# User Manual

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

ENG

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# 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**

**Do not disassemble or attempt to repair your camera.**

This may result in electric shock or damage to the camera.

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

This may cause a fire or explosion.

**Do not insert flammable materials into the camera or store these materials near the camera.**

This may cause a fire or electric shock.

**Do not handle your camera with wet hands.**

This may result in electric shock.

**Prevent damage to subjects' eyesight.**

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

**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.

**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 covering the camera with blankets or clothes.**

The camera may overheat, which may distort the camera or cause a fire.

**If liquid or foreign objects enter your camera, immediately disconnect all power sources, such as the battery, and then contact a Samsung service center.**

## Comply with any regulations that restrict the use of a camera in a certain area.

• Avoid interference with other electronic devices.

• Turn off the camera when in an aircraft. Your camera can cause interference with aircraft equipment. Follow all airline regulations and turn off your camera when directed by airline personnel.

• Turn off the camera near medical equipment. Your camera can interfere with medical equipment in hospitals or health care facilities. Follow all regulations, posted warnings, and directions from medical personnel.

## Avoid interference with pacemakers.

Maintain a minimum of 15 cm between this camera and all pacemakers to avoid potential interference, as recommended by the manufacturer and the independent research group, Wireless Technology Research. If you have any reason to suspect that your camera is interfering with a pacemaker or other medical device, turn off the camera immediately and contact the manufacturer of the pacemaker or medical device for guidance.

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

## 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.

## Use only authentic, manufacturer-recommended, Lithium-ion replacement batteries. Do not damage or heat the battery.

Inauthentic, damaged, or heated batteries may cause a fire or personal injury.

## Use only Samsung-approved batteries, chargers, cables and accessories.

• Using unauthorized batteries, chargers, cables or accessories can cause batteries to explode, damage your camera, or cause injury.

• Samsung is not responsible for damage or injuries caused by unapproved batteries, chargers, cables or accessories.

## Use the battery only for its intended purpose.

Misusing the battery may cause a fire or electric shock.

### Do not touch the flash while it fires.

The flash is very hot when fired and may burn your skin.

### Do not use a damaged power supply cord, plug, or loose outlet when you charge batteries.

This may cause a fire or electric shock.

### Do not force the camera's parts or apply pressure to the camera.

This may cause your camera to malfunction.

### Exercise caution when you connect cables and install batteries and memory cards.

If you force the connectors, improperly connect cables, or improperly install batteries and memory cards, you can damage ports, connectors, and accessories.

### Keep cards with magnetic strips away from the camera case.

Information stored on the card may be damaged or erased.

### Never use a damaged battery, or memory card.

This may result in electric shock or camera malfunction or cause a fire.

### 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.

### You must plug the small end of the USB cable into your camera.

If the cable is reversed, it may damage your files. The manufacturer is not responsible for any loss of data.

### 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.

### If the camera overheats, remove the battery and allow it to cool down.

• Prolonged usage of the camera may overheat the battery and raise the internal temperature of the camera. If the camera stops operating, remove the battery and allow it to cool down.

• High internal temperatures may result in noise in your photos. This is normal and does not affect your camera's overall performance.

## Avoid interference with other electronic devices.

Your camera emits radio frequency (RF) signals that may interfere with unshielded or improperly shielded electronic equipment, such as pacemakers, hearing aids, medical devices, and other electronic devices in homes or vehicles. Consult the manufacturers of your electronic devices to solve any interference problems you experience. To prevent unwanted interference, use only Samsung-approved devices or accessories.

## Use your camera in the normal position.

Avoid contact with your camera's internal antenna.

### Data transference and your responsibilities

- Data transferred via WLAN could be leaked, so avoid transferring sensitive data in public areas or on open networks.
- The camera manufacturer is not liable for any data transfers that infringe on copyrights, trademarks, intellectual property laws, or public decency ordinances.

*5*

# Indications used in this manual

## 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 📷1 → **Quality** (represents select 📷1, and then **Quality**). The number next to the icon may vary depending on the shooting mode. That is, some options may be located under 📷2 or 📷3. |
| * | Annotation |

## Shooting mode indications

| Shooting mode | Indication |
|---|---|
| Smart Auto | **SMART** |
| Program | **P** |
| Aperture Priority | **A** |
| Shutter Priority | **S** |
| Manual | **M** |
| Custom | **C** |
| Lens Priority | ⓘ |
| Wi-Fi | **Wi-Fi** |
| Scene | **SCN** |
| Movie | 🎥 |

# Contents

Contents

## Chapter 3
# Playback/Editing

*9*

Chapter 4
# Wireless network

*10*

Contents

*12*

# Concepts in Photography

## Shooting postures

A correct posture for stabilizing the camera is necessary for taking a good photo. Even if you hold a camera correctly, the wrong posture can cause the camera to shake. Stand up straight and remain still to maintain a steady base for your camera. When shooting with a low shutter speed, hold your breath to minimize body movement.

### Holding the camera

Hold the camera with your right hand and place you right index finger on the shutter button. Place your left hand under the lens for support.
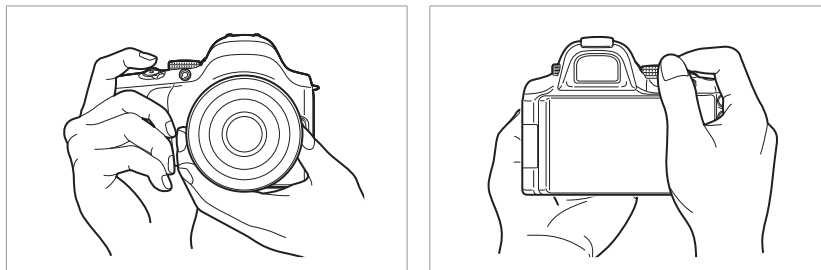


### Standing photography

Compose your shot; stand up straight with your feet shoulder-length apart, and keep your elbows pointed down.
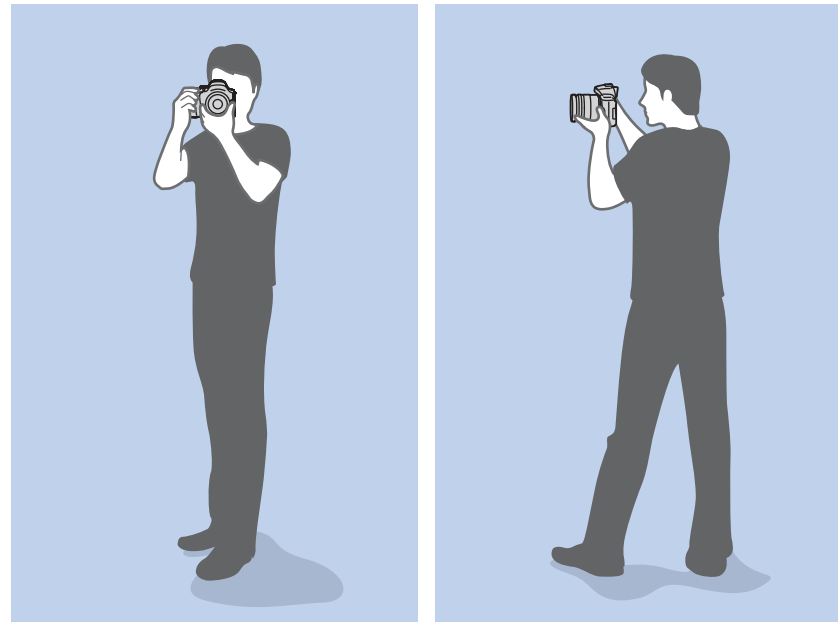
## Crouching photography

