

## Canon PowerShot SX150 IS

Revised 10/01/2012

### Overview

This handout covers the Canon PowerShot SX150 IS camera and highlights some features and functionality. It can be used as a basic point-and-shoot digital camera (just set the mode selector dial on the top of the camera to “Auto”). It can also be used in manual mode for complete creative control, allowing you to set the focus, shutter, aperture, ISO sensitivity setting, and white balance settings. The camera has a high-resolution 14 Megapixel (MP) imaging sensor that allows you to make prints up to 16 x 20 inches in size. The camera has an impressive zoom range from moderate wide angle (28mm 35mm equivalent) to long telephoto (336mm 35mm equivalent). Still images are stored in the JPEG format and the camera can also be used to shoot high definition 720P video. The camera uses standard AA batteries and SD memory cards.



### Checking out the camera from the SF Cage

When you check out a camera from the Studio Foundation cage, it is provided to you in a protective case along with two fully-charged AA NiMH rechargeable batteries, a 4GB SD memory card (installed) and a USB cable for transferring images to a computer. If the batteries are fully charged they provide sufficient capacity for several hours of non-continuous shooting and over 100 exposures. If the batteries run down on you, simply return to the cage for a battery replacement. If you are far from the cage, you might have to use your own AA batteries in order to keep shooting. The camera should be kept in the case when not in use. Keep the camera away from water and temperature extremes. In the event you choose to use your own SD memory card and/or exchange the batteries, please make sure you return the camera with the same SD memory card and rechargeable batteries that were installed in the camera at the time of check out, otherwise, you will be charged for missing items.

### Learning to use the camera and step by step camera operation instructions

Your Visual Language teacher and/or Digital Media Workshop instructor will walk you through basic camera operation in class, providing an opportunity to familiarize yourself with the camera and ask questions. This handout does not provide detailed step-by-step camera usage instructions. **Basic camera operation** is covered in the “Canon PowerShot SX150 IS Getting Started” booklet which includes illustrated step-by-step instructions of basic camera operation. **Advanced menu settings, camera modes, and manual operation** are covered in the more extensive “Canon PowerShot SX150 IS User Guide” document. PDFs of these two documents along with other handout can be download from the Studio Foundation web site at [sf.massart.edu](http://sf.massart.edu) (choose “Resources” from the site menu and then choose “Visual Language” for the Visual Language Resources and Handout page, from there you will find links to all of the handouts related to the Visual Language course.

## Before you shoot checklist

We strongly recommend you follow these steps every time you check out a camera from the Studio Foundation cage before you start shooting. Eventually these will all become second-nature as you prepare for a shoot.

### 1. Power on the camera

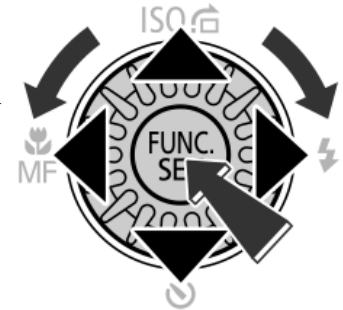
Press the ON/OFF switch on the top of the camera. If the camera does not turn on, try holding down the switch again for a full second. To turn off the camera, push this same button.




### 2. Set the date

The date on the camera might have already been set, but in any case, if you want accurate time and date stamps stored in your image files, set the date and time zone as described on pages 18 and 19 of the “Canon PowerShot SX150 IS Users Guide.”

If this is your first time using the camera, this will provide you with the opportunity to become familiar with the operation of the FUNC. SET button, the Control Wheel, and the MENU button on the back of the camera. You’ll be using these for all sorts of things when shooting with this camera. Pressing the top, bottom, left, or right of the wheel is used for navigating menus. Turning the Control Wheel is often used to select from a variety of choices. Pressing the FUNC. SET and MENU buttons are used to initiate and terminate setting functions.



