



SAMSUNG

User Manual

PL90/PL91

This user manual includes detailed usage instructions for your camera. Please read this manual thoroughly.

 [Click a topic](#)

Common questions

Quick reference

Contents

Basic functions

Extended functions

Shooting options

Playback/Editing

Appendixes

Index

Health and safety information

Always comply with the following precautions and usage tips to avoid dangerous situations and ensure peak performance of your camera.



Warning—situations that could cause injury to yourself or others



Caution—situations that could cause damage to your camera or other equipment



Note—notes, usage tips, or additional information



Safety warnings

Do not use your camera near flammable or explosive gases and liquids

Do not use your camera near fuels, combustibles, or flammable chemicals. Do not store or carry flammable liquids, gases, or explosive materials in the same compartment as the camera or its accessories.

Keep your camera away from small children and pets

Keep your camera and all accessories out of the reach of small children and animals. Small parts may cause choking or serious injury if swallowed. Moving parts and accessories may present physical dangers as well.

Prevent damage to subjects' eyesight

Do not use the flash in close proximity (closer than 1 m/3 ft) to people or animals. Using the flash too close to your subject's eyes can cause temporary or permanent damage.

Handle and dispose of batteries and chargers with care

- Use only Samsung-approved batteries and chargers. Incompatible batteries and chargers can cause serious injuries or damage to your camera.
- Never dispose of batteries in a fire. Follow all local regulations when disposing of used batteries.
- Never place batteries or cameras on or in heating devices, such as microwave ovens, stoves, or radiators. Batteries may explode when overheated.
- Do not use a damaged power supply cord, plug, or loose outlet when charging batteries. This may cause a fire or electric shock.



CAUTION

Safety precautions

Handle and store your camera carefully and sensibly

- Do not allow your camera to get wet—liquids can cause serious damage. Do not handle your camera with wet hands. Water damage to your camera can void your manufacturer's warranty.
- Do not expose the camera to direct sunlight or high temperatures for an extended period of time. Prolonged exposure to sunlight or extreme temperatures can cause permanent damage to your camera's internal components.
- Avoid using or storing your camera in dusty, dirty, humid, or poorly-ventilated areas to prevent damage to moving parts and internal components.
- Remove the batteries from your camera when storing it for an extended period of time. Installed batteries may leak or corrode over time and cause serious damage to your camera.
- Protect your camera from sand and dirt when using it on beaches or in other similar areas.
- Protect your camera from impact, rough handling, and excessive vibration to avoid serious damage.
- Exercise caution when connecting cables or adapters and installing batteries and memory cards. Forcing the connectors, improperly connecting cables, or improperly installing batteries and memory cards can damage ports, connectors, and accessories.

- Do not insert foreign objects into any of your camera's compartments, slots, or access points. Damage due to improper use may not be covered by your warranty.
- Do not swing your camera by the strap. This may cause injury to yourself or others.
- Do not paint your camera, as paint can clog moving parts and prevent proper operation.
- Paint or metal on the outside of the camera may cause allergies, itchy skin, eczema, or swelling for people with sensitive skin. If you have experience any of these symptoms, stop using the camera immediately and consult a doctor.

Protect batteries, chargers, and memory cards from damage

- Avoid exposing batteries or memory cards to very cold or very hot temperatures (below 0° C/32° F or above 40° C/104° F). Extreme temperatures can reduce the charging capacity of your batteries and can cause memory cards to malfunction.
- Prevent batteries from making contact with metal objects, as this can create a connection between the + and – terminals of your battery and lead to temporary or permanent battery damage. Also, this may cause a fire or electric shock.
- Prevent memory cards from making contact with liquids, dirt, or foreign substances. If dirty, wipe the memory card clean with a soft cloth before inserting in your camera.
- Do not allow liquids, dirt, or foreign substances to come in contact with the memory card slot. Doing so may cause the camera to malfunction.

- Turn off the camera when inserting or removing the memory card.
- Do not bend, drop, or subject memory cards to heavy impact or pressure.
- Do not use memory cards that have been formatted by other cameras or by a computer. Reformat the memory card with your camera.
- Never use a damaged charger, battery, or memory card.

Use only Samsung-approved accessories

Using incompatible accessories may damage your camera, cause injury, or void your warranty.

Protect your camera's lens

- Do not expose the lens to direct sunlight, as this may discolor the image sensor or cause it to malfunction.
- Protect your lens from fingerprints and scratches. Clean your lens with a soft, clean, debris-free lens cloth.



Important usage information

Allow only qualified personnel to service your camera

Do not allow unqualified personnel to service the camera or attempt to service the camera yourself. Any damage that results from unqualified service is not covered by your warranty.

Ensure maximum battery and charger life

- Overcharging batteries may shorten battery life. After charging is finished, disconnect the cable from your camera.
- Over time, unused batteries will discharge and must be recharged before use.
- Disconnect chargers from power sources when not in use.
- Use batteries only for their intended purpose.

Exercise caution when using the camera in humid environments

When you transfer the camera from a cold environment to a warm and humid one, condensation can form on the delicate electronic circuitry and memory card. In this situation, wait for at least 1 hour until all moisture has evaporated before using the camera.

Check that the camera is operating properly before use

The manufacturer takes no responsibility for any loss of files or damage that may result from camera malfunction or improper use.

Copyright information

- Microsoft Windows and the Windows logo are registered trademarks of the Microsoft Corporation.
- Mac is a registered trademark of the Apple Corporation.

- Camera specifications or contents of this manual may be changed without prior notice due to upgrade of camera functions.
- We recommend using your camera within a country where you purchase it.
- For Open Source License information, refer to the "OpenSourceInfo.pdf" in the provided CD-ROM.

Organization of the user manual

Basic functions 11

Learn about your camera's layout, icons, and basic functions for shooting.

Extended functions 26

Learn how to take a photo by selecting a mode and how to record a video or voice memo.

Shooting options 35

Learn about the options you can set in shooting mode.







Playback/Editing 53

Learn how to play back photos, videos, or voice memos and edit photos or videos. You will also learn how to connect your camera to your photo printer or TV.

Appendixes 74

Refer to settings, error messages, specifications, and maintenance tips.




Indications used in this manual

Shooting mode	Indication
Smart Auto	
Program	
DIS	
Scene	
Movie	
Smart Movie	


Shooting mode icons

These icons indicate that a function is available in the corresponding modes. The  mode may not support functions for all scenes.

e.g.)

Adjusting the exposure manually (EV)   



Depending on the intensity of the ambient light, your photos may be too bright or dark. In these cases, you can adjust the exposure to get a better photo.



Darker (-) Neutral (0) Brighter (+)

Available in the Program, DIS, and Movie modes

Icons used in this manual

Icon	Function
	Additional information
	Safety warnings and precautions
[]	Camera buttons; for example: [Shutter] represents the shutter button.
()	Page number of related information
→	The order of options or menus you must select to perform a step. For example: Select Shooting → White Balance represents select Shooting , and then select White Balance .
*	Annotation

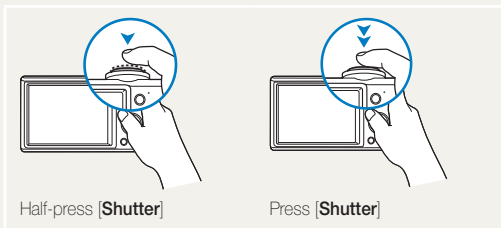
Abbreviations used in this manual

Abbreviation	Definition
ACB	Auto Contrast Balance
AEB	Auto Exposure Bracket
AF	Auto Focus
DIS	Digital Image Stabilization
DPOF	Digital Print Order Format
EV	Exposure Value
WB	White Balance

Expressions used in this manual

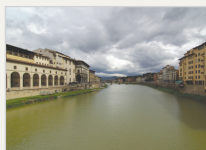
Pressing the shutter

- Half-press [**Shutter**]: Press the shutter halfway down
- Press [**Shutter**]: Press the shutter all the way down

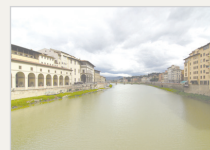


Exposure (Brightness)

The amount of light that enters your camera determines the exposure. You can alter the exposure with shutter speed, aperture value, and ISO speed. By altering the exposure, your photos will be darker or lighter.



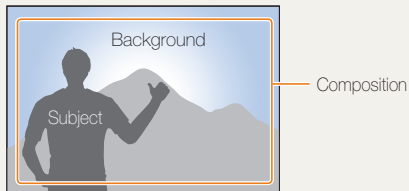
Normal exposure



Overexposure (too bright)
















Subject, background, and composition

- **Subject**: The main object of a scene, such as a person, animal, or still life.
- **Background**: The objects around the subject.
- **Composition**: The combination of a subject and background.



Common questions



You can get answers to common questions. Solve problems easily by setting shooting options.

	The subject's eyes appear red.	<p>This is caused by a reflection from the camera flash.</p> <ul style="list-style-type: none">• Set the flash option to  Red-eye or  Red-eye Fix. (p. 39)• If the photo has already been taken, select  Red-eye Fix in the edit menu. (p. 64)
	Photos have dust spots.	<p>Dust particles floating in the air may be captured in photos when using the flash.</p> <ul style="list-style-type: none">• Turn off the flash or avoid taking photos in a dusty place.• Set ISO speed options. (p. 40)
	Photos are blurred.	<p>This may be caused by taking photos in low light conditions or holding the camera incorrectly.</p> <ul style="list-style-type: none">• Press [Shutter] halfway down to make sure the subject is focused. (p. 24)• Use the  mode. (p. 31)
	Photos are blurred when shooting at night.	<p>As the camera tries to let in more light, the shutter speed slows. This can make it difficult to steady the camera and may result in camera shake.</p> <ul style="list-style-type: none">• Select  Night in the  mode. (p. 30)• Turn on the flash. (p. 39)• Set ISO speed options. (p. 40)• Use a tripod to prevent your camera from shaking.
	Subjects come out too dark because of backlighting.	<p>When the light source is behind the subject or when there is a high contrast between the light and dark areas, the subject may come out shaded.</p> <ul style="list-style-type: none">• Avoid shooting with the sun behind your subject.• Select  Backlight in the  mode. (p. 28)• Set the flash option to  Fill in. (p. 39)• Set the Auto Contrast Balance (ACB) option. (p. 47)• Adjust the exposure. (p. 47)• Set the metering option to  Spot if a bright subject is in the center of the frame. (p. 48)

Quick reference




Taking photos of people

-  mode > Beauty Shot ▶ 29
-  mode > Portrait ▶ 28
- Red-eye, Red-eye Fix (to prevent or correct red-eye) ▶ 39
- Face Detection ▶ 44



Taking photos at night or in the dark

-  mode > Night ▶ 30
-  mode > Sunset, Dawn, Fireworks ▶ 28
- Flash options ▶ 39
- ISO speed (to adjust the sensitivity to light) ▶ 40




Taking action photos

- Continuous, Motion Capture ▶ 50



Taking photos of text, insects, or flowers

-  mode > Close Up, Text ▶ 28
- Macro, Auto Macro (to take close-up photos) ▶ 41
- White Balance (to change the color tone) ▶ 48



Adjusting the exposure (brightness)

- EV (to adjust exposure) ▶ 47
- ACB (to compensate for subjects against bright backgrounds) ▶ 47
- Metering ▶ 48
- AEB (to take three photos of the same scene with different exposures) ▶ 50



Applying a different effect

- Photo styles (to apply tones) ▶ 51
- Image adjustment (to adjust saturation, sharpness, or contrast) ▶ 52



Reducing camera shake

-  mode ▶ 31

- Viewing files by category in Smart Album ▶ 55
- Deleting all files on the memory card ▶ 57
- Viewing files as a slide show ▶ 58
- Viewing files on a TV ▶ 66
- Connecting your camera to a computer ▶ 67
- Adjusting sound and volume ▶ 76
- Adjusting the brightness of the display ▶ 76
- Changing the display language ▶ 77
- Setting the date and time ▶ 77
- Formatting the memory card ▶ 77
- Troubleshooting ▶ 86

Contents

Basic functions	11	Adding a voice memo to a photo	34
Unpacking	12	Shooting options	35
Camera layout	13	Selecting a resolution and quality	36
Inserting the battery and memory card	15	Selecting a resolution	36
Charging the battery and turning your camera on	16	Selecting image quality	36
Charging the battery	16	Using the timer	37
Turning on your camera	17	Shooting in the dark	39
Learning icons	18	Preventing red-eye	39
Selecting options	19	Using the flash	39
Setting the display and sound	21	Adjusting the ISO speed	40
Changing the display type	21	Changing the camera's focus	41
Setting the sound	21	Using macro	41
Taking photos	22	Using auto focus	41
Zooming	23	Using tracking auto focus	42
Tips for getting a clearer photo	24	Adjusting the focus area	43
Extended functions	26	Using face detection	44
Shooting modes	27	Detecting faces	44
Using the Smart Auto mode	27	Taking a self-portrait shot	45
Using the Scene mode	28	Taking a smile shot	45
Using the Beauty Shot mode	29	Detecting eye blinking	46
Using the frame guide	30	Adjusting brightness and color	47
Using the Night mode	30	Adjusting the exposure manually (EV)	47
Using the DIS mode	31	Compensating for backlighting (ACB)	47
Using the Program mode	32	Changing the metering option	48
Recording a video	32	Selecting a light source (White balance)	48
Recording voice memos	34	Using burst modes	50
Recording a voice memo	34	Improving your photos	51
		Applying photo styles	51

Adjusting your photos	52
Playback/Editing	53
Playing back	54
Starting Playback mode	54
Viewing photos	58
Playing a video	59
Playing voice memos	60
Editing a photo	62
Resizing photos	62
Rotating a photo	62
Applying photo styles	63
Correcting exposure problems	64
Creating a print order (DPOF)	65
Viewing files on a TV	66
Transferring files to your Windows computer	67
Transferring files using Intelli-studio	68
Transferring files by connecting the camera as a removable disk ..	70
Disconnecting the camera (for Windows XP)	71
Transferring files to your Mac computer	72
Printing photos with a PictBridge photo printer	73
Appendixes	74
Camera settings menu	75
Accessing the settings menu	75
Sound	76
Display	76
Settings	77

Error messages	80
Camera maintenance	81
Cleaning your camera	81
About memory cards	82
About the battery	83
Before contacting a service center	86
Camera specifications	89
FCC notice	94
Index	95

Basic functions

Learn about your camera's layout, icons, and basic functions for shooting.