Compose your shot, crouch with one knee touching the ground, and keep a straight posture.
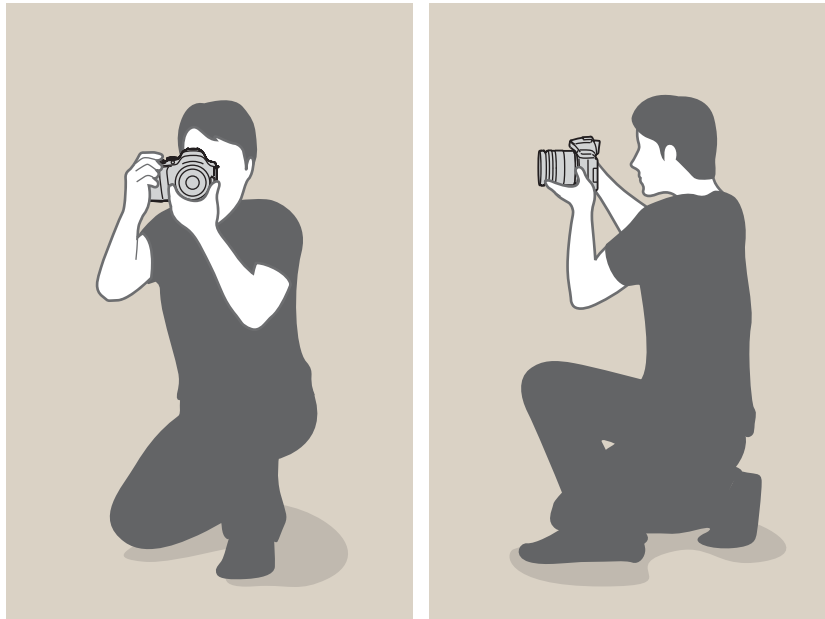


## Using the display

Swing the display outwards 180° and rotate it up or down for high- and low-angle photos or self portraits. You can rotate the display a maximum of 90° downward or 180° upward.
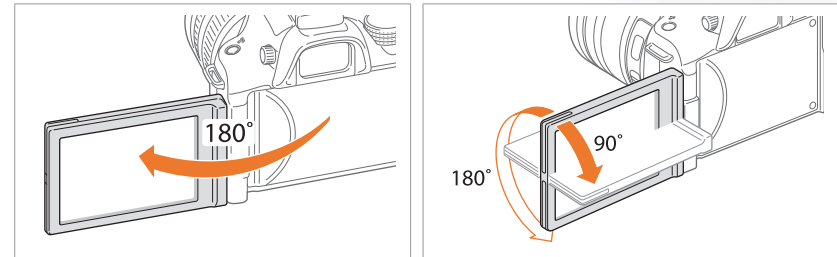


- Fold the display when not in use.
- Rotate the display only within the angle allowed.

*14*

## Low-angle shot

A low-angle shot is a shot from a camera positioned below the eyeline, looking up the subject.
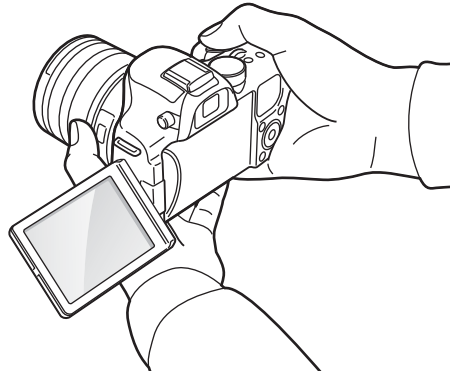
## High-angle shot

A high-angle shot is a shot from a camera positioned above the eyeline, looking down on the subject.
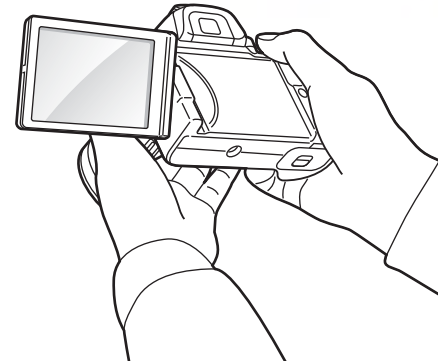
# Aperture

The aperture, a hole that controls the amount of light that enters the camera, is one of the three factors that determine the exposure. The aperture housing contains thin, metal plates that open and close to let light through the aperture and into the camera. The size of the aperture is closely related to the brightness of a photo: the larger the aperture, the brighter the photo; the smaller the aperture, the darker the photo.

**Aperture sizes**



Minimum aperture     Medium aperture     Maximum aperture
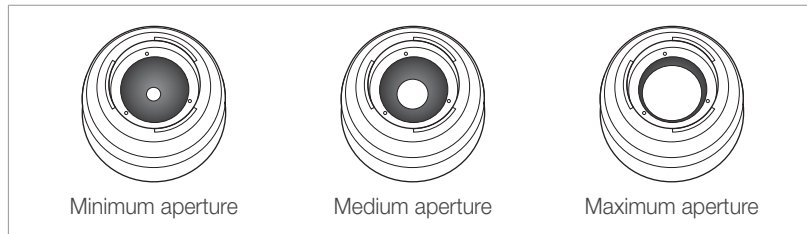


Darker photo
(aperture opened slightly)



Brighter photo
(aperture opened wide)

The size of the aperture is represented by a value known as an "F-number." The f-number represents the focal length divided by the diameter of the lens. For example, if a lens with a 50 mm focal length has an f-number of F2, the diameter of the aperture is 25 mm. (50 mm/25 mm=F2) The smaller the f-number, the greater the size of the aperture.

The opening in the aperture is described as the Exposure Value (EV). Increasing the Exposure Value (+1 EV) means the amount of light doubles. Decreasing the Exposure Value (-1 EV) means the amount of light halves. You can also use the exposure compensation feature to fine-tune the amount of light by subdividing exposure values into 1/2, 1/3 EV, and so on.



+1 EV     -1 EV

F1.4    F2    F2.8    F4    F5.6    F8

**Exposure Value Steps**
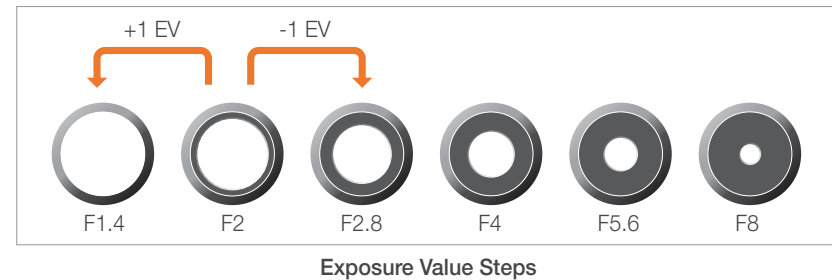
## Aperture value and the depth of field

You can blur or sharpen the background of a photo by controlling the aperture. It is closely related to the depth of field (DOF), which can be expressed as small or large.

A photo with a large DOF

A photo with a small DOF

The aperture housing contains several blades. These blades move together and control the amount of light passing through the center of the aperture. The number of blades also affects the shape of light when shooting night scenes. If an aperture has an even number of blades, light divides into an equal number of sections. If the number of blades is odd, the number of sections is double the number of blades.

For example, an aperture with 8 blades divides light into 8 sections and an aperture with 7 blades into 14 sections.

7 blades

8 blades

# Shutter speed

Shutter speed refers to the amount of time it takes to open and close the shutter, and it is an important factor in the brightness of a photo, as it controls the amount of light which passes through the aperture before it reaches the image sensor.

Usually, the shutter speed is manually adjustable. The measurement of the shutter speed is known as the "Exposure Value" (EV), which is marked in intervals of 1 s, 1/2 s, 1/4 s, 1/8 s, 1/15 s, 1/1000 s, 1/2000 s, and so on.