### 3. Check the Battery level

When you check out a camera from the cage, turn it on and take a look at the display. If the battery has sufficient charge, no battery-status indication will appear. If the battery is nearly depleted, a battery  icon will appear on the display. You can continue shooting in this mode for a while, but once the battery level gets to low, the camera will stop working. In the event of a depleted battery, the message “Change the batteries” will appear on the LCD display. In this event, return the camera to the SF Cage and the batteries will be exchanged with a fresh set.

### 4. Format the memory card

You probably want to start with a clean slate and not have to deal with the previous camera user’s images. To format the card, follow the steps outlined on pages 21-22 of the “Canon PowerShot SX150 IS Users Guide.”

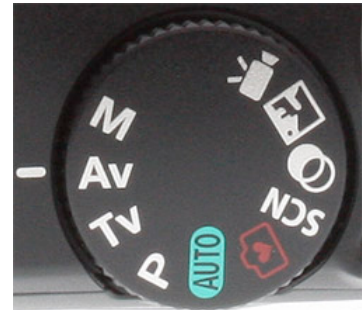
### 5. Return camera to default camera settings

You probably want to start with all of the camera settings in their default settings and then change what you specifically want to change. To reset the camera to factory defaults, follow the steps outlined on page 47 of the “Canon PowerShot SX150 IS Users Guide.”

## 6. Set the camera to the desired shooting mode

The camera is capable of operating in a variety of shooting modes (which you select using the mode selection dial on the top):

**AUTO:** *If this is your first time shooting digital stills, you will want to keep things as simple as possible and choose the **AUTO** mode.* In this mode the camera takes care of everything, simply frame up your shot, adjust the zoom setting, and then press the shutter button half-way to let the camera know it should adjust exposure and focus the shot, and if your happy with what's in the frame, press the shutter button all the way to take your picture.



**L (Discreet):** This mode is similar to AUTO mode except the camera sound is muted and the flash is disabled. This is ideal for shooting in locations that prohibit the use of flash and the camera beeping will cause a distraction. This mode is described on page 58 in the “Canon PowerShot SX150 IS Users Guide.”

**SCN (Special Scene):** In this mode the camera will automatically adjust settings for the specific shooting conditions determined by the specific shooting mode selected. Press the FUNC. SET button to enter the Shooting mode menu and select from one of the following modes: Portrait, Landscape, Kids & Pets, Beach, Foliage, Snow, Fireworks. These are described on pages 58-60 in the “Canon PowerShot SX150 IS Users Guide.” In addition, the camera has a funky Smart Shutter mode that detects faces and a Wink Self-Timer mode that triggers the self timer when you wink. These are described on pages 68-72 in the “Canon PowerShot SX150 IS Users Guide.”

**CF (Creative Filters):** This is a fun mode that provides various effects including Super Vivid, Posterized, Fish-Eye, Miniature Model, Toy Camera, Monochrome, Color Accent, Color Swap. These are described on pages 61-68 in the “Canon PowerShot SX150 IS Users Guide.”


**P (Programmed AE):** This mode is the one you will probably use most often as you become a more advanced photographer. P stands for “Programmed Auto Exposure” and lets you select a range of settings to suite particular shooting conditions. Once you are in this mode you have left point and shoot photography behind, and have entered a world of creative possibilities. The P mode is described in section 5 starting on page 73 of the “Canon PowerShot SX150 IS Users Guide.” The camera can automatically focus from 2 inches to infinity in the widest angle lens setting and approximately 3.3 feet to infinity at maximum telephoto setting. If the shutter speed selected by the camera is too low for a hand-held shot, then the shutter speed value will be displayed in orange when you depress the shutter button half way. In these situations you can either turn on the flash or choose a higher ISO speed rating. In this mode you can control: **Flash** (on or off); **ISO Speed** (Auto, 80, 100, 200, 400, 800, 1600); **White Balance** (Auto, Daylight, Cloudy, Tungsten, Warm Fluorescent, Cool Fluorescent, Custom); **Drive Mode** (Continuous, Continuous Shooting AE, Continuous Shooting LV); **Image Tone** (Vivid, Neutral, Sepia, B&W, Positive Film, Light Skin Tone, Dark Skin Tone, Vivid Blue, Vivid Green, Vivid Red, Custom Color); **Focus** (Macro, Distance, Manual); and **Metering Method** (Evaluative, Center Weighted Average, Spot). Note that there are several settings that are set in the MENU instead of the Function Menu related to this mode including **AF Frame Mode**, **Tracking AF**, **AF-Point Zoom**,

and **Servo SF** which are described in the Users Manual. There are a lot of options and settings available to you in this mode, and the best way to learn how they can be used creatively is to plow through the manual and experiment with them. Learning the many functions of this camera will open up the possibility of more creative control over the image while you are shooting. It can seem daunting at first, but experiment with one feature or option at a time.