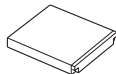
Unpacking	12
Camera layout	13
Inserting the battery and memory card	15
Charging the battery and turning your camera on	16
Charging the battery	16
Turning on your camera	17
Learning icons	18
Selecting options	19
Setting the display and sound	21
Changing the display type	21
Setting the sound	21
Taking photos	22
Zooming	23
Tips for getting a clearer photo	24

Unpacking

Check your product box for the following items.



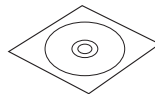
Camera



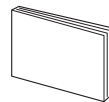
Rechargeable battery



Strap



User Manual CD-ROM



Quick Start Manual

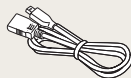
Optional accessories



Camera case



Memory card
(microSD™)



USB extension cable



AC adapter



A/V cable



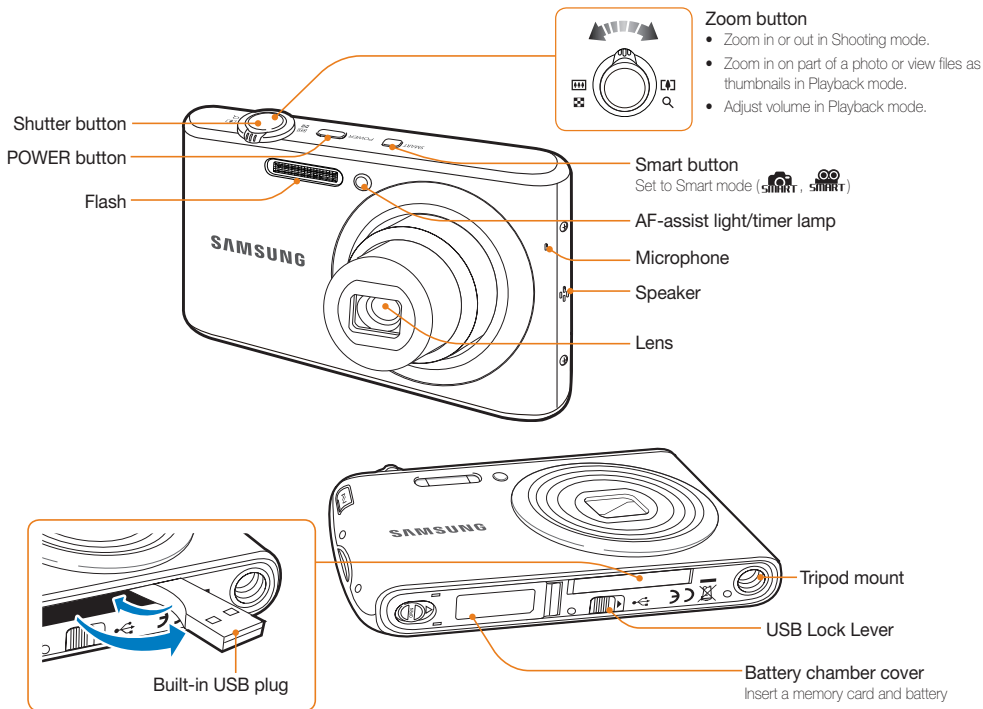
Battery charger



The illustrations may differ from your actual items.

Camera layout

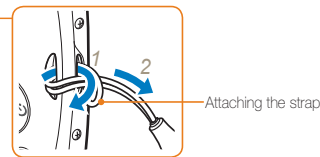
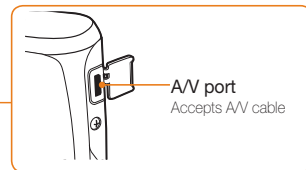
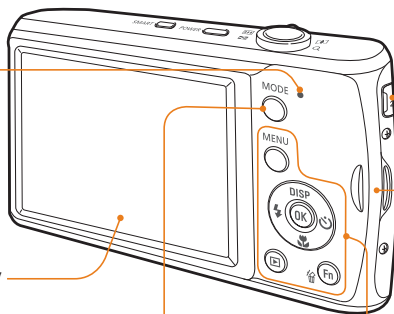
Before you start, familiarize yourself with your camera's parts and their functions.



Status lamp

- **Blinking:** When the camera is saving a photo or video, being read by a computer or printer, or out of focus
- **Steady:** When the camera is connecting to a computer or in focus

Main display



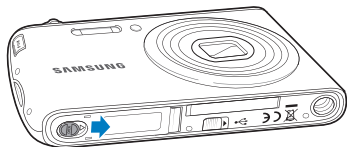
Mode button: Open the list of shooting modes

Icon	Mode	Description
	Smart Auto	The camera automatically selects settings based on a the type of scene (Night, Portrait, Sunset, etc.) it detects.
	Program	The camera sets the shutter speed and aperture value and lets you set the other options.
	DIS	The camera activates options that reduce camera shake.
	Scene	Take a photo with options preset for a specific scene (Landscape, Portrait, Forest, etc.).
	Movie	Record a video.

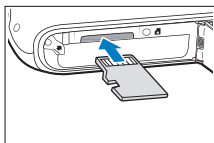
Button	Description	
	MENU	Access options or menus
	Navigation	In Shooting mode While setting
		DISP Change the display option Move up
		Change the macro option Move down
		Change the flash option Move left
		Change the timer option Move right
	OK	Confirm the highlighted option or menu
	Playback	Enter Playback mode
	Function	<ul style="list-style-type: none"> • Access options in Shooting mode • Delete files in Playback mode

Inserting the battery and memory card

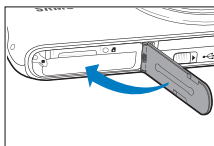
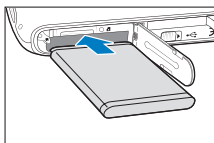
Learn to insert the battery and an optional memory card into the camera.



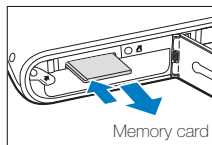
Insert a memory card with the gold-colored contacts facing up.



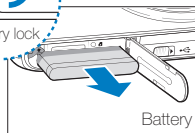
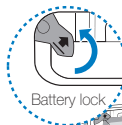
Insert the battery with the Samsung logo facing down.



Removing the battery and memory card



Push the card gently until the card disengages from the camera, and then pull it out of the slot.



Push the lock up to release the battery.



- You can use the internal memory can be used as a temporary storage device when the memory card is not inserted.
- Insert a memory card in the correct direction. Inserting a memory card in the wrong direction may damage your camera and memory card.

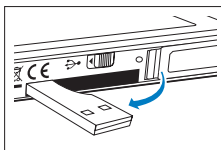
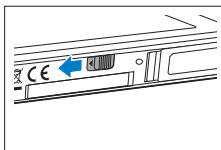
Charging the battery and turning your camera on

Charging the battery

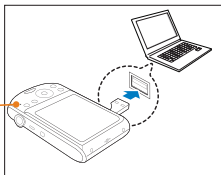
Before using the camera for the first time, you must charge the battery.

Charging using the built-in USB plug

To open the built-in USB plug, push the USB lock lever at the bottom of the camera in the direction of the arrow.



Insert the built-in USB plug of the camera into the USB port of the computer.

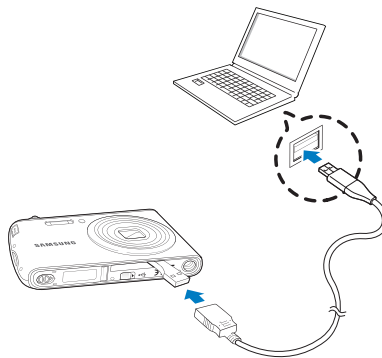


Indicator light

- **Red:** Charging
- **Off:** Fully charged

Charging using the USB extension cable

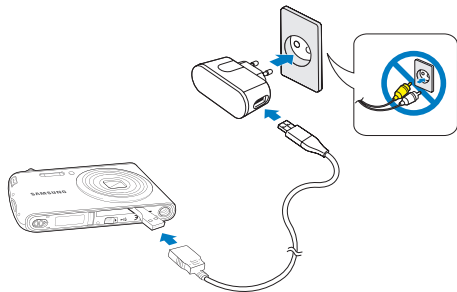
Insert the USB extension cable into the built-in USB plug, and plug the other end of the connector into the USB port of the computer.



- It is recommended that you use a USB extension cable, which is an optional component, depending on the USB connection environment.
- When charging the battery by connecting the USB extension cable to the computer, charging may take longer.

Charging using the power adapter

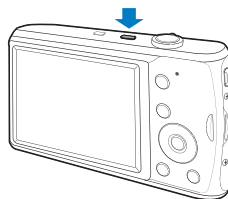
Insert the USB extension cable into the built-in USB plug of the camera. And put the other end of the cable in the power adapter, and then plug it into an outlet.



It is recommended that you use a power adapter, which is an optional component, depending on the USB connection environment.

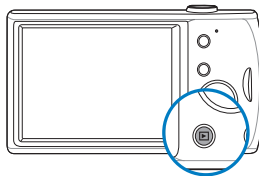
Turning on your camera

Press **[POWER]** to turn your camera on or off.



Turning on your camera in Playback mode

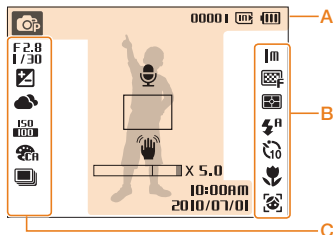
Press **[▶]**. The camera turns on and accesses Playback mode immediately.



When you turn on your camera by pressing and holding **[▶]** for about 5 seconds, the camera does not emit any camera sounds.

Learning icons

The icons displayed will change according to the mode you select or the options you set.



A. Information

Icon	Description
	Selected shooting mode
00001	Available number of photos
00:00:20	Available recording time
	Internal memory
	Memory card inserted
	<ul style="list-style-type: none"> : Fully charged : Partially charged : Charging needed
	Voice memo

Icon	Description
	Auto focus frame
	Camera shake
X 5.0	Zoom ratio
10:00AM 2010/07/01	Current date and time

B. Icons on the right

Icon	Description
	Photo resolution
640	Video resolution
	Frame rate
	Photo quality
	Metering option
	Flash option
	Timer option
	Auto focus option
	Face detection
	Video stabilizer

C. Icons on the left




Icon	Description
F2.8 1/30	Aperture and shutter speed
LT	Long time shutter
	Exposure value
	White balance
	Face tone
	Face retouch
ISO 100	ISO speed
	Photo style
	Image adjustment (contrast, sharpness, saturation)
	Voice muted
	Burst type

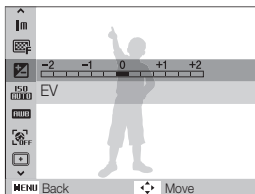
Selecting options

You can select options by pressing [**MENU**], and then using the navigation buttons ([**DISP**], [, [, []).



You can also access shooting options by pressing [**Fn**], but some options are not available.

- 1 In Shooting mode, press [**MENU**].
- 2 Use the navigation buttons to scroll to an option or menu.
 - To move left or right, press [] or [].
 - To move up or down, press [**DISP**] or [].



- 3 Press [**OK**] to confirm the highlighted option or menu.

Going back to the previous menu

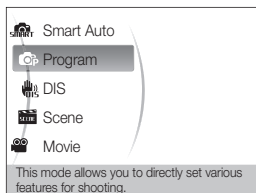
Press [**MENU**] again to go back to the previous menu.



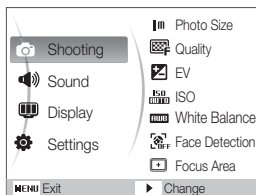
Press [**Shutter**] to return to Shooting mode.

Example: Selecting a White Balance option in the P mode

- 1 In Shooting mode, press **[MODE]**.
- 2 Press **[DISP]** or **[]** to scroll to **Program**, and then press **[OK]**.

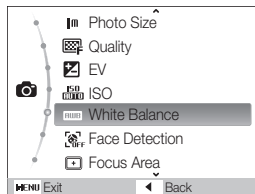


- 3 Press **[MENU]**.

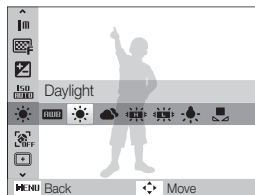


- 4 Press **[DISP]** or **[]** to scroll to **Shooting**, and then press **[]** or **[OK]**.

- 5 Press **[DISP]** or **[]** to scroll to **White Balance**, and then press **[]** or **[OK]**.



- 6 Press **[]** or **[]** to scroll to a White Balance option.



- 7 Press **[OK]**.

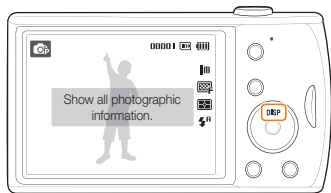
Setting the display and sound

Learn how to change the basic display and sound settings.

Changing the display type

Select a display type for Shooting or Playback mode. Each type displays different shooting or playback information.

Press **[DISP]** repeatedly to change a display type.



Modes	Display Type Choices
Shooting	<ul style="list-style-type: none">• Display all information about shooting• Hide information about shooting, except the available number of photos (or available recording time) and the battery icon
Playback	<ul style="list-style-type: none">• Display all information about the current photo• Hide all information about the current file• Display information about the current file, except the shooting settings and captured date

Setting the sound


Set whether your camera emits a specified sound when you operate your camera.