Exposure

+1 EV

-1 EV

1s    1/2 s    1/4 s    1/8 s    1/15 s    1/30 s
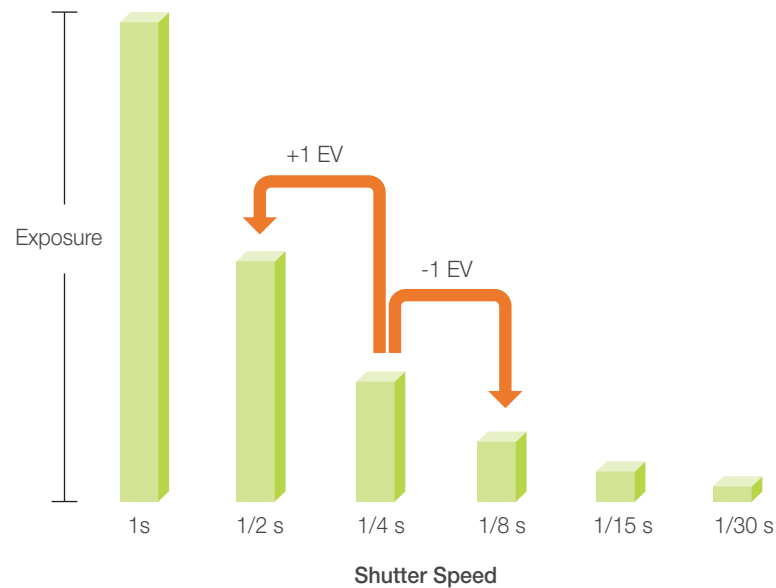
**Shutter Speed**

Therefore, the faster the shutter speed, the less light will be let in. Likewise, the slower the shutter speed, the more light will be let in.

As the photos below illustrate, a slow shutter speed allows more time to let light in, so the photo becomes brighter. On the other hand, a fast shutter speed allows less time to let light in and the photo becomes darker and more easily freezes subjects in motion.
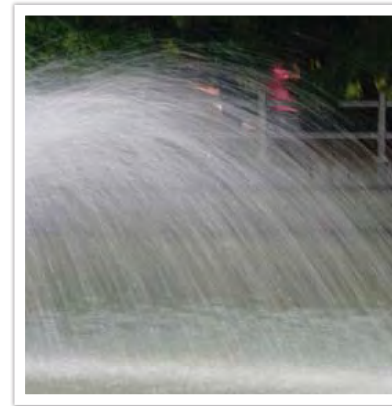


0.8 s
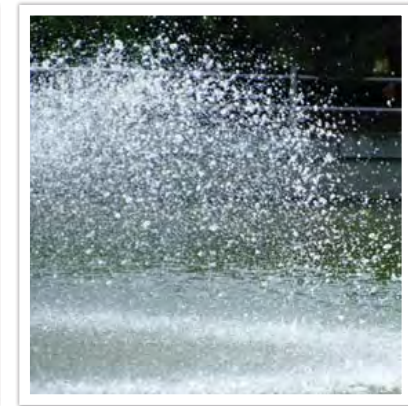


0.004 s

# ISO sensitivity

The exposure of an image is determined by the sensitivity of the camera. This sensitivity is based on international film standards, known as ISO standards. On digital cameras, this sensitivity rating is used to represent the sensitivity of the digital mechanism that captures the image.

ISO sensitivity doubles as the number doubles. For example, an ISO 200 setting is capable of capturing images at twice the speed of an ISO 100 setting. However, higher ISO settings can result in "noise"— small specks, spots, and other phenomena in a photo that give the shot a noisy or dirty appearance. As a general rule, it is best to use a low ISO setting to prevent noise in your photos, unless you are shooting in darkened environments or at night.



Changes in the quality and brightness according to ISO sensitivity

Because a low ISO sensitivity means the camera will be less sensitive to light, you need more light to have an optimal exposure. When using a low ISO sensitivity, open the aperture more or reduce the shutter speed to allow more light to enter the camera. For example, on a sunny day when light is abundant, a low ISO sensitivity does not require a low shutter speed. However, in a dark place or at night, a low ISO sensitivity and a fast shutter speed will result in a blurry photo.



A photo captured with a tripod and high sensitivity
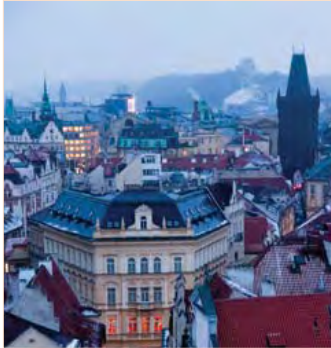
A blurred photo with a low ISO sensitivity

# How the aperture setting, shutter speed, and ISO sensitivity control exposure

The aperture setting, shutter speed, and ISO sensitivity are closely interconnected in photography. The aperture setting controls the opening that regulates the light that enters the camera, while the shutter speed determines the length of time that light is allowed to enter. ISO sensitivity determines the speed at which the film reacts to light. Together, these three aspects are described as the triangle of exposure.

A change in shutter speed, aperture value, or ISO sensitivity can be offset by adjustments to the others to maintain the amount of light. The results, however, change according to the settings. For example, shutter speed is useful in expressing movement, aperture can control the depth of field, and ISO sensitivity can control the graininess of a photo.

| | Settings | Results |
|---|---|---|
| Shutter speed | Fast speed = less light Slow speed = more light |  Fast = still Slow = blurry |
| ISO sensitivity | High sensitivity = more sensitive to light Low sensitivity = less sensitive to light |  High = more grainy Low = less grainy |

| | Settings | Results |
|---|---|---|
| Aperture | Wide aperture = more light Narrow aperture = less light |  Wide = small depth of field Narrow = large depth of field |

# Correlation between focal length, angle, and perspective

Focal length, which is measured in millimeters, is the distance between the middle of the lens to its focal point. It affects the angle and perspective of captured images. A short focal length translates into a wide angle, which allows you to capture a wide shot. A long focal length translates into a narrow angle, which allows you to capture telephoto shots.

**Short focal length**



wide-angle lens

wide shot

wide angle

**Long focal length**



telephoto lens

telephoto shot
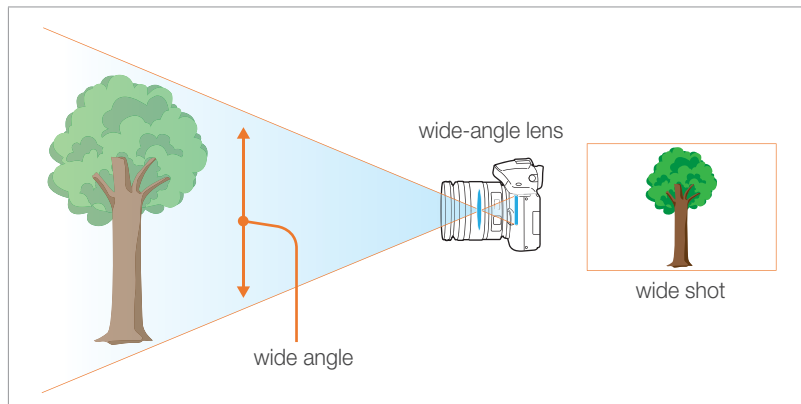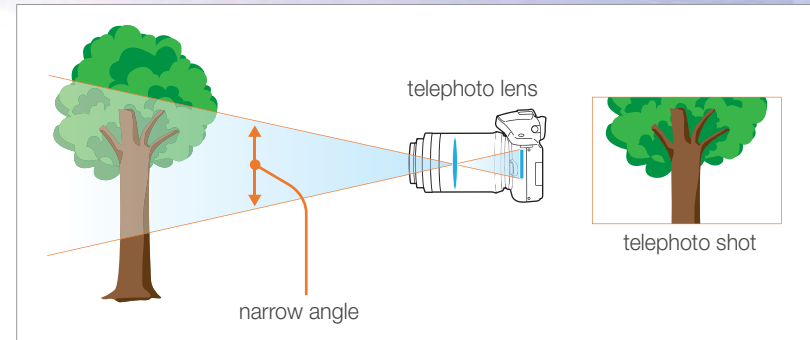
narrow angle

Look at these photos below and compare the changes.