**Tv (Time value):** This mode lets you choose a specific shutter speed. If the aperture value appears in orange when the shutter button is pressed half-way, the current shutter speed exceeds correct exposure limits. For proper exposure adjust the shutter speed so that the aperture value appears in white. There's a Safety Shift mode that will automatically adjust for correct exposure. The **Tv** mode is described in detail starting on page 96 of the "Canon PowerShot SX150 IS Users Guide."

**Av (Aperture value):** This mode lets you choose a specific aperture. If the shutter speed value appears in orange when the shutter button is pressed half-way, the current aperture exceeds correct exposure limits. For proper exposure adjust the aperture so that the shutter speed value appears in white. There's a Safety Shift mode that will automatically adjust for correct exposure. The **Av** mode is described in detail starting on page 97 of the "Canon PowerShot SX150 IS Users Guide."

**M (Manual):** This mode lets you adjust both the shutter speed and aperture manually. In manual mode you can adjust the flash output to one of three levels. The **M** mode is described in detail starting on page 98 of the "Canon PowerShot SX150 IS Users Guide."

 **(Movie):** This mode lets you shoot video at 30 frames per second. This mode is described starting on page 101 of the "Canon PowerShot SX150 IS Users Guide."

## 7. Adjust camera settings and functions based on your preferences

Based on the specific mode you choose to shoot in, adjust the various camera settings to suite your specific shooting requirements. This may include, for example, custom white balance for shooting in a mixed-light source environment. It is strongly recommended that you shoot the highest quality images in terms of resolution and compression quality settings. More details on this are available in the next section.

## 8. You are now ready to shoot!

While you could have saved a lot of set-up time by simply placing the camera in AUTO mode, shooting in one of the other modes and configuring camera functions provides you with more creative control over your images.

## 9. Viewing your work while shooting

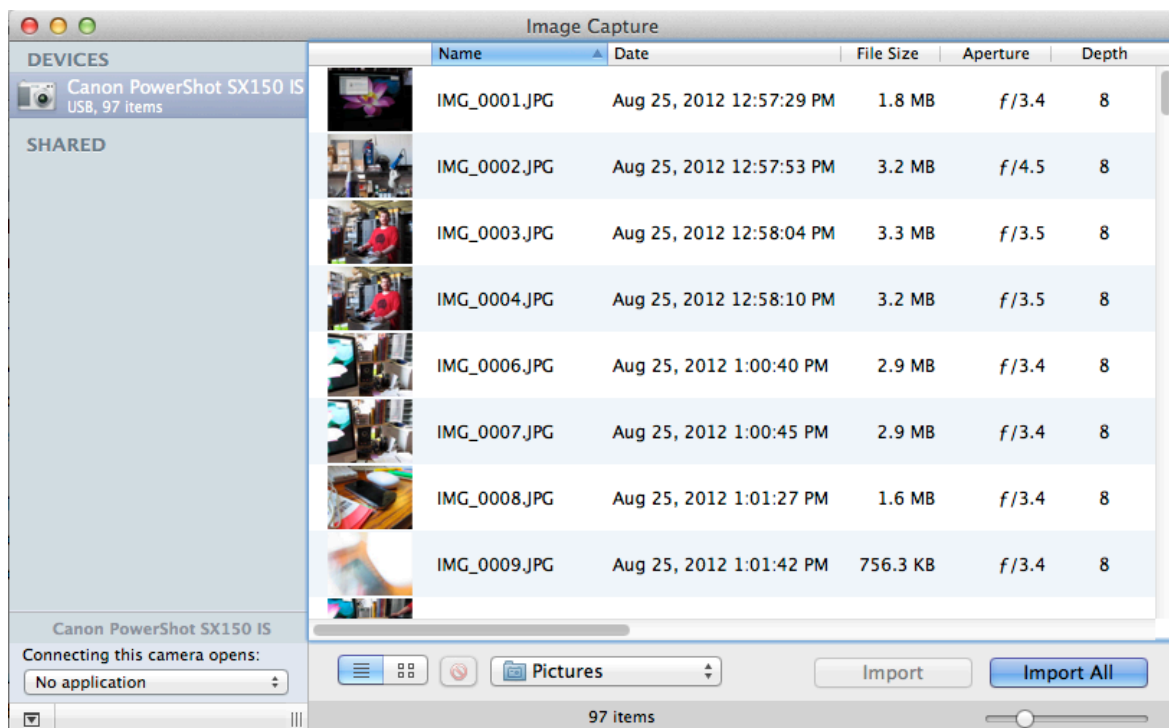
You can view your work while you're out shooting with the camera. Viewing images on the camera is described on page 112 of the "Canon PowerShot SX150 IS Users Guide." Erasing images you don't want to keep is described on pages 123-124. While the camera supports some editing functions, these are better done in Photoshop.