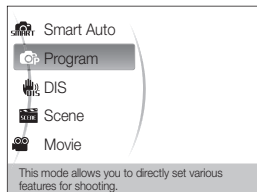
- 1 In Shooting or Playback mode, press **[MENU]**.
- 2 Select **Sound** → **Beep Sound** → an option.

Options	Description
Off	The camera does not emit any sounds.
1/2/3	The camera emits one of three sounds, depending on the option you select.

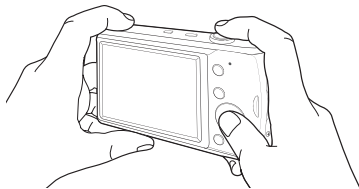
Taking photos

Learn how to take photos easily and quickly in the Program mode.

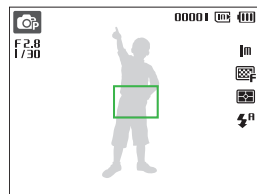
- 1 In Shooting mode, press **[MODE]**.
- 2 Press **[DISP]** or  to scroll to **Program**, and then press **[OK]**.



- 3 Align your subject in the frame.



- 4 Half-press **[Shutter]** to focus.
 - A green frame means the subject in focus.



- 5 Press **[Shutter]** to take a photo.

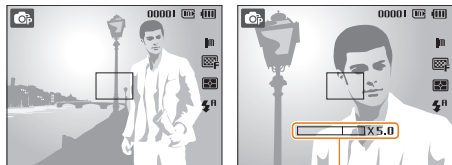


See page 24 for tips to get clearer photos.

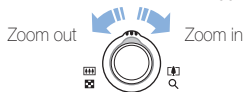
Zooming

You can shoot close-up photos by adjusting the zoom. Your camera has a 4X optical zoom and 5X digital zoom. By using both, you can zoom in up to 20 times.

Rotate **[Zoom]** right to zoom in on your subject. Rotate **[Zoom]** left to zoom out.

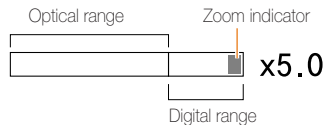


Zoom ratio



Digital zoom

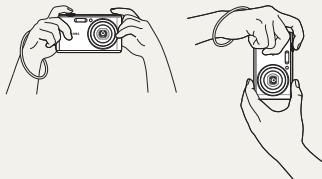
If the zoom indicator is in the digital range, your camera is using the digital zoom. The picture quality may deteriorate when you use the digital zoom.



- Digital zoom is not available when you use the **SMART**, **HS**, **SCN** (in some scenes), **MEMO** and **SMART** modes, and when you use **Face Detection**.
- It may take longer to save a photo when you are using the digital zoom.

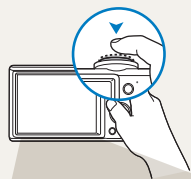
Tips for getting a clearer photo

Holding your camera correctly

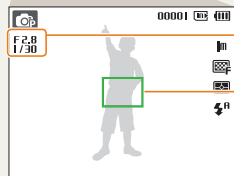


Make sure nothing is blocking the lens.

Half-pressing the shutter button



Half-press **[Shutter]** and adjust the focus. The camera adjusts the focus and exposure automatically.



The camera sets the aperture value and shutter speed automatically.

Focus frame

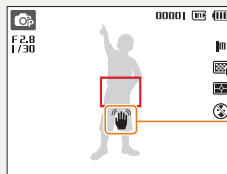
- Press **[Shutter]** to take the photo if focus frame appears in green.
- Change the frame and half-press **[Shutter]** again if it appears in red.

Reducing camera shake



- Select the  mode to reduce camera shake both optically and digitally. (p. 31)

When is displayed



Camera shake

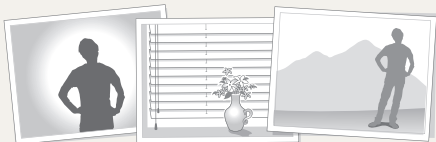
When shooting in the dark, avoid setting the flash option to **Slow Sync** or **Off**. The aperture remains open longer and it may be harder to hold the camera still.

- Use a tripod or set the flash option to **Fill in**. (p. 39)
- Set ISO speed options. (p. 40)

Preventing your subject from being out of focus

It may be difficult to get your subject in focus when:

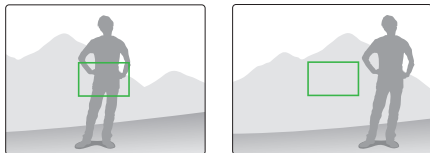
- there is little contrast between the subject and background
(When your subject is wearing clothing that is similar in color to the background)
- the light source behind the subject is too bright
- the subject is shiny
- the subject includes horizontal patterns, such as blinds
- the subject is not positioned in the center of the frame



Use the focus lock

Half-press **[Shutter]** to focus. When the subject is in focus, you can reposition the frame to change the composition.

When you are ready, press **[Shutter]** to take your photo.

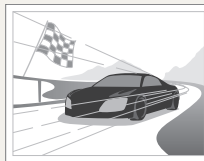


- When you take photos in low light



Turn on the flash.
(p. 39)

- When subjects are moving fast



Use the continuous
or motion capture
function. (p. 50)

Extended functions

Learn how to take a photo by selecting a mode and how to record a video or voice memo.

Shooting modes	27
Using the Smart Auto mode	27
Using the Scene mode	28
Using the Beauty Shot mode	29
Using the frame guide	30
Using the Night mode	30
Using the DIS mode	31
Using the Program mode	32
Recording a video	32
Recording voice memos	34
Recording a voice memo	34
Adding a voice memo to a photo	34

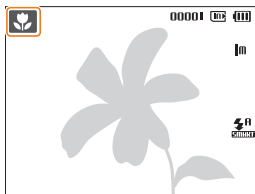
Shooting modes

Take photos or record videos by selecting the best shooting mode for the conditions.

Using the Smart Auto mode

In this mode, your camera automatically chooses the appropriate camera settings based on the type of scene it detects. Smart Auto Mode is helpful if you are not familiar with the camera settings for various scenes.

- 1 In Shooting mode, press [**MODE**].
- 2 Select **Smart Auto**.
- 3 Align your subject in the frame.
 - The camera selects a scene automatically. An appropriate scene mode icon appears at the top left of the screen. The icons are listed below.





Icon	Description
	Appears when taking photos of landscapes.
	Appears when taking photos with bright white backgrounds.

Icon	Description
	Appears when taking photos of landscapes at night. This is available only when the flash is off.
	Appears when taking portraits at night.
	Appears when taking photos of landscapes with backlighting.
	Appears when taking portraits with backlighting.
	Appears when taking portraits.
	Appears when taking close-up photos of objects.
	Appears when taking close-up photos of text.
	Appears when taking photos of sunsets.
	Appears when taking photos of clear skies.
	Appears when taking photos of forested areas.
	Appears when taking close-up photos of colorful subjects.
	Appears when taking close-up portraits of people.
	Appears when the camera is stable (on a tripod, for example) and the subject is motionless for a period of time. This is available only when you are shooting in the dark.
	Appears when taking photos of actively moving subjects.

4 Half-press [**Shutter**] to focus.

5 Press [**Shutter**] to take the photo.



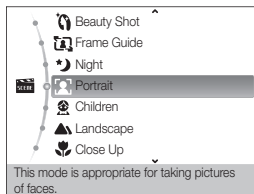
- If the camera does not recognize a proper scene mode,  appears and the camera uses default settings.
- Even if it detects a face, the camera may not select a portrait mode depending on the subject's position or lighting.
- The camera may not select the correct scene depending on the shooting conditions, such as camera shake, lighting, and distance to the subject.
- Even if you use a tripod, the camera may not detect the  mode may not be detected depending on the subject's movement.

Using the Scene mode

Take a photo with options preset for a specific scene.

1 In Shooting mode, press [**MODE**].

2 Select **Scene** → a scene.



- To change the scene mode, press [**MODE**], and then select **Scene** → a scene.
- For the Beauty Shot mode, see "Using the Beauty Shot mode" on page 29.
- For the Frame Guide mode, see "Using the frame guide" on page 30.
- For the Night mode, see "Using the Night mode" on page 30.

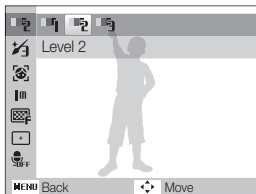
3 Align your subject in the frame, and then half-press [**Shutter**] to focus.

4 Press [**Shutter**] to take the photo.

Using the Beauty Shot mode

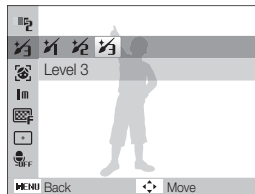
Take a photo of a person with options to hide facial imperfections.

- 1 In Shooting mode, press [**MODE**].
- 2 Select **Scene** → **Beauty Shot**.
- 3 To make the subject's skin tone appear lighter (face only), press [**MENU**], and then go to Step 4. To hide facial imperfections, press [**MENU**], and then go to Step 5.
- 4 Select **Shooting** → **Face Tone** → an option.
 - Select a higher setting to make skin tone appear lighter.



- 5 To hide facial imperfections, press [**MENU**].

- 6 Select **Shooting** → **Face Retouch** → an option.
 - Select a higher setting to hide a greater number of imperfections.



- 7 Align your subject in the frame, and then half-press [**Shutter**] to focus.
- 8 Press [**Shutter**] to take the photo.

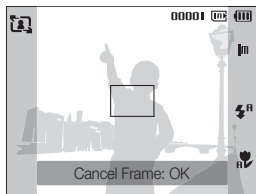


The focus distance will be set to **Auto Macro**.

Using the frame guide

When you want another person to take a photo of you, you can compose the scene with the frame guide feature. The frame guide helps the other person take a photo of you by showing part of the pre-composed scene.

- 1 In Shooting mode, press [**MODE**].
- 2 Select **Scene** → **Frame Guide**.
- 3 Align your subject in the frame, and then press [**Shutter**].
 - Transparent guides appear on the left and right of the frame.



- 4 Ask another person to take a photo.
 - The person aligns the subject in the frame using the guides, and then presses [**Shutter**] to take the photo.
- 5 To cancel the guides, press [**OK**].

Using the Night mode

Use the Night mode to take a photo with options preset for shooting at night. Use a tripod to prevent your camera from shaking.

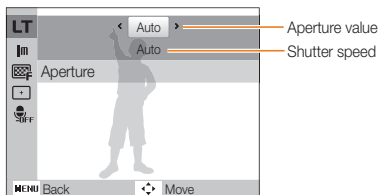
- 1 In Shooting mode, press [**MODE**].
- 2 Select **Scene** → **Night**.
- 3 Align your subject in the frame, and then half-press [**Shutter**] to focus.
- 4 Press [**Shutter**] to take the photo.

Adjusting the exposure in the Night mode

In the Night mode, you can catch brief flashes of light as curved streaks by extending the exposure. Use a slow shutter speed to extend the time until the shutter closes. Increase the aperture value to prevent overexposure.

- 1 In Shooting mode, press [**MODE**].
- 2 Select **Scene** → **Night**.
- 3 Press [**MENU**].
- 4 Select **Shooting** → **Long Time Shutter**.

5 Select the aperture value or shutter speed.



6 Select an option.

- If you select **Auto**, the camera adjusts the aperture value or shutter speed automatically.

7 Align your subject in the frame, and then half-press [Shutter] to focus.

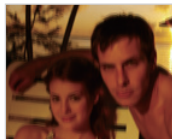
8 Press [Shutter] to take the photo.



Use a tripod to prevent your photos from blurring.

Using the DIS mode

Reduce camera shake and prevent blurred photos with Digital Image Stabilization functions.



Before correction



After correction

1 In Shooting mode, press [MODE].

2 Select **DIS**.

3 Align your subject in the frame, and then half-press [Shutter] to focus.

4 Press [Shutter] to take the photo.



- The digital zoom does not work in this mode.
- If your subject is moving rapidly, the photo may be blurry.
- The DIS function may not work in a place where the lighting is brighter than that of a fluorescent lamp.

Using the Program mode

In the Program mode, you can set various options except the shutter speed and aperture value, which the camera sets automatically.

- 1 In Shooting mode, press [**MODE**].
- 2 Select **Program**.
- 3 Set options.
(For a list of options, refer to "Shooting options.")
- 4 Align your subject in the frame, and then half-press [**Shutter**] to focus.
- 5 Press [**Shutter**] to take the photo.

Recording a video




Record videos of up to 2 hours in length.
The recorded video is saved as an MJPEG file.





- Some memory cards may not support high definition recording. If this occurs, set a lower resolution. (p. 36)

- 1 In Shooting mode, press [**MODE**].
- 2 Select **Movie**.
- 3 Press [**MENU**].
- 4 Select **Movie** → **Frame Rate** → a frame rate (the number of frames per second).
 - As the frame rate increases, action appears more natural, but the file size also increases.

- 5 Press [**MENU**].
- 6 Select **Movie** → **Voice** → a sound option.

Option	Description
	On: Record a video with sound.
	Off: Record a video without sound.
	Zoom Mute: The camera stops recording sound temporarily when you use the zoom.

- 7 Press [**MENU**].
- 8 Select **Movie** → **Stabilizer** → a stabilizer option.

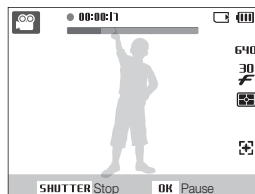
Option	Description
	Off: Record a video with the image stabilization function turned off.
	On: Record a video with the image stabilization function turned on to prevent your video from blurring.

- 9 Set other options as desired.
(For options, refer to “Shooting options.”)
- 10 Press [**Shutter**] to start recording.
- 11 Press [**Shutter**] again to stop recording.

To pause recording

The camera allows you to pause a video temporarily while recording. With this function, you can record several scenes as a single video.

Press [**OK**] to pause while recording. Press it again to resume.



Recording voice memos



Learn how to record a voice memo that you can play back at any time. You can add a voice memo to a photo as a short reminder of shooting conditions.