18 mm angle   55 mm angle   200 mm angle
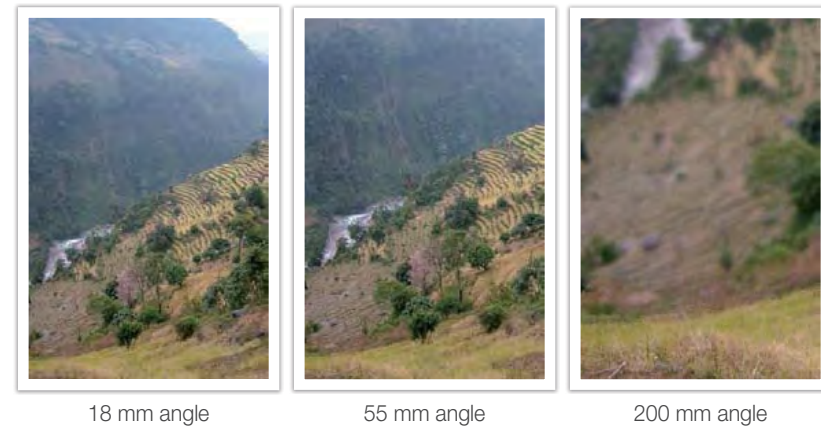
Normally, a lens with a wide angle is suitable for shooting landscapes and a lens with a narrow angle is recommended for shooting sports events or portraits.

21

# Depth of field

Portraits or still-life photos mostly acclaimed by people are the ones on which the background is out of focus so the subject looks pronounced. Depending on the focused areas, a photo can be blurred or sharpened. This is called 'a low DOF' or 'a high DOF'.

The depth of field is the focused area around the subject. Therefore, a small DOF signifies that the focused area is narrow and a large DOF means the focused area is wide.

A photo with a small DOF, which stresses the subject and makes the rest of it blurred, can be obtained by using a telescope lens or selecting a low aperture value. Conversely, a photo with a large DOF which shows all the elements on the photo sharply focused can be achieved by using a wide angle lens or selecting a high aperture value.
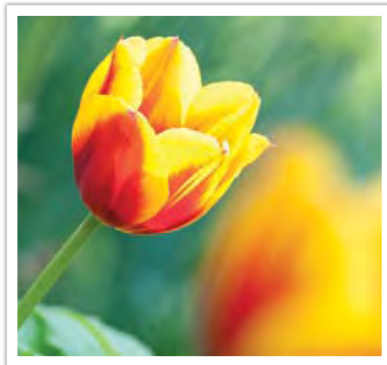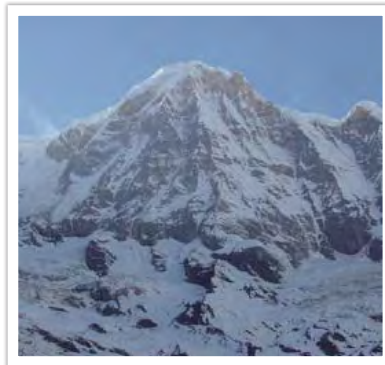


Small Depth of Field      Large Depth of Field

## What controls out-of-focus effects?

### DOF depends on aperture value

The wider the aperture is (namely the lower the aperture value), the lower the DOF becomes. Under the condition where the other values including shutter speed and ISO sensitivity are equal, a low aperture value leads to a photo with a low DOF.



55 mm F5.7      55 mm F22

22

## DOF depends on focal length

The longer the focal length is, the lower the DOF gets. A telescope lens with a longer focal length than a telescope lens with a short focal length is better to capture a photo of a low DOF.
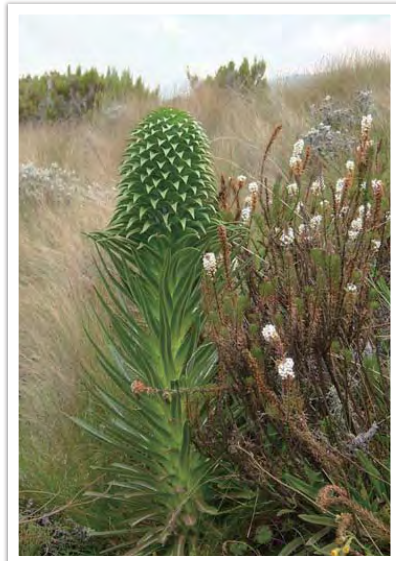


A photo captured with a 18 mm telescope lens



A photo captured with a 100 mm telescope lens

## DOF depends on the distance between the subject and the camera

The shorter the distance between the subject and the camera is, the lower the DOF gets. Therefore, taking a photo close to a subject can result in a photo of low DOF.
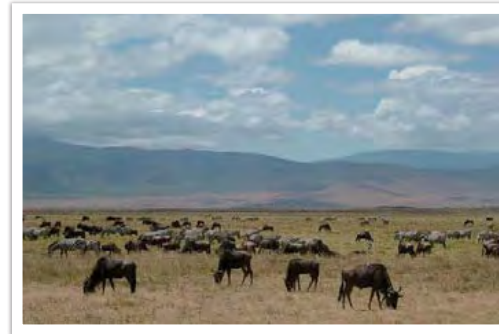


A photo captured with a 100 mm telescope lens



A photo captured close to the subject

## DOF preview

You can use the Depth preview button to get an idea of what your shot will look like before shooting. When you press the button, the camera adjusts the aperture to the predefined settings and shows the results on the screen. (p. 129)
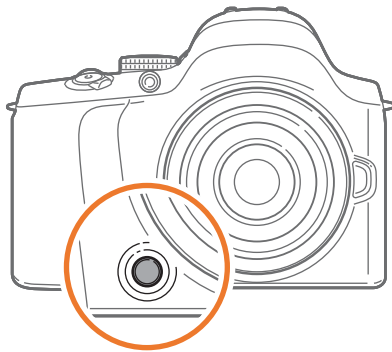


# Composition

It is fun to capture a photo of the beauty of world with a camera. No matter how the world is beautiful, however, a poor composition cannot capture the beauty of it.

When it comes to composition, it is very important to prioritize subjects.

Composition in photography means arranging objects in a photo. Usually, abiding by the rule of thirds leads to a good composition.

## Rule of Thirds

To use the rule of thirds, divide the image into a 3x3 pattern of equal rectangles.
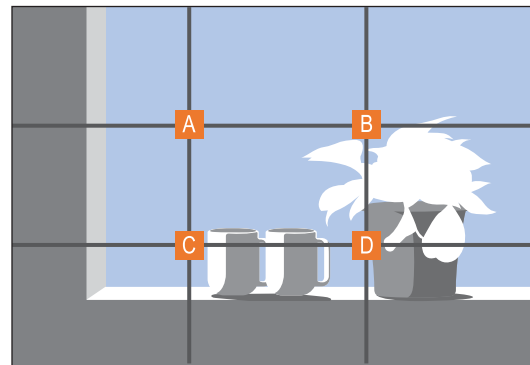


To compose photos that best emphasize the subject, make sure the subject is located at one of the corners of the center rectangle.