## Transfer media to your hard drive or USB flash drive

When you are done shooting, copy your images from the camera to your own hard drive or USB flash drive. Once you return the camera, it's likely that the next student using the camera will format the SD card before they start shooting and your images will be lost forever! Don't count on media placed on lab computers being available the next day.

To copy images from the camera to the Macintosh, follow these steps:

1. Turn off the camera.
2. Connect the large connector end of the USB cable to the Macintosh;
3. Connect the small connector end of the USB cable to the camera (the USB connector is behind a little door on the side of the camera the wrist strap is connected to);
4. Turn on the camera, the camera will not appear on the desktop as a USB device like some other cameras do;
5. Create a folder on your external hard drive or USB flash drive where you want to store your images
6. Launch the program Image Capture, it should display the camera on the sidebar of its window and a list of images on the camera on the right;



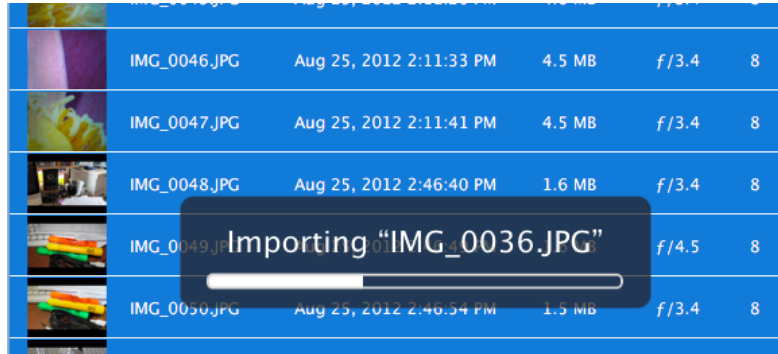


7. Click on the pop-up menu that appears as “Pictures” and navigate to the folder you created in step 4;

8. Select the images you want to transfer and click the “Import” button, alternatively, you can click on “Import All” and all of the images on the camera will be transferred to the folder you designated in step 6;

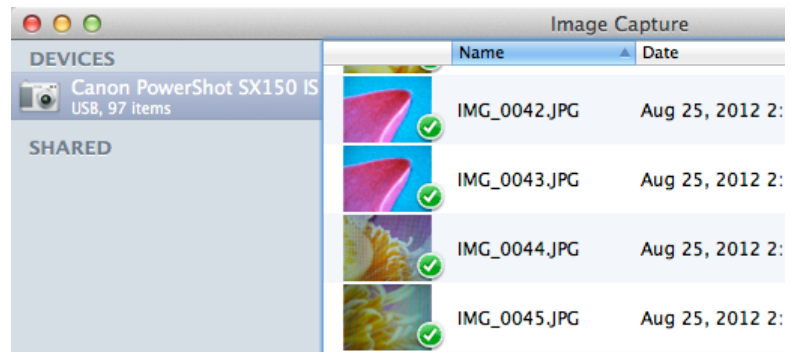
Alternatively, you can simply drag all of the selected images directly to the folder you created in step 5 if you prefer the drag and drop approach;