You will get the best sound quality when recording 10 inches (25 cm.) away from the camera.

Recording a voice memo

- 1 In Shooting mode, press [**MENU**].
- 2 Select **Shooting** → **Voice** → **Record**.
- 3 Press [**Shutter**] to record.
 - You can record voice memos of up to 10 hours in length.
 - Press [**OK**] to pause or resume recording.



- 4 Press [**Shutter**] to stop.
 - Press [**Shutter**] again to record a new voice memo.
- 5 Press [**MENU**] to switch to Shooting mode.

Adding a voice memo to a photo

- 1 In Shooting mode, press [**MENU**].
- 2 Select **Shooting** → **Voice** → **Memo**.
- 3 Align your subject in the frame, and then take a photo.
- 4 Record a short voice memo (10 seconds maximum).
 - Begin recording the voice memo right after taking the photo.
 - Press [**Shutter**] to stop recording a voice memo before the 10 seconds are up.

Shooting options

Learn about the options you can set in shooting mode.

Selecting a resolution and quality	36	Adjusting brightness and color	47
Selecting a resolution	36	Adjusting the exposure manually (EV)	47
Selecting image quality	36	Compensating for backlighting (ACB)	47
Using the timer	37	Changing the metering option	48
Shooting in the dark	39	Selecting a light source (White balance)	48
Preventing red-eye	39	Using burst modes	50
Using the flash	39	Improving your photos	51
Adjusting the ISO speed	40	Applying photo styles	51
Changing the camera's focus	41	Adjusting your photos	52
Using macro	41		
Using auto focus	41		
Using tracking auto focus	42		
Adjusting the focus area	43		
Using face detection	44		
Detecting faces	44		
Taking a self-portrait shot	45		
Taking a smile shot	45		
Detecting eye blinking	46		

Selecting a resolution and quality




Learn how to change the image resolution and quality settings.

Selecting a resolution

As you increase the resolution, your photo or video will include more pixels, so it can be printed on larger paper or displayed on a larger screen. When you use a high resolution, the file size also increases.


When taking a photo:

- 1 In Shooting mode, press **[MENU]**.
- 2 Select **Shooting** → **Photo Size** → an option.

Option	Description
	4000 X 3000 : Print on A1 paper (22" x 34").
	3984 X 2656 : Print on A2 paper (17" x 22") in wide ratio (3:2).
	3968 X 2232 : Print on A2 paper (17" x 22") in panorama ratio (16:9) or play back on an HDTV.
8m	3264 X 2448 : Print on A3 paper (17" x 11").
5m	2592 X 1944 : Print on A4 paper (8 1/2" x 11").
3m	2048 X 1536 : Print on A5 paper (5 3/4" x 8 1/2").
1m	1024 X 768 : Attach to email.

The paper sizes in inches are approximate.

When recording a video:




- 1 In the  mode, press **[MENU]**.
- 2 Select **Movie** → **Movie Size** → an option.

Option	Description
640	640 X 480 : For play back on a standard, analog TV.
320	320 X 240 : To post on a web page.

Selecting image quality

The camera compresses and saves the photos you take in JPEG format. Higher quality images result in larger file sizes.

- 1 In Shooting mode, press **[MENU]**.
- 2 Select **Shooting** → **Quality** → an option.

Option	Description
	Super Fine
	Fine
	Normal

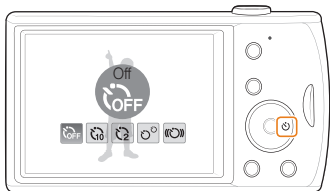
The options may differ depending on the shooting mode.

Using the timer



Learn how to set the timer to delay shooting.

1 In Shooting mode, press [ON].



2 Select an option.

Option	Description
	Off: The timer is not active.
	10 Sec: Takes a photo in 10 seconds.
	2 Sec: Takes a photo in 2 seconds.
	Double: Takes a photo in 10 seconds, and then takes another 2 seconds later.
	Motion Timer: Detects your movement, and then take a photo. (p. 38)

The options may differ depending on the shooting mode.

3 Press [Shutter] to start the timer.

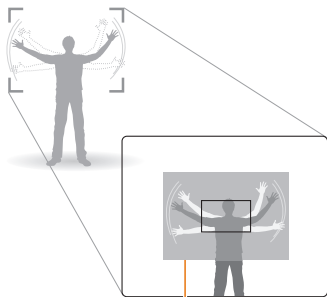
- The AF-assist light/timer lamp blinks. The camera automatically takes a photo at the specified time.



- Press [ON] to cancel the timer.
- Depending on the face detection option you have selected, the timer function or some timer options may not be available.

Using the motion timer

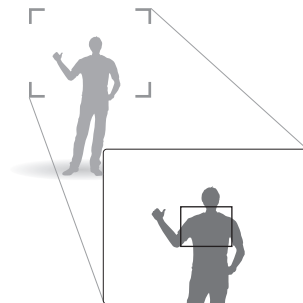
- 1 In Shooting mode, press [📷].
- 2 Select [⏸].
- 3 Press [Shutter].
- 4 Stand within 10 ft. (3 m) of the camera within 6 seconds after pressing [Shutter].
- 5 Make a motion, such as waving your arms, to activate the timer.
 - The AF-assist light/timer lamp starts to blink rapidly when the camera detects you.



The detection range of the motion timer

- 6 Pose for your photo while the AF-assist light/timer lamp is blinking.

- The AF-assist light/timer lamp stops blinking just before the camera automatically takes a photo.



The motion timer may not work when:

- you are more than 10 ft. (3 m) away from the camera
- your movements are too subtle
- there is too much light or backlight

Shooting in the dark

Learn how to take photos at night or in low light conditions.


Preventing red-eye

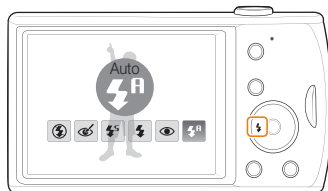
If the flash fires when you take a photo of a person in the dark, a red glow may appear in the person's eyes. To prevent this, select **Red-eye** or **Red-eye Fix**. Refer to flash options in "Using the flash."







Using the flash






Use the flash when taking photos in the dark or when you need more light in your photos.

1 In Shooting mode, press [].



2 Select an option.

Option	Description
	Off: <ul style="list-style-type: none">The flash does not fire.The camera displays the camera shake warning () when you are shooting in low light.
	Auto: The camera selects a proper flash setting for the scene it detects in the  mode.

Option	Description
	<p>Red-eye Fix*:</p> <ul style="list-style-type: none"> The flash fires twice when the subject or background is dark. The subject should not move until the flash fires a second time. The camera corrects red-eyes through its advanced software analysis.
	<p>Slow Sync:</p> <ul style="list-style-type: none"> The flash fires and the shutter stays open longer. Select this when you want to capture ambient light to reveal more details in the background. Use a tripod to prevent your photos from blurring.
	<p>Fill in:</p> <ul style="list-style-type: none"> The flash always fires. The camera adjusts light intensity automatically.
	<p>Red-eye*:</p> <ul style="list-style-type: none"> The flash fires when the subject or background is dark. The camera reduces red-eyes.
	<p>Auto: The flash fires automatically when the subject or background is dark.</p>

The options may differ depending on the shooting mode.



- Flash options are not available if you set burst options or select **Blink Detection**.
- Make sure that your subjects are within the recommended distance from the flash. (p. 89)
- If light from the flash is reflected or there is a large amount of dust in the air, tiny spots may appear in your photo.

Adjusting the ISO speed

The ISO speed is the measure of a film's sensitivity to light as defined by the International Organization for Standardization (ISO). The higher ISO speed you select, the more sensitive to light your camera becomes. With a higher ISO speed, you can get a better photo without using the flash.

- In Shooting mode, press **[MENU]**.
- Select **Shooting** → **ISO** → an option.
 - Select  to use an appropriate ISO speed based on the brightness of the subject and lighting.



- The higher ISO speed you select, the more image noise you may get.
- When you select **Motion Capture**, the camera sets the ISO speed to **Auto**.

Changing the camera's focus

Learn how to adjust the camera's focus.

Using macro


Use macro to take close-up photos of subjects, such as flowers or insects. Refer to macro options in "Using auto focus."

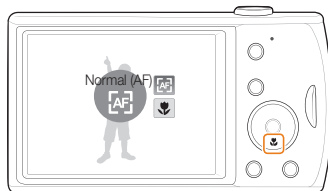


- Try to hold the camera very still to prevent blurry photos.
- Turn off the flash if the distance to the subject is less than 32 in. (40 cm.)




Using auto focus

To take sharp photos, select the appropriate focus according to your distance from the subject.

1 In Shooting mode, press .



2 Select an option.

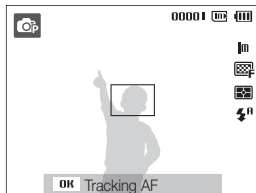
Option	Description
	Normal (AF): Focus on a subject farther than 32 in. (80 cm) from the camera. Farther than 3 1/4 ft. (1 m) when using the zoom.
	Macro: Focus on a subject 5 to 32 in. (12 - 80 cm) from the camera. 2 1/4 to 3 1/4 ft. (0.7 - 1 m) when using the zoom.
	Auto Macro: Focus on a subject farther than 5 in. (12 cm). Farther than 2 1/4 ft. (0.7 m) when using the zoom.

The options may differ depending on the shooting mode.

Using tracking auto focus

Tracking AF allows you to track and auto focus on your subject, even when you are moving.

- 1 In Shooting mode, press [**MENU**].
- 2 Select **Shooting** → **Focus Area** → **Tracking AF**.
- 3 Focus on the subject you want to track, and then press [**OK**].
 - A focus frame appears on the subject and follows the subject as you move the camera.



- The white frame means that your camera is tracking the subject.
- The green frame means that your subject is in focus when you half-press [**Shutter**].






- Tracking a subject may fail when:
 - the subject is too small or the subject moves excessively
 - the subject is backlit or you are shooting in a dark place
 - colors or patterns on the subject and the background are the same
 - the camera shakes excessively
- In these cases, the focus frame appears as a white, single-line frame.
- If the camera fails to track the subject, you must reselect the subject to track.
 - If the camera fails to fix the focus, the focus frame changes to a red, single-line frame.
 - If you use this function, you cannot set face detection and photo style options.

Adjusting the focus area

You can get clearer photos by selecting an appropriate focus area according to your subject's location in the scene.

- 1 In Shooting mode, press **[MENU]**.
- 2 Select **Shooting** → **Focus Area** → an option.

Option	Description
	Center AF: Focus on the center. Suitable when subjects are located in the center.
	Multi AF: Focus on one or more of 9 possible areas.
	Tracking AF: Focus on and track the subject. (p. 42)

The options may differ depending on the shooting mode.

Using face detection

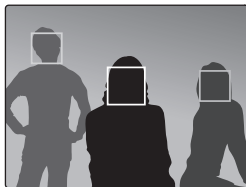
If you use face detection options, your camera can automatically detect a human face. When you focus on a human face, the camera adjusts the exposure automatically. Take photos quickly and easily by using **Blink Detection** to detect closed eyes or **Smile Shot** to capture a smiling face.



- In some scene modes, face detection is unavailable.
- Face detection may not be effective when:
 - the subject is far from the camera (The focus frame will appear orange for **Smile Shot** and **Blink Detection**.)
 - it is too bright or too dark
 - the subject is not facing the camera
 - the subject is wearing sunglasses or a mask
 - the subject is in backlit or the lighting condition is unstable
 - the subject's facial expression changes remarkably
- Face detection is not available when you are using a photo style or image adjustment option or when you are using **Tracking AF**.
- Face detection is not available when you are using the digital zoom.
- Depending on the face detection option you selected, the timer or some timer options are not available.
- Depending on the face detection option you selected, some burst options are not available.

Detecting faces

Your camera automatically detects human faces (up to 10 faces in one scene).



- 1 In Shooting mode, press [**MENU**].
- 2 Select **Shooting** → **Face Detection** → **Normal**.
 - The nearest face appears in a white focus frame and the rest of the faces appear in gray focus frames.



- The closer you are to the subject, the quicker your camera detects faces.

Taking a self-portrait shot

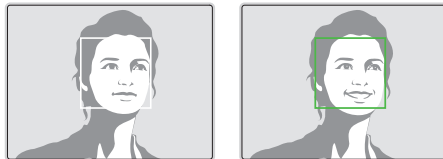
Take photos of yourself. The camera automatically sets the photo distance to close-up and emits a beep when ready.



- 1 In Shooting mode, press [**MENU**].
- 2 Select **Shooting** → **Face Detection** → **Self-Portrait**.
- 3 When you hear a beep, press [**Shutter**].

Taking a smile shot

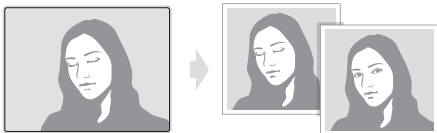
The camera automatically releases the shutter when it detects a smiling face.



- 1 In Shooting mode, press [**MENU**].
- 2 Select **Shooting** → **Face Detection** → **Smile Shot**.
 - When your subject smiles broadly, your camera can detect the smile more easily.

Detecting eye blinking

If your camera detects closed eyes, it automatically takes two photos in succession.



1 In Shooting mode, press **[MENU]**.

2 Select **Shooting** → **Face Detection** → **Blink Detection**.



- Hold your camera still while **"Capturing"** is displayed on the screen.
- When blink detection fails, the **"Picture taken with eyes closed."** message appears. Take another photo.

Adjusting brightness and color

Learn how to adjust the brightness and color for better image quality.

Adjusting the exposure manually

(EV)   

Depending on the intensity of the ambient light, your photos may be too bright or dark. In these cases, you can adjust the exposure to get a better photo.



Darker (-)



Neutral (0)



Brighter (+)

- 1 In Shooting mode, press [**MENU**].
- 2 Select **Shooting** → **EV**.
- 3 Select a value to adjust the exposure.