Using the rule of thirds will create photos with stable and compelling compositions. Below are a few examples.
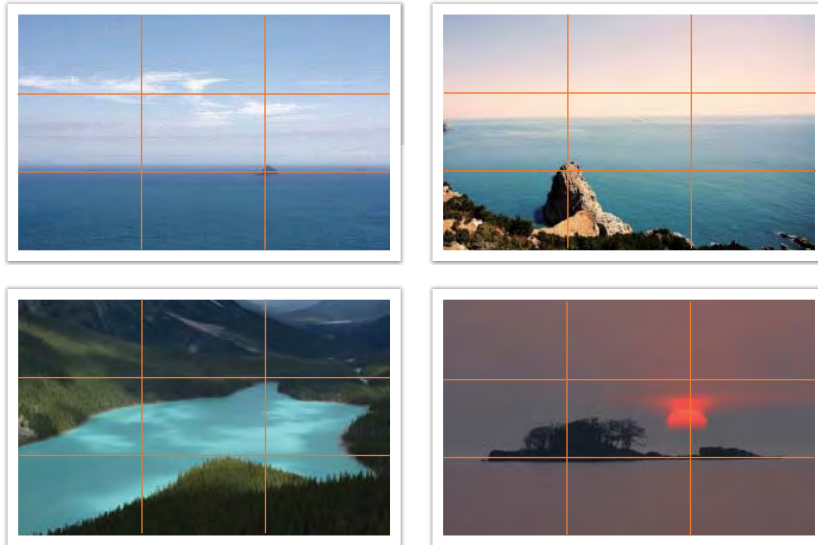


## Photos with two subjects

If your subject is in one corner of the photo, it creates an unbalanced composition. You can stabilize the photo by capturing a second subject in the opposite corner to balance the weight of the photo.



Unstable                               Stable

When taking landscape photos, centering the horizon will create an unbalanced effect. Give more weight to the photo by moving the horizon up or down.



Unstable                               Stable

25

# Flash

Light is one of the most important components in photography. It's not easy, however, to have an enough amount of light anytime and anywhere. Making use of a flash allows you to optimize light settings and create a variety of effects.

Flash, also known as strobe or speed light, helps to create adequate exposure in low-light conditions. It is also useful in light-abundant situations. For example, flash can be used in compensating the exposure of a subject's shadow or capturing clearly both the subject and the background in backlit conditions.



Before correction                    After correction

## Flash guide number

The model number of a flash refers to the flash's power, and the maximum amount of light created is represented by a value known as a "guide number." The bigger the guide number, the more light is emitted from the flash. The guide number is achieved by multiplying the distance from the flash to the subject and the aperture value when the ISO sensitivity is set to 100.

**Guide number = Flash to Subject Distance X Aperture value**

**Aperture value = Guide number / Flash to Subject Distance**

**Flash to Subject Distance = Guide number / Aperture value**

Therefore, if you know the guide number of a flash, you can estimate an optimum flash to subject distance when setting the flash manually. For example, if a flash has a guide number of GN 20 and is 4 meters away from the subject, the optimal aperture value is F5.0.

## Bounce Photography

Bounce photography refers to the method of photography which redirects the light from the subject to the ceiling or walls so that the light spreads evenly. Normally, photos captured with flash may appear unnatural and cast shadows. Subjects in photos captured with bounce photography cast no shadows and look smooth due to evenly spread light.

Chapter **1**

# My Camera

Learn about your camera's layout, display icons, basic functions, supplied lens,
and optional accessories.

# Getting started

## Unpacking

Check your product box for the following items.
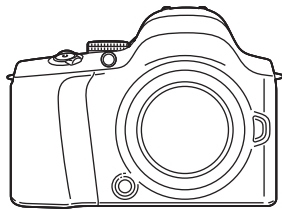
Camera
(including the body cap, eye-cup,
and hot-shoe cover)
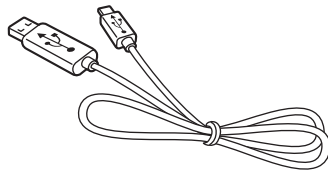
USB cable
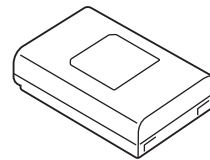
Rechargeable battery
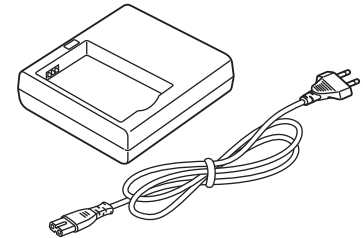
Battery cradle/AC power cable
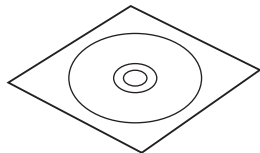
Software CD-ROM
(User manual included)
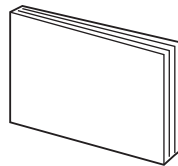
User manual Basic Operation
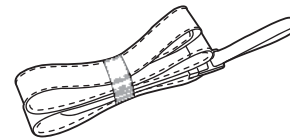
Strap

- The illustrations may differ from your actual items.
- You can purchase optional accessories at a retailer or a Samsung service center. Samsung is not responsible for any problems caused by using unauthorized accessories. For information about accessories, refer to page 177.

| No. | Name |
|---|---|
| 1 | **Jog dial** <br> • **In the Menu screen**: Move to a desired menu item. <br> • **In Shooting mode**: Adjust shutter speed or aperture value in some shooting modes and change the size of a focus area. <br> • **In Playback mode**: Enlarge or reduce a photo, view thumbnails, adjust the volume level. |
| 2 | **Mode dial** <br> • **SMART**: Smart Auto mode (p. 44) <br> • **P**: Program mode (p. 45) <br> • **A**: Aperture Priority mode (p. 46) <br> • **S**: Shutter Priority mode (p. 46) <br> • **M**: Manual mode (p. 47) <br> • **C**: Custom mode (p. 48) <br> • ⓘ: Lens Priority Mode (p. 50) <br> • **Wi-Fi**: Wi-Fi (p. 103) <br> • **SCN**: Scene mode (p. 53) <br> • 🎥: Movie mode (p. 56) |
| 3 | Microphone |

| No. | Name |
|---|---|
| 4 | Hot-shoe cover |
| 5 | Hot-shoe |
| 6 | Built-in flash (p. 79) |
| 7 | Flash pop-up button (p. 79) |
| 8 | Eyelet for camera strap |
| 9 | Image sensor |
| 10 | Speaker |
| 11 | Lens release button |
| 12 | Lens mount |
| 13 | Depth preview button (p. 129) |
| 14 | Lens mount index |
| 15 | AF-assist light/Timer lamp |
| 16 | Power switch |
| 17 | Shutter button |

| No. | Name |
|-----|------|
| 1 | Metering button (p. 81) |
| 2 | Green button<br>Reset the value of Program Shift, Picture Wizard, White Balance, Color Temperature, Display Brightness, Display Color, Timer, Flash EV, Selection AF (a repositioned focus area is moved back to the center). |
| 3 | Video recording button<br>Start recording a video. |
| 4 | EV adjust button (p. 88)<br>Press and hold the button, and then scroll the jog dial or rotate the navigation button to adjust the exposure value. |

| No. | Name |
|-----|------|
| 5 | AEL button (p. 129)<br>• **In Shooting mode**: Lock the adjusted exposure value or focus.<br>• **In Playback mode**: Protect the displayed file. |
| 6 | Fn button<br>Access major functions and fine-tune some settings. |
| 7 | OK button<br>• **In the Menu screen**: Save the selected options.<br>• **In Shooting mode**: Allow you to select a focus area manually in some shooting modes. |
| 8 | Delete/Custom button<br>• **In Shooting mode**: Perform the assigned function. (p. 129)<br>• **In Playback mode**: Delete files. |
| 9 | Navigation button (Smart dial)<br>• **In Shooting mode**<br>  - **DISP**: View camera settings and change options<br>  - **ISO**: Select an ISO value<br>  - 🖳: Select a drive option<br>  - **AF**: Select an AF mode<br>• **In other situations**<br>Move up, down, left, right, respectively. (You can also rotate the navigation wheel.) |

| No. | Name |
|-----|------|
| 10 | Playback button<br>Enter Playback mode. |
| 11 | Status lamp<br>Indicate the status of the camera.<br>• **Blinking**: When saving a photo, shooting a video, sending data to a computer or printer, or connecting to WLAN or sending a photo.<br>• **Steady**: When there is no data transfer or when data transfer to a computer or printer is complete. |
| 12 | MENU button<br>Access options or menus. |
| 13 | Viewfinder |
| 14 | Eye-cup |
| 15 | Diopter adjustment dial<br>If the image is not shown clearly through the viewfinder, scroll the diopter adjustment dial to improve the view. |

