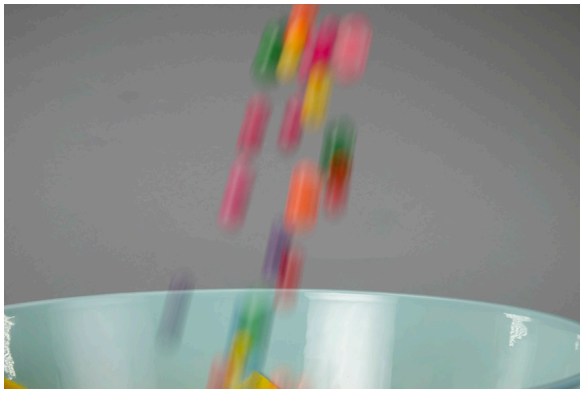

Figure 3-17. Shutter Speed Example: 1/100 Second

In Figure 3-16, I used a shutter speed setting of 1/2000 second. In this image, you can see the individual beads clearly. In Figure 3-17, with the shutter speed set to 1/100 second, the beads blur together into what looks almost like a continuous stream.

You select this shooting mode by turning the mode dial to the S indicator, as shown in Figure 3-15. Then you select the shutter speed by turning the Control dial, at the upper right of the camera's back.

If you turn on the Exposure Settings Guide option on screen 7 of the Camera Settings2 menu, you will see a graphic display of the shutter speeds on a moving band as you turn the Control dial, as shown in Figure 3-18.

Figure 3-18. Exposure Settings Guide in Use

Although the RX10 IV uses the letter "S" to stand for Shutter Priority on the mode dial and to designate this mode on the live view screen, it uses the notation "Tv" on the Shooting mode display in Shutter Priority mode, next to the Control dial icon, as shown in Figure 3-19. Tv stands for time value, a term often used for shutter speed.

Figure 3-19. Tv Icon Indicating Shutter Speed

As you cycle through various shutter speeds, the camera will select the appropriate aperture to achieve a normal exposure, if possible. As I discussed in connection with Aperture Priority mode, if you set a shutter speed for which the camera cannot select an aperture that will yield a good exposure, the aperture reading at the bottom of the display will flash. The flashing aperture means that proper exposure at the selected shutter speed is not possible at any available aperture, according to the camera's calculations.

For example, if you set the shutter speed to 1/320 second in a fairly dark indoor environment, the aperture number (which will be f/2.4, the widest setting, if the lens is at its wide-angle setting) may flash, indicating that proper exposure is not possible. As I discussed for Aperture Priority mode, you can still take the picture if you want to, though it may not be usable. A similar situation may take place if you select a slow shutter speed (such as four seconds) in a relatively bright location. (This situation is less likely to happen in Aperture Priority mode, because of the wide range of shutter speeds the camera can use to achieve a good exposure.)

If the current settings in this mode would result in an image that is excessively dark or bright, the LCD display will grow dark or bright to show that effect, but only if the Live View Display option on screen 7 of the Camera Settings2 menu is set to Setting Effect On. If that option is set to Setting Effect Off, the display will show a normal image even in unusually bright or dark conditions.

Sony has programmed the RX10 IV not to use apertures more narrow than f/11 in this shooting mode; if you aim the camera at a bright subject in Shutter Priority mode, you may see the f/11 aperture setting blink, indicating that the exposure cannot be made properly under current conditions. This is apparently because Sony has determined that an aperture of f/16 is too likely to cause lens diffraction that has a negative impact on image sharpness. If you want to use an aperture setting of f/16, you will have to use Aperture Priority Mode, Manual exposure mode, or Program mode. (This limitation does not apply when you are recording videos in this mode.)

Manual Exposure Mode

One of the many features of the RX10 IV that distinguish it from more ordinary compact cameras is that it has a fully manual exposure mode, a useful tool for photographers who want to have full creative control over exposure decisions.

The technique for using this mode is similar to what I discussed for the Aperture Priority and Shutter Priority

modes. To control exposure manually, set the mode dial to the M indicator, as shown in Figure 3-20.

Figure 3-20. Mode Dial at Manual

You now have to control both shutter speed and aperture by setting them yourself. To set the aperture, turn the aperture ring; to set the shutter speed, turn the Control dial at the upper right of the back of the camera. The values you set will appear at the bottom of the display, as shown in Figure 3-21.

Figure 3-21. Shooting Screen - Manual Mode - Specific ISO

As you adjust shutter speed and aperture, a third value, to the right of the aperture, also may change. That value is a positive, negative, or zero number. The meaning of the number is different depending on the current ISO setting.

In Chapter 4, I'll provide more details about the ISO setting, which controls how sensitive the camera's sensor is to light. With a higher ISO value, the sensor is more sensitive and the image is exposed more quickly, so the shutter speed can be faster or the aperture more narrow, or both.

To set the ISO value, press the Menu button to access the Camera Settings1 menu, go to screen 7, and highlight the ISO item. Press the Center button to bring up the ISO menu, as shown in Figure 3-22, and scroll through the selections using the Up and Down buttons or by turning the Control wheel or the Control dial.

Figure 3-22. ISO Menu

Choose a low number like 100 to maximize image quality when there is plenty of light; use a higher number in dim light. Higher ISO settings are likely to cause visual "noise," or graininess, in your images. Generally speaking, you should try to set ISO no higher than 800 to ensure the highest image quality.

If the ISO value is set to a specific number, such as 125, 200, or 1000, then, in Manual exposure mode, the icon at the bottom center of the display is a box containing the letters "M.M.," which stand for "metered manual," as shown in Figure 3-21.

In this situation, the number next to the M.M. icon represents any deviation from what the camera's metering system considers to be a normal exposure. So, even though you are setting the exposure manually, the camera will still let you know whether the selected aperture and shutter speed will produce a standard exposure.

If the aperture, shutter speed, and ISO values you have selected will result in a darker exposure than normal, the M.M. value will be negative, and vice-versa. This value can vary only by +2.0 or -2.0 EV (exposure value) units; after that, the value will flash, meaning the camera considers the exposure excessively abnormal.

Of course, you can ignore the M.M. indicator; it is there only to give you an idea of how the camera would meter the scene. You very well may want part or all of the scene to be darker or lighter than the metering would indicate to be "correct."