- Once you adjust the exposure, the setting will remain the same. You may need to change the exposure value later to avoid overexposure or underexposure.
- If you cannot decide on an appropriate exposure, select **AEB** (Auto Exposure Bracket). The camera takes three photos, each with a different exposure: normal, underexposed, and overexposed. (p. 50)

Compensating for backlighting (ACB)

When the light source is behind your subject or there is high contrast between your subject and the background, your subject is likely to appear dark in the photo. If this occurs, turn the Auto Contrast Balance (ACB) option on.



Without ACB



With ACB

- 1 In Shooting mode, press [**MENU**].
- 2 Select **Shooting** → **ACB** → an option.

Option	Description
 Off	Off: ACB is off.
 On	On: ACB is on.






- You cannot set burst options when this feature is on.

Changing the metering option

The metering mode refers to the way in which a camera measures the quantity of light. The brightness and lighting of your photos will vary depending on the metering mode you select.

- 1 In Shooting mode, press **[MENU]**.
- 2 Select **Shooting** → **Metering** → an option.

Option	Description
	<p>Multi:</p> <ul style="list-style-type: none"> • Your camera divides the scene into several areas, and then measures the light intensity of each area. • Suitable for general photos.
	<p>Spot:</p> <ul style="list-style-type: none"> • Your camera measures only the light intensity of the very center of the frame. • If a subject is not in the center of the scene, your photo may be improperly exposed. • Suitable for a subject with backlighting.
	<p>Center-weighted:</p> <ul style="list-style-type: none"> • Your camera averages the meter reading of the entire frame with emphasis placed on the center. • Suitable for photos with subjects in the center of the frame.

Selecting a light source (White balance)

The color of your photo depends on the type and quality of the light source. If you want the color of your photo to be realistic, select a white balance setting that matches the lighting conditions, such as Daylight, Cloudy, or Tungsten.



 (Auto WB)



 (Daylight)










 (Cloudy)



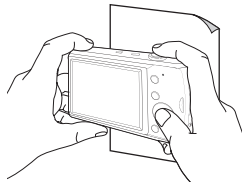
 (Tungsten)

- 1 In Shooting mode, press **[MENU]**.
- 2 Select **Shooting** → **White Balance** → an option.

Icon	Description
	Auto WB: Automatically sets the white balance based on the lighting conditions.
	Daylight: Select when taking outdoor photos on a sunny day.
	Cloudy: Select when taking outdoor photos on a cloudy day or in shadows.
	Fluorescent_H: Select when shooting under a daylight fluorescent or three-way fluorescent light.
	Fluorescent_L: Select when shooting under white fluorescent light.
	Tungsten: Select when taking indoor photos under incandescent bulbs or halogen lamps.
	Custom Set: Use white balance settings you defined. (See procedure at right.)

Defining your own white balance

- 1 In Shooting mode, press **[MENU]**.
- 2 Select **Shooting** → **White Balance** → **Custom Set**.
- 3 Aim the lens at a piece of white paper.



- 4 Press **[Shutter]**.





Using burst modes

It can be difficult to take photos of fast-moving subjects or capture natural facial expressions and gestures of your subjects in photos. In these cases, select one of the burst modes to take multiple pictures rapidly.



- You can use the flash, timer, and ACB only when you select **Single**.
- When you select **Motion Capture**, the resolution is set to VGA and the ISO speed is set to **Auto**.
- Depending on the face detection option you selected, some burst options are not available.

- 1 In Shooting mode, press **[MENU]**.
- 2 Select **Shooting** → **Drive** → an option.

Option	Description
	Single: Take a single photo.
	Continuous: <ul style="list-style-type: none">• While you are pressing [Shutter], the camera takes photos continuously.• The maximum number of photos depends on the capacity of your memory card.
	Motion Capture: <ul style="list-style-type: none">• While you are pressing [Shutter], the camera takes VGA photos (5 photos per second; maximum of 30 photos).
	AEB: <ul style="list-style-type: none">• Take 3 photos with different exposures: normal, underexposed, and overexposed.• Use a tripod to prevent blurry photos.

The options may differ depending on the shooting mode.

Improving your photos

Learn how to improve your photos by applying photo styles or colors, or by making some adjustments.

Applying photo styles

Apply a different photo style to your photos, such as Soft, Vivid, or Forest.



Soft



Vivid



Forest

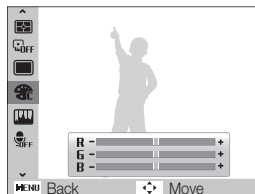
- 1 In Shooting mode, press **[MENU]**.
- 2 Select **Shooting** → **Photo Style Selector** → an option.
 - Select **Custom RGB** to define your own RGB tone.



- If you use this function, you cannot set the face detection and image adjustment options.

Defining your own RGB tone

- 1 In Shooting mode, press **[MENU]**.
- 2 Select **Shooting** → **Photo Style Selector** → **Custom RGB**.
- 3 Select a color (R: Red, G: Green, B: Blue).



- 4 Adjust the amount of the selected color.
(-: less or +: more)

Adjusting your photos

Adjust the contrast, sharpness, and saturation of your photos.

- 1 In Shooting mode, press [**MENU**].
- 2 Select **Shooting** → **Image Adjust**.
- 3 Select an adjustment option.
 - Contrast
 - Sharpness
 - Saturation
- 4 Select a value to adjust the selected item.

Contrast option	Description
-	Decrease the color and brightness.
+	Increase the color and brightness.

Sharpness option	Description
-	Soften the edges on your photos. Suitable for editing the photos on your computer.
+	Sharpen the edges to improve the clarity of your photos. This may also increase the noise on your photos.

Saturation option	Description
-	Decrease the saturation.
+	Increase the saturation.



- Select **0** if you do not want to apply any effects (suitable for printing).
- If you set an Image Adjust option, Photo Style Selector function is not available.

Playback/Editing

Learn how to play back photos, videos, or voice memos and edit photos or videos. You will also learn how to connect your camera to your photo printer or TV.

Playing back	54	Transferring files to your Windows computer ...	67
Starting Playback mode	54	Transferring files using Intelli-studio	68
Viewing photos	58	Transferring files by connecting the camera as a removable disk	70
Playing a video	59	Disconnecting the camera (for Windows XP) ...	71
Playing voice memos	60	Transferring files to your Mac computer ...	72
Editing a photo	62	Printing photos with a PictBridge photo printer	73
Resizing photos	62		
Rotating a photo	62		
Applying photo styles	63		
Correcting exposure problems	64		
Creating a print order (DPOF)	65		
Viewing files on a TV	66		

Playing back

Learn to play back photos, videos, or voice memos, and manage files.

Starting Playback mode

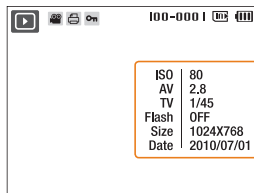
View photos or play videos and voice memos stored in your camera.

- 1 Press [▶].
 - The most recent file you have taken or recorded is displayed.
 - If the camera is off, it turns on.
- 2 Press [⏪] or [😊] to scroll through files.
 - Press and hold to scroll through files quickly.



- If you want to view files stored in the internal memory, remove your memory card.
- The camera will not properly play back files that are too large or those taken with cameras from other manufacturers.

Display in Playback mode



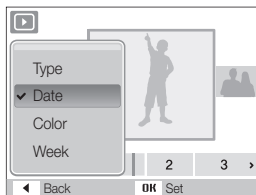
Information

Icon	Description
	Photo includes a voice memo
	Video file
	Print order has been set (DPOF)
	Protected file
100-0001	Folder name – File name

Viewing files by category in Smart Album

View and manage files by categories, such as date, file type, or week.

- 1 In Playback mode, rotate [Zoom] left.
- 2 Press [MENU].
- 3 Select a category.



Option	Description
Type	View files by file type.
Date	View files by the date they were saved.
Color	View files by the dominant color of the image.
Week	View files by the weekday they were saved.

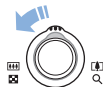


It may take some time for the camera to open Smart Album or to change the category and recognize files.

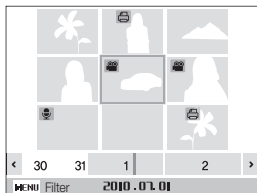
- 4 Press [⏪] or [⏩] to scroll through files.
 - Press and hold to scroll through files quickly.
- 5 Press [OK] to return to the normal view.

Viewing files as thumbnails

Scan thumbnails of files.



In Playback mode, rotate **[Zoom]** left to display 9 or 20 thumbnails. Rotate **[Zoom]** right to return to the previous mode.

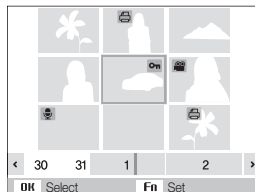


To	Do this
Scroll through files	Press [DISP] , [L] , [R] or [C] .
Delete files	Press [Fn] , and then select Yes .

Protecting files

Protect your files from accidental deletion.

- 1 In Playback mode, press **[MENU]**.
- 2 Select **File Options** → **Protect** → **Select**.
 - To protect all files, select **All** → **Lock**.
- 3 To protect a single file, select the file you want to protect, and then press **[OK]**.
 - Press **[OK]** again to cancel your selection.



- 4 Repeat Step 4 to protect additional files individually.
- 5 Press **[Fn]**.

Deleting files

Delete single files or all files at once. You cannot delete protected files.

To delete a single file,

- 1 In Playback mode, select a file, and then press [**Fn**].
- 2 Select **Yes** to delete the file.

To delete multiple files,

- 1 In Playback mode, press [**Fn**].
- 2 Select **Multiple Delete**.
- 3 Select the files you want to delete, and then press [**OK**].
 - Press [**OK**] again to cancel your selection.
- 4 Press [**Fn**].
- 5 Select **Yes**.

To delete all files,

- 1 In Playback mode, press [**MENU**].
- 2 Select **File Options** → **Delete** → **All** → **Yes**.

Copying files to the memory card

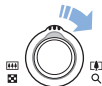
You can copy files from the internal memory to a memory card.

- 1 In Playback mode, press [**MENU**].
- 2 Select **File Options** → **Copy to Card**.
- 3 Select **Yes** to copy files.

Viewing photos

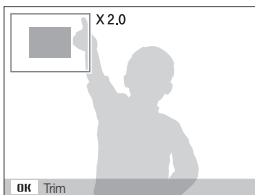
Zoom in on part of a photo or view photos in a slide show.

Enlarging a photo



In Playback mode, rotate **[Zoom]** right to enlarge a photo. Rotate **[Zoom]** left to shrink a photo.

The enlarged area and zoom ratio are indicated on the top of the screen. The maximum zoom ratio may vary depending on the resolution.



To	Do this
Move the enlarged area	Press [DISP] , [M] , [L] or [R] .
Trim the enlarged photo	Press [OK] . The trimmed photo is saved as a new file.

Starting a slide show

You can apply effects and add audio to your slide show.

- 1 In Playback mode, press **[MENU]**.
- 2 Select **Multi Slide Show**.
- 3 Select a slide show effect option.
 - Skip to step 5 to start a slide show with no effects.

Option	Description
Images	Select the photos you want to view as a slide show. <ul style="list-style-type: none"> • All: View all photos in a slide show. • Date: View photos captured on a specific date in a slide show. • Select: View selected photos in a slide show.
Interval	<ul style="list-style-type: none"> • Set the interval between photos. • This is available when you select Off in the Effect option. See below.
Music	Select a background audio.
Effect	<ul style="list-style-type: none"> • Select a transition effect. • Select Off for no effects.

4 Set the slide show effect.

5 Select **Start** → **Play**.

- To loop the slide show, select **Repeat**.
- Press [**OK**] to pause or resume the slide show.



To stop the slide show and switch to Playback mode, press [**OK**], and then [**⏮**] or [**⏭**].

Playing a video

You can play a video, capture an image from a video, or crop a video.

1 In Playback mode, select a video, and then press [**OK**].



2 Use the following buttons to control playback.

Press	To
[⏮]	Scan backward.
[OK]	Pause or resume playback.
[⏭]	Scan forward.
[Zoom] left or right	Adjust the volume level.

Trimming a video during playback

- 1 Press **[OK]** at the point where you want the new video to begin, and then rotate **[Zoom]** right.
- 2 Press **[OK]** to resume playback.
- 3 Press **[OK]** at the point where you want the new video to end, and then rotate **[Zoom]** right.
- 4 Select **Yes**.



- The original video must be at least 10 seconds long.
- The camera saves the edited video as a new file.

Capturing an image during playback

- 1 Press **[OK]** at the point where you want to save a still image.
- 2 Press **[👉]**.



A captured image has the same resolution as the original video file and is saved as a new file.

Playing voice memos

Playing a voice memo

- 1 In Playback mode, select a voice memo, and then press **[OK]**.
- 2 Use the following buttons to control playback.

Press	To
[⏮]	Scan backward.
[OK]	Pause or resume playback.
[⏭]	Scan forward.
[👉]	Stop playback.
[Zoom] left or right	Adjust the volume level.

Adding a voice memo to a photo

- 1 In Playback mode, select a photo, and then press **[MENU]**.
- 2 Select **File Options** → **Voice memo** → **On**.
- 3 Press **[Shutter]** to record a short voice memo (10 seconds maximum).
 - Press **[Shutter]** to stop recording a voice memo.



You cannot add a voice memo to protected files.

Playing a voice memo added to a photo

In Playback mode, select a photo that includes a voice memo, and then press **[OK]**.

- Press **[OK]** to pause or resume playback.

Editing a photo

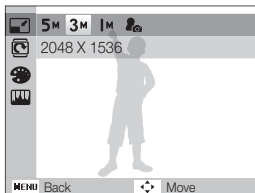
Perform photo editing tasks, such as resizing, rotating, eliminating red-eyes, and adjusting brightness, contrast, or saturation.



The camera saves edited photos as new files.