*31*
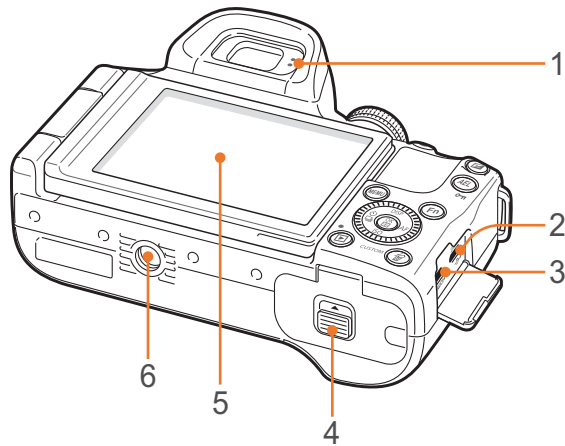
| No. | Name |
|---|---|
| 1 | Proximity sensor (p. 129) |
| 2 | USB, A/V, and shutter release port<br>Connect the camera to a computer, TV, or shutter release. Use a shutter release cable with a tripod to minimize camera movement. |
| 3 | HDMI port |
| 4 | Battery chamber/Memory card cover<br>Insert a memory card and battery. |
| 5 | Display<br>Swing the display outwards 180° and rotate it up or down for high- and low-angle photos or self portraits. (p. 14) |
| 6 | Tripod mount |

# Display icons

## In Shooting mode

### Capturing photos
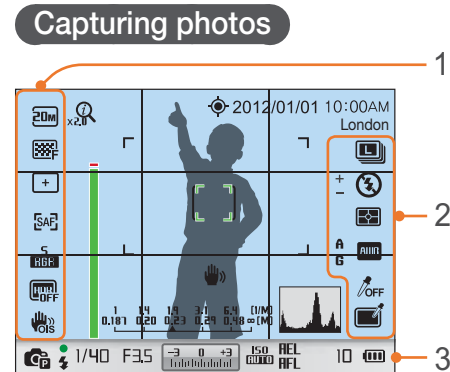


### 1. Shooting options (left)

| Icon | Description |
|---|---|
| 20M | Photo size |
| | Photo quality |
| + | Focus area |
| | Face detection |
| SAF | AF mode (p. 67) |
| S.RGB | Color space |
| OFF | Dynamic range (p. 84) |
| OIS | Optical Image Stabilization (OIS) (p. 73) |

### 2. Shooting options (right)

| Icon | Description |
|---|---|
| | Drive mode |
| | Flash option |

| Icon | Description |
|---|---|
| + − | Flash intensity |
| 3D | Panorama mode (p. 53) |
| | Metering (p. 81) |
| AWB | White Balance (p. 63) |
| A B G M | White Balance micro adjustment |
| | Face tone |
| | Face retouch |
| OFF | Picture Wizard (p. 66) |
| | Smart filter (p. 85) |
| | Selective color (p. 86) |

### 3. Shooting information

| Icon | Description |
|---|---|
| | ⓘ ZOOM on |
| x2.0 | ⓘ ZOOM ratio |
| | GPS activated* |
| 2012/01/01 | Date |
| 10:00AM | Time |
| London | Location information* |
| | Focus aid bar (p. 72) |
| | Auto focus frame |
| [ ] | Spot metering area |
| 1 1.4 1.9 3.1 6.4 (1/M) 0.18↑ 0.20 0.23 0.29 0.48 ∞(M) | Distance Scale (p. 130) |
| | Level gauge |

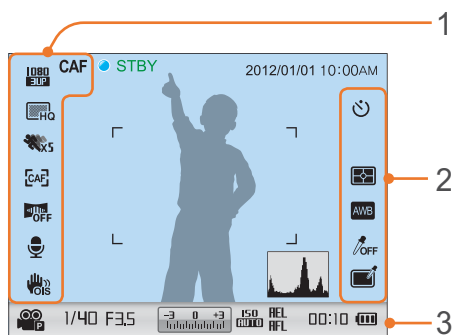| Icon | Description |
|---|---|
| | Camera shake |
| | Histogram (p. 130) |
| | Shooting mode |
| ● | Focus |
| ⚡ | Flash indicator |
| 1/40 | Shutter speed |
| F3.5 | Aperture value |
| −3 0 +3 | Exposure value |
| ISO AUTO | ISO sensitivity (p. 62) |
| AEL | Auto exposure Lock (p. 89) |
| AFL | Auto focus Lock (p. 89) |
| | Memory card not inserted** |
| 10 | Available number of photos |
| | • : Fully charged<br>• : Partially charged<br>• (Red): Empty (recharge the battery) |

\* These icons appear when you attach an optional GPS module.

\*\* Photos that were captured without inserting a memory card cannot be printed, or transferred to a memory card or a computer.

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

**Recording videos**



## 1. Shooting options (left)

| Icon | Description |
|---|---|
| CAF | Auto focus activated |
| 1080 30P | Video size |
| HQ | Video quality |
| X5 | Multi Motion |
| CAF | AF mode (p. 67) |
| OFF | Fader (p. 91) |
| | Voice recording on (p. 91) |
| OIS | Optical Image Stabilization (OIS) (p. 73) |

## 2. Shooting options (right)

| Icon | Description |
|---|---|
| | Timer |
| | Metering (p. 81) |
| AWB | White Balance (p. 63) |
| OFF | Picture Wizard (p. 66) |
| | Selective color (p. 86) |

## 3. Shooting information

| Icon | Description |
|---|---|
| 2012/01/01 | Date |
| 10:00AM | Time |
| | Histogram (p. 130) |
| P | Movie AE mode |
| 1/40 | Shutter speed |
| F3.5 | Aperture value |
| -3 0 +3 | Exposure value |
| ISO AUTO | ISO sensitivity |
| AEL | Auto exposure Lock (p. 89) |
| AFL | Auto focus Lock (p. 89) |
| | Memory card not inserted |
| 00:10 | Available recording time |
| | • : Fully charged • : Partially charged • (Red): Empty (recharge the battery) |

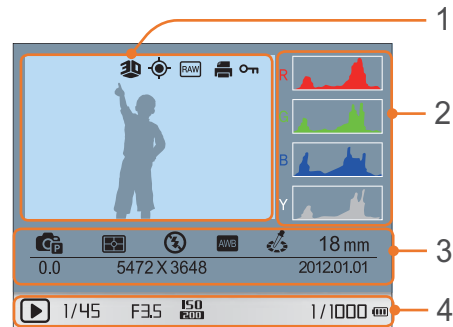The icons displayed will change according to the mode you select or the options you set.