9. Image Capture will display the progress of the transfer and when it’s done, you’ll see a green circle with a check mark next to the thumbnails of the images that were successfully transferred;



10. Verify that the images you wanted to transfer from the camera to the folder you specified on your external hard drive or USB flash drive were actually transferred to the folder you thought they were going to (if you think this is a silly thing to do, go ahead and skip this step at your own peril).

11. Quit out of Image Capture and disconnect the USB cable from the Macintosh and the camera. Don’t forget to place both the camera and the USB cable back in the camera case. If you were using your own SD memory card for some reason, make sure the original card from Studio Foundation is placed back in the camera. You don’t want to get charged for a missing USB cable or SD memory card when you return the camera.



## Image resolution and quality settings

Digital images are made up of a grid of pixels, each representing a tonal value (ranging from black to white and a range of hues, saturation, and brightness in between). The larger the number of pixels used to represent an image, the larger the print you can make of the image before the individual pixels become visible. For more details about the nature of digital images, see “The Building Blocks of a Digital Image” handout and the “Digital Photography Presentation,” both available for download from the “Handouts and Support Resources for Visual Language” page on the Studio Foundation web site.

With the 4GB SD memory card that comes installed in the camera, the image resolution set to “L” (large, the highest *resolution* setting), and the image quality set to “F” (fine, the highest *quality* setting with the least amount of digital compression artifacts), you can take about 1,058 images before you’ll fill the card. So unless storage space is at a premium or you have a specific requirement to produce low-resolution images, shoot the highest resolution, highest-quality images possible. You can later resize as needed in Photoshop. While the “Large” resolution and “Fine” quality are the camera’s default settings, however, another student may have changed the settings, so go into the camera menu and verify these settings prior to shooting with the camera. The chart below shows some of the camera’s resolution settings and roughly how large a clear print would be possible for pixel dimensions at 72dpi (typical computer screen resolution) and 300dpi (typical hard-copy printer resolution). The camera stores images in the JPEG image compression format.

Setting	Pixel dimensions (megapixels)	Rough image size @ 300dpi	Rough image size @ 72dpi	Image capacity (Fine quality, 4GB card)
S	640 x 480 (0.3 MP)	2" x 1.5"	9" x 6.5"	19,998
M2	1,600 x 1,200 (2 MP)	5" x 4"	22" x 16.5"	6,430
M1	3,072 x 2,304 (7 MP)	10" x 8"	42.5" x 32"	2,002
L	4,320 x 3,240 (14 MP)	14" x 11"	60" x 45"	1,070

In practice you can make pretty good prints up to 16 x 20 inches with this 14 MP camera when you choose the Large resolution and Fine quality settings (our Canon ink jet printers print on 17-in wide paper rolls). Unlike higher-end cameras, a RAW mode is not available. RAW files must be processed with software such as Photoshop and offer increased flexibility to change exposure, white balance, and other settings on the computer after the photo has been taken. If you are using your own higher-end camera and the best image quality is what you’re after, shoot in RAW mode if possible. When given a choice of compression options with any camera, choose the highest quality setting if RAW is not option (like the SX150 IS cameras we have available in the Studio Foundation cage).

## Shutter Delay

The camera has a slight delay from the time the shutter button is pressed to the actual moment the picture is taken. This is because the camera needs time to figure out the exposure and focus, however, if you hold the button half-way down before you shoot, the camera can “pre-focus” and prepare the camera for the exact moment you want to shoot the photo. Then when you depress the shutter button all the way, there will be less delay in terms of when the picture is actually made.