Resizing photos

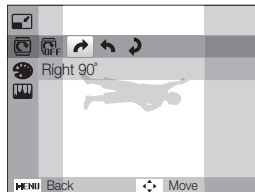
- 1 In Playback mode, select a photo, and then press **[MENU]**.
- 2 Select **Edit** → **Resize** → an option.
 - Select to save the photo as a start image. (p. 76)



Available options differ depending on the size of the selected photo.

Rotating a photo

- 1 In Playback mode, select a photo, and then press **[MENU]**.
- 2 Select **Edit** → **Rotate** → an option.



Applying photo styles

Apply a different photo style to the photo, such as Soft, Vivid, or Forest.



Soft

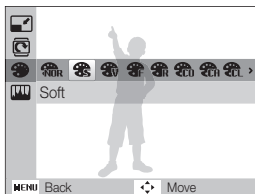


Vivid



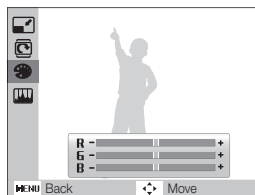
Forest

- 1 In Playback mode, select a photo, and then press **[MENU]**.
- 2 Select **Edit** → **Photo Style Selector** → an option.
 - Select **Custom RGB** to define your own RGB tone.



Defining your own RGB tone

- 1 In Playback mode, select a photo, and then press **[MENU]**.
- 2 Select **Edit** → **Photo Style Selector** → **Custom RGB**.
- 3 Select a color (R: Red, G: Green, B: Blue).



- 4 Adjust the amount of the selected color.
(-: less or +: more)

Correcting exposure problems

Adjust ACB (Auto Contrast Balance), brightness, contrast, or saturation; remove red-eye; hide facial imperfections; or add noise to the photo.

Adjusting ACB (Auto Contrast Balance)

- 1 In Playback mode, select a photo, and then press **[MENU]**.
- 2 Select **Edit** → **Image Adjust** → **ACB**.

Removing red-eye




- 1 In Playback mode, select a photo, and then press **[MENU]**.
- 2 Select **Edit** → **Image Adjust** → **Red-eye Fix**.

Hiding facial imperfections

- 1 In Playback mode, select a photo, and then press **[MENU]**.
- 2 Select **Edit** → **Image Adjust** → **Face Retouch**.

- 3 Select a level.
 - As the number increases, the face becomes clearer.

Adjusting brightness/contrast/saturation

- 1 In Playback mode, select a photo, and then press **[MENU]**.
- 2 Select **Edit** → **Image Adjust**.
- 3 Select an adjustment option.
 - : Brightness
 - : Contrast
 - : Saturation
- 4 Select a value to adjust the selected item.
(-: less or +: more)

Adding noise to the photo

- 1 In Playback mode, select a photo, and then press **[MENU]**.
- 2 Select **Edit** → **Image Adjust** → **Add Noise**.

Creating a print order (DPOF)


Select photos to be printed and set options, such as the number of copies or paper size.



- You can take the memory card to a print shop that supports DPOF (Digital Print Order Format) or you can print photos directly through a DPOF-compatible printer at home.
- Wide photos may print with the left and right edges cut off, so be aware of the dimensions of your photos.
- You cannot set the DPOF for the photos stored in the internal memory.


- 1 In Playback mode, press [**MENU**].
- 2 Select **File Options** → **DPOF** → **Standard** → an option.

Option	Description
Select	Print the selected photos.
All	Print all photos.
Reset	Reset to the default settings.

- 3 If you select **Select**, scroll to a photo, and then rotate [**Zoom**] left or right to select the number of copies. Repeat for the photos you want to print, and then press [**Fn**].
 - If you select **All**, press [**DISP**] or [OK].

- 4 Press [**MENU**].
- 5 Select **File Options** → **DPOF** → **Size** → an option.

Option	Description
Select	Specify the print size for the selected photo.
All	Specify the print size for all photos.
Reset	Reset to the default settings.

- 6 If you select **Select**, scroll to a photo, and then rotate [**Zoom**] left or right to select the print size. Repeat for the photos you want to print, and then press [**Fn**].
 - If you select **All**, press [**DISP**] or [OK].

Printing photos as thumbnails

- 1 In Playback mode, press [**MENU**].
- 2 Select **File Options** → **DPOF** → **Index** → **Yes**.

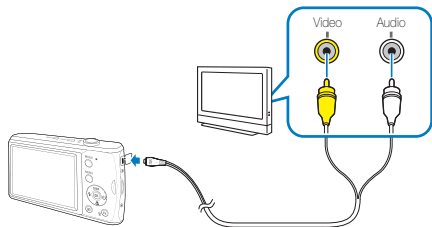


If you specify the print size, you can print photos only with DPOF 1.1-compatible printers.

Viewing files on a TV

Play back photos or videos by connecting your camera to a TV using the A/V cable.

- 1 In Shooting or Playback mode, press **[MENU]**.
- 2 Select **Settings** → **Video Out**.
- 3 Select a video signal output according to your country or region.
- 4 Turn off your camera and TV.
- 5 Connect your camera to your TV using the A/V cable.



- On some TVs, digital noise may occur or part of an image may not appear.
- Images may not appear centered on the TV screen depending on your TV settings.
- You can capture photos or videos while the camera is connected to a TV.

- 6 Turn on your TV, and then select the video output mode using the TV remote control.
- 7 Turn on your camera, and then press **[▶]**.
- 8 View photos or play videos using the buttons on your camera.

Transferring files to your Windows computer

Transfer files to your Windows PC using the built-in Intelli-studio program. You can also edit files or upload files to your favorite websites.

Requirements for Intelli-studio

Item	Requirements
CPU	Intel Pentium 4, 3.0 GHz or higher/ AMD Athlon™ FX 2.2 GHz or higher
RAM	Minimum 512 MB RAM (1 GB and above recommended)
OS	Windows XP SP2/Vista/7
Hard disk capacity	250 MB or more (1 GB or more recommended)
Others	<ul style="list-style-type: none">• CD-ROM drive• nVIDIA Geforce 7600GT or higher/ATI X1600 series or higher• 1024 x 768 pixels, 16-bit color display compatible monitor (1280 x 1024 pixels, 32-bit color display recommended)• USB port, Microsoft DirectX 9.0c or later

* The programs may not work properly on 64-bit Edition of Windows XP, Vista and 7.



- Intelli-studio may not perform correctly on some computers, even when the computer meets the requirements.
- If your computer does not meet the requirements, videos may not play correctly or it may take longer to edit videos.
- Install DirectX 9.0c or above before you use the program.
- Your computer must have Windows XP/Vista/7 or Mac OS 10.4 or later for you to connect the camera to the computer as a removable disk.



Using a self-assembled PC or a PC and OS that are not supported may void your warranty.

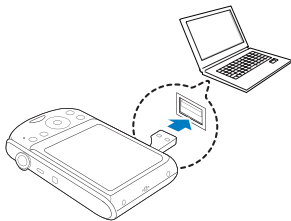
Transferring files using Intelli-studio

When connecting your camera to your computer using the built-in USB plug, the S/W (Intelli-studio) for your PC starts to run automatically.



While your camera is connected to your computer, the battery charges.

- 1 In Shooting or Playback mode, press **[MENU]**.
- 2 Select **Settings** → **PC Software** → **On**.
- 3 Turn off the camera.
- 4 Connect your camera to your computer using the built-in USB plug.



- 5 Turn on the camera.
- 6 Select **Settings** → **USB** → **Computer**.



If you set the USB option to **Select Mode**, select **Computer** from the pop-up window.

- 7 Select a folder on your computer to save new files to.
 - If your camera has no new files, the pop-up window for saving new files will not appear.
- 8 Select **Yes**.
 - New files are transferred to the computer.



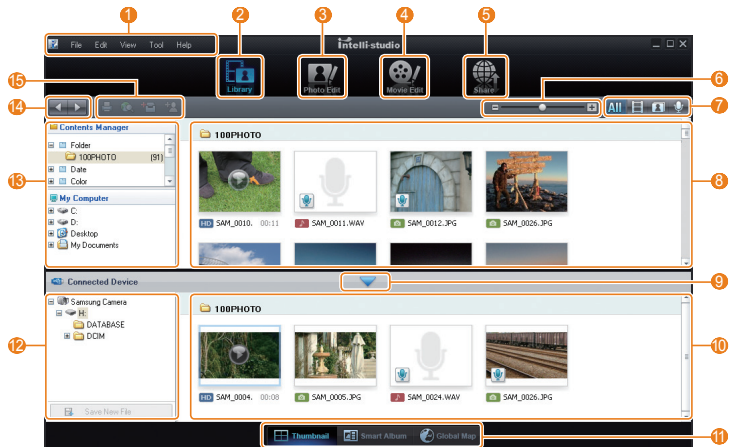
For Windows Vista, select **Run iStudio.exe** from the AutoPlay window.

Using Intelli-studio

Intelli-studio is a built-in program that allows you to play back and edit files. You can also upload files to websites, such as Flickr or YouTube. For details, select **Help** → **Help** in the program.



- If you install Intelli-studio on your computer, the program launches more quickly. To install the program, select **Tool** → **Install Intelli-studio on PC**.
- You cannot edit files directly on the camera. Transfer files to a folder on your computer before editing.
- You cannot copy files in your computer to the camera.
- Intelli-studio supports the following formats:
 - Videos: MP4 (Video: H.264, Audio: AAC), WMV (WMV 7/8/9), AVI (MJPEG)
 - Photos: JPG, GIF, BMP, PNG, TIFF

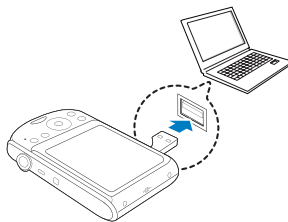


Icon	Description
1	Open menus
2	Display files in the selected folder
3	Change to the Photo edit mode
4	Change to the Video edit mode
5	Change to the Sharing mode (You can send files by email or upload files to websites, such as Flickr or YouTube.)
6	Enlarge or reduce the thumbnails in the list
7	Select a file type
8	View files of the selected folder on your computer
9	Show or hide files of the connected camera
10	View files of the selected folder on the camera
11	View files as thumbnails, in Smart Album, or on a map
12	Browse folders in the connected device
13	Browse folders in your computer
14	Move to the previous or next folder
15	Print files, view files on a map, store files in My Folder, or register faces

Transferring files by connecting the camera as a removable disk

You can connect the camera to your computer as a removable disk.

- 1 In Shooting or Playback mode, press [**MENU**].
- 2 Select **Settings** → **PC Software** → **Off**.
- 3 Turn off the camera.
- 4 Connect your camera to your computer using the built-in USB plug.



- It is recommended that you use a USB extension cable, which is an optional component, depending on the USB connection environment.
- When connecting your camera to your computer, your camera cannot be charged at low temperatures (below 0 °C) or at high temperatures (above 40 °C).

5 Turn on the camera.

6 Select **Settings** → **USB** → **Computer**.




If you set the USB option to **Select Mode**, select **Computer** from the pop-up window.

7 On your computer, select **My Computer** → **Removable Disk** → **DCIM** → **100PHOTO**.

8 Select the files you want and drag or save them to your computer.

Disconnecting the camera (for Windows XP)

The way to disconnect the built-in USB plug for Windows Vista/7 is similar.

- 1 If the status lamp on your camera is blinking, wait until it stops.
- 2 Click  on the tool bar at the bottom right of your PC screen.



- 3 Click the pop-up message.
- 4 Disconnect the built-in USB plug.



The camera may not be removed safely when Intelli-studio is running. End the program before disconnecting the camera.

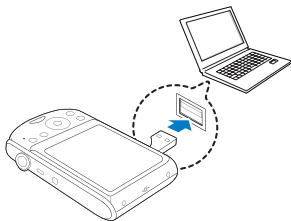
Transferring files to your Mac computer

When you connect the camera to a Macintosh computer, the computer recognizes the camera automatically. You can transfer files directly from the camera to the computer without installing any programs.



Mac OS 10.4 or later is supported.

- 1 Connect your camera to a Macintosh computer using the built-in USB plug.



It is recommended that you use a USB extension cable, which is an optional component, depending on the USB connection environment.

- 2 Turn on the camera.
 - The computer recognizes the camera automatically and displays a removable disk icon.



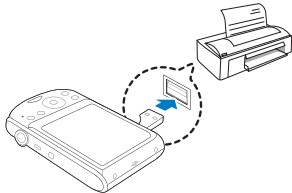
If you set the USB option to **Select Mode**, select **Computer** from the pop-up window.

- 3 Double-click the removable disk icon.
- 4 Transfer photos or videos to the computer.

Printing photos with a PictBridge photo printer

Print photos with a PictBridge-compatible printer by connecting your camera directly to the printer.

- 1 In Shooting mode, press [**MENU**].
- 2 Select **Settings** → **USB**.
- 3 Select **Printer**.
- 4 Connect your camera to your printer using the built-in USB plug while your printer is on.

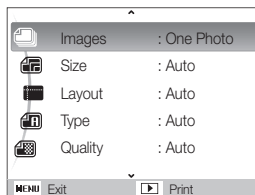










- 5 Turn on your camera.
 - The printer recognizes the camera automatically.
- 6 Press [**⚡**] or [**☺**] to select a photo.
 - Press [**MENU**] to set printing options. See "Configuring print settings."
- 7 Press [**OK**] to print.
 - Printing starts. Press [**⚡**] to cancel printing.



It is recommended that you use a USB extension cable, which is an optional component, depending on the USB connection environment.

Configuring print settings



Option	Description
	Images: Select whether to print the current photo or all photos.
	Size: Specify the size of the print.
	Layout: Create thumbnail prints.
	Type: Select the type of paper.
	Quality: Set the printing quality.
	Date: Set to print the date.
	File Name: Set to print the name of the file.
	Reset: Reset the print options.



Some options are not supported by some printers.

Appendixes

Refer to settings, error messages, specifications, and maintenance tips.