*34*

## In Playback mode

**Viewing photos**
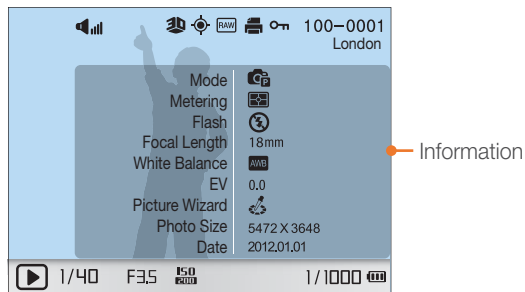


Information

| Icon | Description |
|------|-------------|
| 📶 | Volume |
| 📁 | Continuously captured file |
| 3D | 3D file |
| ⊕ | Location information |
| RAW | RAW file |
| 🖨 | Print information added to file (p. 142) |
| 🔒 | Protected file |
| 🔊 | Sound picture file (p. 55) |
| 100-0001 | Folder number - File number |
| London | Location information |
| 1/40 | Shutter speed |
| F3.5 | Aperture value |
| ISO 200 | ISO value |
| 1/1000 | Current file/The total number of files |



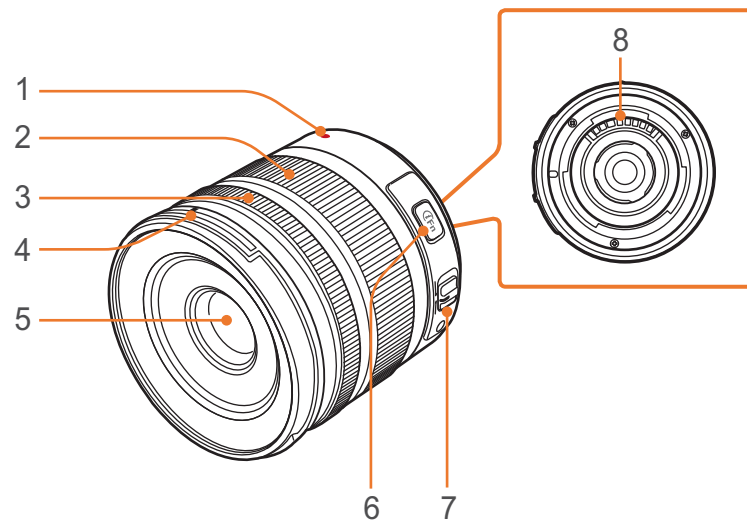| No. | Description |
|-----|-------------|
| 1 | Captured photo |
| 2 | RGB histogram (p. 130) |
| 3 | Shooting mode, Metering, Flash, White Balance, Picture Wizard, Focus range, Exposure value, Photo size, Date |
| 4 | Shutter speed, Aperture value, ISO value, Current file/The total number of files |

**Playing videos**
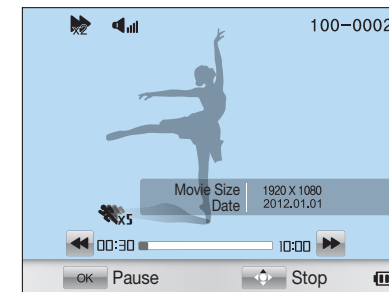


| Icon | Description |
|------|-------------|
| x2 | Playback speed |
| 📶 | Volume |
| 100-0002 | Folder number - File number |
| x5 | Multi Motion |
| 00:30 | Current playback time |
| 10:00 | Video length |

35

# Lenses

You can purchase optional lenses made exclusively for your NX series camera. Learn about the functions of each lens and select one that suits your needs and preferences.

## Lens layout

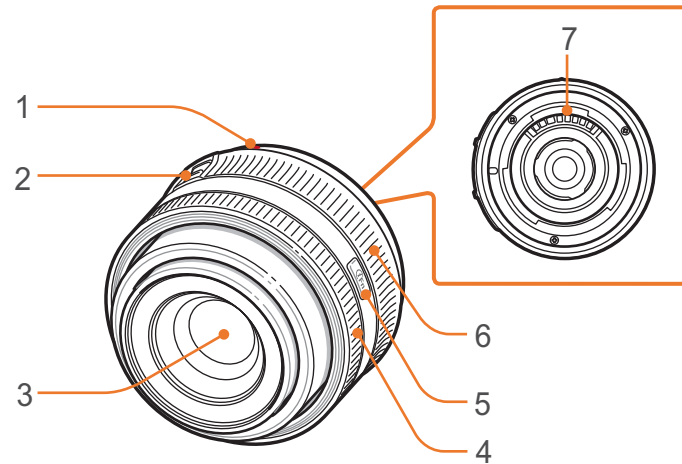**SAMSUNG 18-55 mm F3.5-5.6 OIS III lens (example)**



| No. | Description |
|-----|-------------|
| 1 | Lens mount index |
| 2 | Zoom ring |
| 3 | Focus ring (p. 72) |
| 4 | Lens hood mount index |
| 5 | Lens |
| 6 | i-Function button (p. 51) |
| 7 | AF/MF switch (p. 67) |
| 8 | Lens contacts |

When not using the lens, attach the lens cap and lens mount cover to protect the lens from dust and scratches.
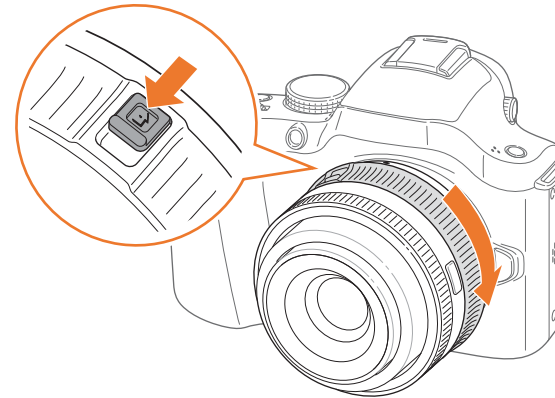
SAMSUNG 20-50 mm F3.5-5.6 ED lens (example)



| No. | Description |
| --- | --- |
| 1 | Lens mount index |
| 2 | Zoom lock switch |
| 3 | Lens |
| 4 | Focus ring (p. 72) |
| 5 | i-Function button (p. 51) |
| 6 | Zoom ring |
| 7 | Lens contacts |

### Locking or unlocking the lens

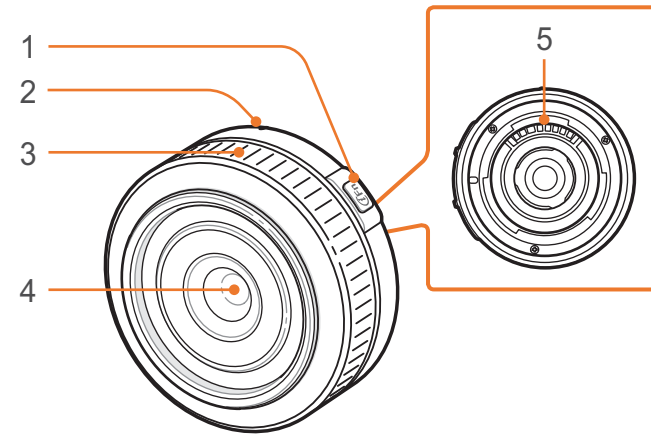To lock the lens, pull and hold the zoom lock switch away from the camera body and rotate the zoom ring clockwise.



*37*

To unlock the lens, rotate the zoom ring counter-clockwise until you hear the click.

**SAMSUNG 16 mm F2.4 lens (example)**
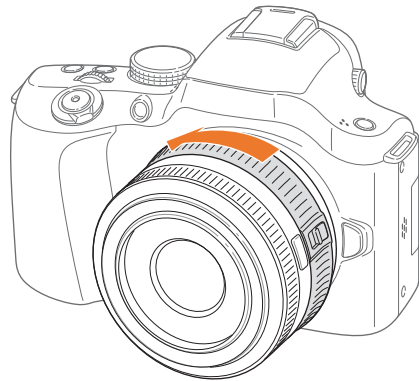


You cannot capture a photo when the lens is locked.

| No. | Description |
|-----|-------------|
| 1 | i-Function button (p. 51) |
| 2 | Lens mount index |
| 3 | Focus ring (p. 72) |
| 4 | Lens |
| 5 | Lens contacts |

# Lens markings

Find out what the numbers on the lens signify.