## Using the camera in P (Program) mode

Set the mode dial on the top of the camera to P (Program) mode. When the camera is in Program mode it will focus automatically and set the exposure, however, unlike Auto mode, it allows you to set a variety of Function Settings that influence the characteristics of the image. To set these:


1. Press the FUNC. SET button;
2. Push the “up” or “down” buttons (top and bottom of the Control Dial) to choose among the menu items that appear on the left side of the display;
3. The available options for each menu item appear along the bottom of the display, scroll the Control Dial (or press the “left” and “right” button function by pressing the left or right of the Control Dial) to move from one setting to the next. On settings that display “DISP.” you can choose the setting by pressing the DISP. button;
4. Push the FUNC. SET button to confirm your selection, the shooting screen will reappear and the setting you chose will appear on the display screen.

The following function settings can be selected in Program mode:

- AWB (the most valuable option here is setting the white balance on the camera to match a white reference card using the “Custom White Balance” mode. Otherwise, you set the white balance to Daylight, Cloudy, Tungsten or two kinds of Florescent (High and Low color temperature) to match the color temperature of your shooting environment.
- My Colors
- Shooting Mode
- Flash Power
- Metering
- Image Resolution (we strongly recommend the Large size for the highest resolution)
- Compression Quality (we strongly recommend the FINE quality)
- Video Resolution

Each of these are described in detail in the Canon PowerShot SX150 IS User Guide.

## Macro Mode

Set the **Macro**  model (the left side of the wheel) for shooting very small or close-up subjects. Your camera will adjust itself for close-up focusing. Be sure to turn the macro option off if you don't need it.

## Using the camera inTv or Av mode

When working in the **Tv mode** the camera will allow you to choose the shutter speed and the camera will choose the aperture needed for proper exposure. When working in the **Av mode** the camera will allow you to choose the lens aperture and the camera will choose the shutter speed needed for proper exposure.



These settings can greatly affect the quality of your image. For the most part, what is being adjusted to find a proper exposure is the aperture and the shutter speed. Both settings must work in tandem since they both determine just how much light is allowed to hit the image sensor. The aperture is an adjustable opening in the lens that varies the amount of incoming light hitting the sensor, measured in f-stops. As you open by one f-stop, twice as much light is being let in as the previous f-stop. As you close by one f-stop, half as much light is being let in as the previous f-stop. Shutter speeds also work this way. Apertures also control depth-of-field, which is the distance in front of and beyond the subject that appears to be in focus. Smaller openings yield more depth of field and the opposite is true of large openings.

f/#	2.8	4	5.6	8	11	16	22	32
	Smaller # equals larger opening & less depth of field				Larger # equals smaller opening & more depth of field			

Depth-of-field is also influenced by the focal length of the lens, so when you're shooting in telephoto mode you'll notice shallower depth of field compared to shooting with the lens in the wide angle setting.

seconds	1	½	¼	1/8	1/15	1/30	1/60	1/125	1/250	1/500
	Slow shutter speeds, use with a tripod						Fast shutter speeds, can be hand-held			

Shutter speed is the amount of time that the sensor is allowed to record light hitting it, usually measured in fractions of a second. As with f-stops, each stop on the shutter speed scale will either halve or double the amount of light hitting the sensor when the picture is taken. Digital cameras usually help you find the correct combination of f-stop/shutter speed with numerical readout of how many stops you are off by. (i.e. -1 means that you are under-exposing by one stop.)

## Using the flash

Flip up the **flash** on the top of the camera to enable the onboard flash. You should also see the flash icon somewhere on the LCD and it will tell you if the flash needs to charge. It's good to try taking a picture both with and without the flash (using a tripod if needed in low light). To **disable the flash**, push the flash back down.

When there's not enough available light to make a good exposure, try using a tripod. If you don't have one, or it still isn't enough, you can turn on the flash, but in most cases the built-in flash flattens the look of your scene.

If you are not using the flash, and your shutter speed is slower than 1/60th of a second, you should use a tripod or prop the camera on something still. When shooting, use the **self-timer** function so that you don't move the camera as the exposure is being made.

## Reviewing your work

After shooting a few pictures, it's a good idea to review them to check the exposure, sharpness, etc. Put your camera into Playback mode by pressing the playback button, then choose an image to review by turning the control wheel.

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