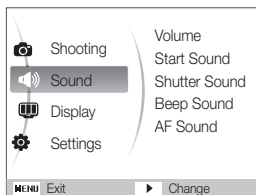
Camera settings menu	75
Accessing the settings menu	75
Sound	76
Display	76
Settings	77
Error messages	80
Camera maintenance	81
Cleaning your camera	81
About memory cards	82
About the battery	83
Before contacting a service center	86
Camera specifications	89
FCC notice	94
Index	95




Camera settings menu

Learn about various options to configure your camera's settings.

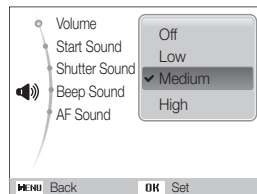
Accessing the settings menu

- 1 In Shooting or Playback mode, press **[MENU]**.
- 2 Select a menu.



Menu	Description
	Sound: Set various camera sounds and the volume. (p. 76)
	Display: Customize the display settings, such as start image and brightness. (p. 76)
	Settings: Change the settings for the camera system, such as memory format, default file name, and USB mode. (p. 77)

- 3 Select an option and save your settings.



- 4 Press **[MENU]** to return to the previous screen.



Sound

* Default


Item	Description
Volume	Adjust the volume of any sound. (Off , Low , Medium* , High)
Start Sound	Select the sound the camera emits when you turn it on. (Off* , 1 , 2 , 3)
Shutter Sound	Select the sound the camera emits when you press the shutter button. (Off , 1* , 2 , 3)
Beep Sound	Select the sound the camera emits when you press buttons or switch modes. (Off , 1* , 2 , 3)
AF Sound	Select the sound the camera emits when you half-press the shutter button. (Off , On*)

Display

* Default


Item	Description
Function Description	Display a brief description of an option or menu. (Off , On*)
Start Image	<p>Set a start image to display when the camera turns on.</p> <ul style="list-style-type: none"> • Off*: Display no start image. • Logo: Display a default image stored in the internal memory. • User Image: Display the image you want. (p. 62) <p> • The camera saves only one start image in the internal memory at a time.</p> <p>• If you select a new photo as a start image or reset your camera, the camera deletes the current image.</p>
Display Brightness	<p>Adjust the brightness of the screen. (Auto*, Dark, Normal, Bright)</p> <p> Normal is fixed in Playback mode even if you have selected Auto.</p>
Quick View	<p>Set the duration for reviewing a captured image before returning to the Shooting mode. (Off, 0.5 sec*, 1 sec, 3 sec)</p>

* Default


Item	Description
Power Save	<p>If you perform no operations for 30 seconds, the camera automatically switches to Power save mode (press any button to deactivate the Power save mode). (Off*, On)</p> <p> If the Power save mode is deactivated, the main display will dim to save battery life when you perform no operations for about 30 seconds.</p>

Settings



* Default

Item	Description
Format	<p>Format the internal memory and the memory card. Format deletes all files, including protected files. (Yes, No)</p> <p> If you use a memory card used with cameras from different manufacturers or a memory card reader, or one formatted on a computer, your camera may read the card incorrectly. Format the card before using it.</p>
Reset	<p>Reset menus and shooting options. Date and time, language, and video output settings are not reset. (Yes, No)</p>
Language	Select a language for the display text.
Time Zone	Select a region and set the daylight-saving time (DST).
Date/Time Set	Set the date and time.
Date Type	<p>Select a date format. (Off*, dd/mm/yyyy, mm/dd/yyyy, yyyy/mm/dd)</p>

* Default

Item	Description
File No.	<p>Specify how to name files.</p> <ul style="list-style-type: none"> • Reset: Set the file number to start from 0001 when inserting a new memory card, formatting a memory card, or deleting all files. • Series*: Set the file number to follow the previous file number when inserting a new memory card, formatting a memory card, or deleting all files. <p> • The default name of the first folder is 100PHOTO and the default name of the first file is SAM_0001.</p> <ul style="list-style-type: none"> • The file number increases one at a time from SAM_0001 to SAM_9999. • The folder number increases one at a time from 100PHOTO to 999PHOTO. • The maximum number of files that can be stored in one folder is 9999. • The camera defines file names according to the Digital rule for Camera File system (DCF) standard. If you change the names of files intentionally, the camera may not play back the files.

* Default

Item	Description
Imprint	<p>Select whether to display the date and time on your photos when printing. (Off*, Date, Date & Time)</p> <p> • The date and time is displayed on the bottom-right corner of the photo in yellow.</p> <ul style="list-style-type: none"> • Some printer models may not print the date and time.
Auto Power Off	<p>Set the camera to turn off automatically when you are not using it. (Off, 1 min, 3 min*, 5 min, 10 min)</p> <p> • Your settings will not change after replacing the battery.</p> <ul style="list-style-type: none"> • The camera will not automatically turn off when: <ul style="list-style-type: none"> - it is connected to a computer or printer - you are playing a slide show or videos - you are recording a voice memo
AF Lamp	<p>Turn on an assistant light to help you focus in dark places. (Off, On*)</p>
Video Out	<p>Set the video signal output according to your region.</p> <ul style="list-style-type: none"> • NTSC*: USA, Canada, Japan, Korea, Taiwan, Mexico. • PAL (supports only BDGHI): Australia, Austria, Belgium, China, Denmark, Finland, Germany, England, Italy, Kuwait, Malaysia, New Zealand, Singapore, Spain, Sweden, Switzerland, Thailand, Norway.

* Default

Item	Description
USB	<p>Set the function to use via a USB connection with a computer or printer.</p> <ul style="list-style-type: none"> • Computer*: Connect your camera to a computer for transferring files. • Printer: Connect your camera to a printer for printing files. • Select Mode: Select a USB mode when you connect your camera to another device.
PC Software	<p>Set Intelli-studio to start automatically when you connect your camera to your computer. (Off, On*)</p>

Error messages

When the following error messages appear, try these remedies.

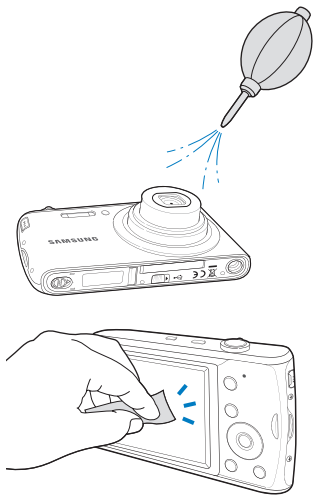
Error message	Suggested remedies
Card Error	<ul style="list-style-type: none">• Turn off your camera, and then turn it on again.• Remove your memory card, and insert it again.• Format your memory card. (p. 77)
Card not supported.	The inserted memory card is not compatible with your camera. Insert a microSD™ memory card.
DCF Full Error	File names do not match the DCF standard. Transfer the files on the memory card to your computer, and then format the card. (p. 77)
File Error	Delete the damaged file or contact a Samsung service center.
Low Battery	Insert a charged battery or recharge the battery.
Memory Full	Delete unnecessary files or insert a new memory card.
No Image File	Take photos or insert a memory card that has some photos.

Camera maintenance

Cleaning your camera

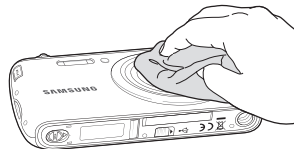
Camera lens and display

Use a blower brush to remove dust, and then wipe the lens gently with a soft cloth. If any dust remains, apply lens cleaning liquid to a piece of lens cleaning paper, and then wipe gently.



Camera body

Wipe gently with a soft, dry cloth.



- Never use benzene, thinners, or alcohol to clean the device. These solutions can damage the camera or cause it to malfunction.
- Do not press on the lens cover or use a blower brush on the lens cover.



About memory cards

Memory cards you can use

You can use microSD™ (Secure Digital) memory cards.

Memory card capacity

The memory capacity may differ depending on the scenes you shoot or the shooting conditions. These capacities are based on a 1 GB microSD™ card:

	Size	Super Fine	Fine	Normal	30 FPS	15 FPS
P h o t o s	12m	168	238	362	-	-
		195	267	407	-	-
		229	305	477	-	-
	8m	244	326	515	-	-
	5m	362	489	699	-	-
	3m	543	674	752	-	-
* V i d e o s	1m	978	1,086	1,221	-	-
	640	-	-	-	Approx. 13' 35"	Approx. 26' 50"
	320	-	-	-	Approx. 32' 57"	Approx. 65' 16"

* The recordable time may vary if you use the zoom.

Several videos were recorded in succession to determine the total recording time.

About the battery

Use only Samsung-approved batteries.


Battery specifications

(Charging time by connecting to a PC)

Model	BP70A
Type	Lithium-ion battery
Cell capacity	740 mAh
Voltage	3.7 V
Charging time (when the camera is switched off)	Approx. 150 min

* When charging the battery by connecting the USB extension cable to your PC, may take longer than charging by connecting the built-in USB plug to your PC.

Battery life

Shooting time / Number of photos		Shooting conditions (when the battery was fully charged)
Photos	Approx. 100 min/ Approx. 200	<p>The battery life was measured under the following conditions: in the  mode, 12M resolution, and Fine quality.</p> <p>Test Procedure:</p> <ol style="list-style-type: none"> 1. Set the flash option to Off, take a single shot, and zoom in or out. 2. Set the flash option to Fill in, take a single shot, and zoom in or out. 3. Perform steps 1 and 2 for 30 seconds and repeat for 5 minutes. Then turn off the camera for 1 minute. 4. Repeat steps 1 to 3.
Videos	Approx. 90 min	Record videos at 640 X 480 resolution and 30 fps.

- The figures above are based on Samsung's standards. Your results may differ depending on your actual usage.
- Several videos were recorded in succession to determine the total recording time.

Notes about charging the battery

- Turn off your camera when charging.
- Do not use your camera when charging. Turn off the camera before charging the battery.
- Do not pull the power supply's cord to disconnect its plug from the power outlet. This may cause a fire or electric shock.
- You can turn on your camera after charging the battery for more than 10 minutes.
- The camera battery cannot be charged at low temperatures (below 0 °C) or at high temperatures (above 40 °C).
- Do not impact your camera while charging or transferring data using the built-in USB plug.

Notes about charging by connecting to a computer

- Make sure to use the built-in USB plug, otherwise the battery will not charge.
- The battery may not charge if:
 - you use a USB hub
 - other USB devices are connected to your computer
 - you connect the cable to the port on the front side of your computer
 - the USB port of your computer does not support the power output standard (5 V, 500 mA)



Personal injury or death can occur if the battery is handled carelessly or improperly. For your safety, follow these instructions for proper battery handling:

- The battery can ignite or explode if not handled properly. If you notice any deformities, cracks, or other abnormalities in the battery, immediately discontinue use of the battery and contact your manufacturer.
- Use only authentic, manufacturer-recommend battery chargers and adapters and charge the battery only by the method described in this user manual.
- Do not place the battery near heating devices or expose to excessively warm environments, such as the inside of an enclosed car in the summertime.
- Do not place the battery in a microwave oven.
- Avoid storing or using the battery in hot, humid places, such as spas or shower enclosures.
- Do not rest the device on flammable surfaces, such as bedding, carpets, or electric blankets for a prolonged period.
- When the device is switched on, do not leave it in any confined space for a prolonged period.
- Do not allow battery terminals to come in contact with metallic objects, such as necklaces, coins, keys, or watches.
- Use only authentic, manufacturer-recommended, Lithium-ion replacement batteries.

- Do not disassemble or puncture the battery with any sharp object.
- Avoid exposing the battery to high pressure or crushing forces.
- Avoid exposing the battery to major impacts, such as dropping it from high places.
- Do not expose the battery to temperatures of 60 °C (140° F) or above.
- Do not allow the battery to come in contact with moisture or liquids.
- Do not expose the battery to direct sunlight, fire, or any other source of excessive heat.

Disposal guidelines

- Dispose of the battery with care.
- Do not dispose of the battery in a fire.
- Disposal regulations may differ by country or region. Dispose of the battery in accordance with all local and federal regulations.

Guidelines for charging the battery

Charge the battery only by the method described in this user manual. The battery can ignite or explode if not charged properly.






Precautions when using USB

- Only connect the camera to an authentic computer or a manufacturer-recommended charger via USB. Do not connect forcibly if the connecting part does not fit. Doing so may cause breakage.
- Do not touch the USB cable or the cable connection area with wet hands. Doing so may cause electric shock.
- If the USB cable generates heat, noise or odor while sending data or charging the camera, disconnect it immediately since it may cause fire or injury. Contact a Samsung Service Center.
- Do not modify the USB cable arbitrarily. Doing so may cause fire or electric shock.
- Do not place any heavy objects on the USB cable. Doing so may cut the USB cable or cause poor contact.

Before contacting a service center

If you are having trouble with your camera, try these troubleshooting procedures before contacting a service center. If you have attempted the troubleshooting solution and are still having problems with your device, contact your local dealer or service center.

Situation	Suggested remedies
Cannot turn on the camera	<ul style="list-style-type: none"> • Make sure that the battery is inserted. • Make sure that the battery is inserted correctly. • Charge the battery.
The power turns off suddenly	<ul style="list-style-type: none"> • Charge the battery. • Your camera may be in Power save mode. (p. 78) • The camera may turn off to prevent the memory card from being damaged due to an impact. Turn on your camera again.
The camera is losing battery power quickly	<ul style="list-style-type: none"> • The battery may lose power more quickly in low temperatures (below 0° C). Keep the battery warm by putting it into your pocket. • Using the flash or recording videos depletes the battery quickly. Recharge if needed. • Batteries are consumable parts that must be replaced over time. Get a new battery if the battery life is diminishing quickly.

Situation	Suggested remedies
Cannot take photos	<ul style="list-style-type: none"> • There is no space on the memory card. Delete unnecessary files or insert a new card. • Format the memory card. (p. 77) • The memory card is defective. Get a new memory card. • Make sure that the camera is switched on. • Charge the battery. • Make sure that the battery is inserted correctly.
The camera freezes	Remove the battery and insert it again.
The flash does not work	<ul style="list-style-type: none"> • The flash option may be set to Off. (p. 39) • You cannot use the flash in the , , or some  modes.
The flash fires unexpectedly	The flash may fire due to static electricity. This is not a malfunction.
The date and time are incorrect	Set the date and time in the display settings menu. (p. 77)

Situation	Suggested remedies
The display or buttons do not work	Remove the battery and insert it again.
The camera screen works poorly	If you use your camera at low temperatures, it can cause the camera screen to malfunction or discolor. For better performance of your camera screen, use your camera at normal temperatures.
The memory card has an error	The memory card has not been reset. Format the card. (p. 77)
Cannot play back files	If you change the name of a file, your camera may not play the file. (Note: File names should meet the DCF standard.) If you encounter this situation, play back the files on your computer.
The photo is blurry	<ul style="list-style-type: none"> • Make sure that the focus option you set is suitable for close-up shots. (p. 41) • Make sure that the lens is clean. If not, clean the lens. (p. 81) • Make sure that the subject is within range of the flash. (p. 89)
The colors in the photo do not match the actual scene	An incorrect white balance can create unrealistic color. Select the proper white balance option to suit the light source. (p. 48)

Situation	Suggested remedies
The photo is too bright	<ul style="list-style-type: none"> • Turn off the flash. (p. 39) • Your photo is overexposed. Adjust the exposure value. (p. 47)
The photo is too dark	Your photo is underexposed. <ul style="list-style-type: none"> • Turn on the flash. (p. 39) • Adjust the ISO speed. (p. 40) • Adjust the exposure value. (p. 47)
The TV does not display your photos	<ul style="list-style-type: none"> • Make sure that the camera is correctly connected to the TV with the A/V cable. • Make sure that your memory card contains photos.
Your computer does not recognize your camera	<ul style="list-style-type: none"> • Make sure that the built-in USB plug is connected correctly. • Make sure that your camera is switched on. • Make sure that you are using a supported operating system. (p. 67,72)
Your computer disconnects the camera while transferring files	The file transmission may be interrupted by static electricity. Disconnect the built-in USB plug and connect it again.

Situation	Suggested remedies
<p>Your computer cannot play videos</p>	<ul style="list-style-type: none"> • Depending on the video player programs installed on your PC, video files captured by your camera may not play. To ensure the video files play on your computer, install and use the Intelli-studio. (p. 67) • Make sure that the built-in USB plug is connected correctly.
<p>Intelli-studio is not functioning properly</p>	<ul style="list-style-type: none"> • End Intelli-studio and restart the program. • You cannot use Intelli-studio on Macintosh computers. • Make sure that the PC Software is set to On in the settings menu. (p. 79) • Depending on your computer's specification and environments, the program may not launch automatically. In this case, click Start → My Computer → Intelli-studio → iStudio.exe on your computer.

Camera specifications

Image sensor													
Type	1/2.3" (Approx. 7.81 mm) CCD												
Effective pixels	Approx. 12.2 mega-pixels												
Total pixels	Approx. 12.4 mega-pixels												
Lens													
Focal length	Samsung 4X Zoom Lens f = 5.0 - 20.2 mm (35 mm film equivalent: 28 - 112 mm)												
F-stop range	F2.8 (W) - F6.3 (T)												
Digital zoom	<ul style="list-style-type: none"> • Still image mode: 1.0X - 5.0X • Play mode: 1.0X - 12.5X (depending on image size) 												
Display													
Type	TFT LCD												
Feature	2.7" (6.9 cm), 230 K												
Focusing													
Type	TTL auto focus (Multi AF, Center AF, Tracking AF, Face Detection AF)												
Range	<table border="1"> <thead> <tr> <th></th> <th>Wide (W)</th> <th>Tele (T)</th> </tr> </thead> <tbody> <tr> <td>Normal</td> <td>80 cm - infinity</td> <td>100 cm - infinity</td> </tr> <tr> <td>Macro</td> <td>12 cm - 80 cm</td> <td>70 cm - 100 cm</td> </tr> <tr> <td>Auto Macro</td> <td>12 cm - infinity</td> <td>70 cm - infinity</td> </tr> </tbody> </table>		Wide (W)	Tele (T)	Normal	80 cm - infinity	100 cm - infinity	Macro	12 cm - 80 cm	70 cm - 100 cm	Auto Macro	12 cm - infinity	70 cm - infinity
		Wide (W)	Tele (T)										
	Normal	80 cm - infinity	100 cm - infinity										
	Macro	12 cm - 80 cm	70 cm - 100 cm										
Auto Macro	12 cm - infinity	70 cm - infinity											

Shutter speed

- Smart Auto: 1/8 - 1/2,000 sec.
- Program: 1 - 1/2,000 sec.
- Night: 8 - 1/2,000 sec.
- Fireworks: 2 sec.

Exposure

Control	Program AE
Metering	Multi, Spot, Center-weighted, Face Detection AE
Compensation	±2EV (1/3EV steps)
ISO equivalent	Auto, 80, 100, 200, 400, 800, 1600, 3200 (Up to 3M Size)

Flash

Mode	Off, Auto, Red-eye, Fill in, Slow Sync, Red-eye Fix
Range	<ul style="list-style-type: none"> • WIDE: 0.4 m - 3.3 m • TELE: 1.0 m - 1.8 m
Recharging time	Approx. 4 sec. (depending on battery condition)

Shake reduction

Digital Image Stabilization (DIS)

Effect	
Shooting mode	<ul style="list-style-type: none"> Photo Style Selector: Normal, Soft, Vivid, Forest, Retro, Cool, Calm, Classic, Negative, Custom RGB Image Adjust: Sharpness, Contrast, Saturation
White Balance	
Auto WB, Daylight, Cloudy, Fluorescent_H, Fluorescent_L, Tungsten, Custom Set	
Date Imprinting	
Date & Time, Date, Off	
Shooting	
Photos	<ul style="list-style-type: none"> Modes: Smart Auto (White, Macro Color, Portrait, Night Portrait, Backlight Portrait, Macro Portrait, Backlight, Landscape, Action, Tripod, Night, Macro, Macro Text, Blue Sky, Sunset, Natural Green), Program, DIS, Scene (Beauty Shot, Frame Guide, Night, Portrait, Children, Landscape, Close Up, Text, Sunset, Dawn, Backlight, Fireworks, Beach & Snow) Drive: Single, Continuous, Motion Capture, AEB Timer: 10 Sec, 2 Sec, Double, Motion Timer








Videos	<ul style="list-style-type: none"> Modes: Smart Movie, Movie * Smart Movie: Landscape, Blue Sky, Natural Green, Sunset Format: MJPEG (Max recording time: 2 hours) Size: 640X480, 320X240 Frame Rate: 30 FPS, 15 FPS Voice: Off, On (sound is muted when operating the zoom function) Video editing (embedded): Image Stabilization, Pause during recording, Still image capture, Time trimming
Playback	
Type	Single image, Thumbnails, Multi slide show, Movie clip, Smart Album
Edit	* Smart Album category: Type, Date, Color, Week
Effect	<ul style="list-style-type: none"> Resize, Rotate, Photo Style Selector, Image Adjust Photo Style Selector: Normal, Soft, Vivid, Forest, Retro, Cool, Calm, Classic, Negative, Custom RGB Image Adjust: ACB, Red-eye Fix, Face Retouch, Brightness, Contrast, Saturation, Add Noise

Voice recording

- Voice Recording (Max 10 hours)
- Voice Memo in a photo (Max. 10 sec.)

Storage

Media	<ul style="list-style-type: none"> • Internal memory: Approx. 50 MB • External memory (Optional): <ul style="list-style-type: none"> - microSD™ card (up to 2 GB guaranteed) - microSDHC™ card (up to 8 GB guaranteed) <p>Internal memory capacity may not match these specifications.</p>
File format	<ul style="list-style-type: none"> • Photo: JPEG (DCF), EXIF 2.21, DPOF 1.1, PictBridge 1.0 • Video: AVI (MJPEG) • Audio: WAV

		For 1GB microSDTM			
		Super Fine	Fine	Normal	
Image size	 12m	4000 X 3000	168	238	362
	 10m	3984 X 2656	195	267	407
	 9m	3968 X 2232	229	305	477
	 8m	3264 X 2448	244	326	515
	 5m	2592 X 1944	362	489	699
	 3m	2048 X 1536	543	674	752
	 1m	1024 X 768	978	1,086	1,221
<p>These figures are measured under Samsung's standard conditions and may vary depending on shooting conditions and camera settings.</p>					
Interface					
Digital output connector	USB 2.0				
Audio output	Mono (Internal speaker), Mono (Microphone)				
Video output	NTSC, PAL (selectable)				
DC power input connector	4.2 V				

Camera specifications

Power source

Rechargeable
battery

Lithium-ion battery (BP70A, 740 mAh)

The power source may differ depending on your region.

Dimensions (W x H x D)

97.8 × 57 × 17.9 mm (excluding protrusions)

Weight

122 g (without battery and memory card)

Operating temperature

0 - 40° C

Operating humidity

5 - 85 %

Software

Intelli-studio

Special Feature

Built-in USB plug

Specifications are subject to change without prior notice.



Correct Disposal of This Product (Waste Electrical & Electronic Equipment)

 (Applicable in the European Union and other European countries with separate collection systems)

This marking on the product, accessories or literature indicates that the product and its electronic accessories (e.g. charger, headset, USB cable) should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources. Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling. Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.



Correct disposal of batteries in this product

(Applicable in the European Union and other European countries with separate battery return systems)

This marking on the battery, manual or packaging indicates that the batteries in this product should not be disposed of with other household waste at the end of their working life. Where marked, the chemical symbols Hg, Cd or Pb indicate that the battery contains mercury, cadmium or lead above the reference levels in EC Directive 2006/66. If batteries are not properly disposed of, these substances can cause harm to human health or the environment.

To protect natural resources and to promote material reuse, please separate batteries from other types of waste and recycle them through your local, free battery return system.

This Class [B] digital apparatus complies with Canadian ICES-003.



PlanetFirst represents Samsung Electronics' commitment to the sustainable development and social responsibility through eco-driven business and management activities.

- **NOTE:**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorientate, or relocate, the receiving antenna.
- Increase the distance between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

- **CAUTION:**

Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

- **Declaration of Conformity**

Trade Name	: Samsung Electronics America, Inc.
Model No.	: Samsung PL90
Responsible Party	: Samsung Electronics America, Inc.
Address	: 105 Challenger Road Ridgefield Park NJ
Telephone No.	: 1-800-SAMSUNG (726-7864)

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Index

A

ACB

- in Playback mode 64
- in Shooting mode 47

Adjusting

- Brightness 64
- Contrast
 - in Playback mode 64
 - in Shooting mode 52
- Saturation
 - in Playback mode 64
 - in Shooting mode 52
- Sharpness 52

AF Lamp 78

AF Sound 76

Aperture 30

Auto Contrast Balance (ACB) 47

B

Battery

- Charging 84
- Life 83
- Specifications 83

Beauty Shot mode 29

Blink detection 46

Burst

- Auto Exposure Bracket (AEB)
50
- Continuous 50
- Motion capture 50

C

Camera shake 24

Capturing an image from a video 60

Cleaning

- Body 81
- Display 81
- Lens 81

D

Date/Time Set 77

Date Type 77

Deleting files 57

Digital Image Stabilization 31

Digital zoom 23

Disconnecting the device 71

DIS mode 31

Display brightness 76

Display type 21

DPOF 65

E

Editing 62

Enlarging 58

Error messages 80

Exposure 47

F

Face detection

- Blink Detection 46
- Normal 44
- Self-Portrait 45
- Smile Shot 45

Facial brightness 29

Facial imperfections 29

Flash

- Auto 40
- Fill in 40
- Off 39
- Red-eye 40
- Red-eye Fix 40
- Slow Sync 40

Focus area

- Center AF 43
- Multi AF 43
- Tracking AF 43

Focus distance

- Auto Macro 41
- Macro 41
- Normal (AF) 41

Format 77

Frame guide 30

Frame rate 32

Function button 14

Function description 76

H

Half-pressing 6

I

Icons 18

Image adjust

- ACB 64
- add noise 64
- brightness 64
- contrast 64
- face retouch 64
- red-eye fix 64
- saturation 64

Imprint 78

Intelli-studio 69

ISO speed 40

L

Light source (White balance)
48

Long time shutter 30

M

Macro 41

Maintenance 81

Memory card

- Capacity 82
- microSD 82

MENU button 14

Metering

- Center-weighted 48
- Multi 48
- Spot 48

MJPEG (Motion JPEG) 90

Mode button 14

Motion Timer 38

Movie mode 32

Muting

- Camera 17
- Video 33

N

Navigation button 14

Night mode 30

P

Photo quality 36

Photo styles

- in Playback mode 63
- in Shooting mode 51

Playback button 17

Playback mode 54

Printing photos 73

Print order 65

Program mode 32

Protecting files 56

Q

Quick View 76

R

Recording

Video 32

Voice memo 34

Red-eye

- in Playback mode 64
- in Shooting mode 39

Reset 77

Resizing 62

Resolution

- Photo 36
- Video 36

RGB tone

- in Playback mode 63
- in Shooting mode 51

Rotating 62

S

Scene mode 28

Self-Portrait 45

Service center 86

Settings

- Accessing 75

Camera 77
Display 76
Sound 76

Shooting mode

DIS 31
Movie 32
Program 32
Scene 28
Smart Auto 27

Shutter speed 30

Slide show 58

Smart Album 55

Smart Auto mode 27

Smart button 13

Smile shot 45

Stabilizer 33

Start image 62, 76

T

Timer 37

Tracking focus 42

Transferring files

for Mac 72
for Windows 67

V

Video

Playing 59
Recording 32

Video Out 78

Viewing files

as thumbnails 56
by category 55
on TV 66
Slide show 58

Voice memo

Playing 60
Recording 34

Volume 76

W

White Balance 48

Z

Zoom button 13

Zooming 23



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