**SAMSUNG 18-200 mm F3.5-6.3 ED lens (example)**



| No. | Description |
|---|---|
| 1 | **Aperture value**<br>A range of supported aperture values. For example, 1:3.5-6.3 means the maximum aperture value range from 3.5 to 6.3. |
| 2 | **Focal length**<br>The distance from the middle of the lens to its focal point (in millimeters). This figure is expressed in a range: minimum focal length to maximum focal length of the lens.<br>Longer focal lengths result in narrower angles of view and the subject is magnified. Shorter focal lengths result in wider angles of view. |
| 3 | **ED**<br>ED stands for Extra-low Dispersion. Extra-low dispersion glass is effective in minimizing chromatic aberration (a distortion that occurs when a lens fails to focus all colors to the same convergence point). |
| 4 | **OIS (p. 73)**<br>Optical Image Stabilization. Lenses with this feature can detect camera shake and effectively cancel out the movement inside the camera. |
| 5 | **Ø**<br>The lens diameter. When you attach a filter to the lens, make sure that the diameters of the lens and the filter are the same. |

# Accessories

You can use accessories including external flash and GPS module that can help you capture better and more convenient photos.

For more information about optional accessories, refer to the manual for each accessory.

- The illustrations may differ from the actual items.
- You can purchase Samsung-approved accessories at a retailer or a Samsung service center. Samsung is not responsible for damage caused by using another manufacturer's accessories.
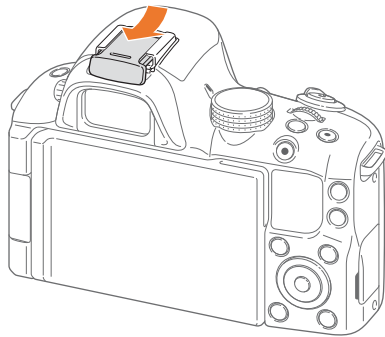
## External flash layout

**SEF220A (example) (optional)**
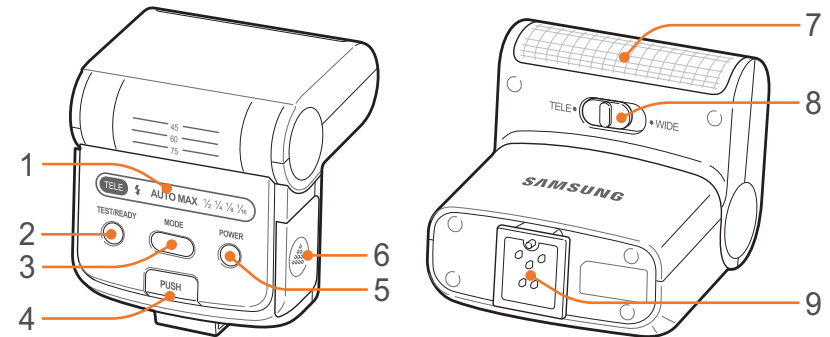


| No. | Description |
|-----|-------------|
| 1 | Display icons |
| 2 | READY lamp/Test button |
| 3 | Mode button |
| 4 | Flash release button |
| 5 | Power button |
| 6 | Battery cover |
| 7 | Bulb |
| 8 | TELE/WIDE mode switch |
| 9 | Hot-shoe connection |

## Connecting the flash

1 Remove the hot-shoe cover from the camera.



2 Connect the flash by sliding it into the hot-shoe.

- To release the flash, gently pull the flash while you press the **PUSH** button.
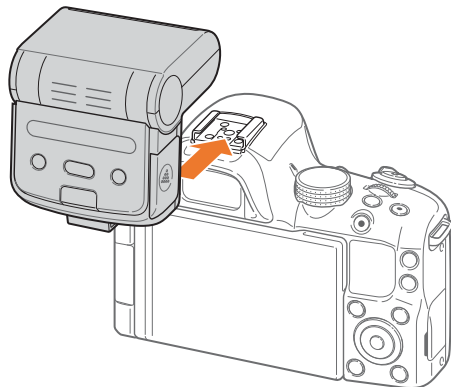


3 Press the power button on the flash.

- You can capture a photo with a flash that is not fully charged, but it is recommended to use a fully charged flash.
- Refer to the optional accessories page for available external flashes. (p. 177)
- The available options may differ depending on the shooting mode.
- There is an interval between two bursts of the flash. Do not move until the flash fires a second time.
- For more details about optional flashes, refer to the user manual for the flash.

Use only Samsung-approved flashes. Using incompatible flashes may damage your camera.
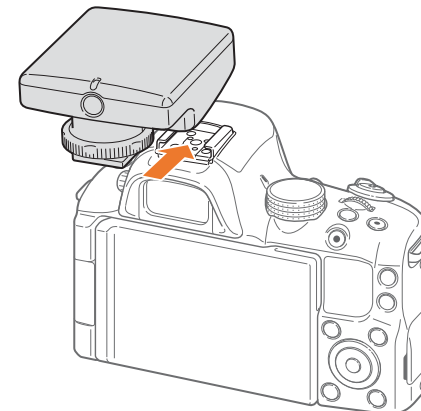
*41*

## GPS module layout (optional)
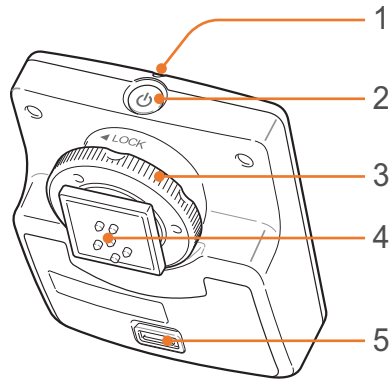


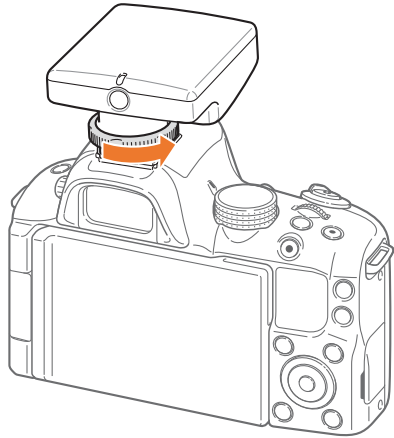| No. | Description |
|---|---|
| 1 | Status lamp |
| 2 | Power button |
| 3 | Hot-shoe fastening dial |
| 4 | Hot-shoe connection |
| 5 | Battery cover |

## Attaching the GPS module

1 Remove the hot-shoe cover from the camera.
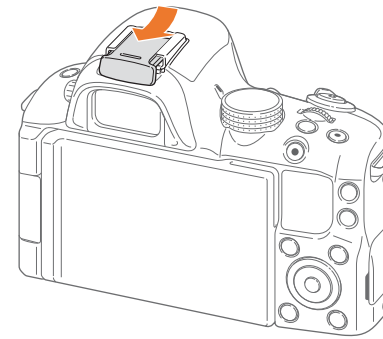


2 Mount the GPS module by sliding in into the hot-shoe.



*42*

3 Lock the GPS module into place by turning the hot-shoe fastening dial towards LOCK.

4 Press the power button of the GPS module.

# Shooting modes

Two simple shooting modes—Smart Auto and Scene mode—help you capture photos with numerous automatic settings. Additional modes allow for greater customization of settings.

| Icon | Description |
|------|-------------|
| SMART | Smart Auto mode (p. 44) |
| P | Program mode (p. 45) |
| A | Aperture Priority mode (p. 46) |
| S | Shutter Priority mode (p. 46) |
| M | Manual mode (p. 47) |
| C | Custom mode (p. 48) |
| ⓘ | Lens Priority Mode (p. 50) |
| Wi-Fi | Wi-Fi (p. 103) |
| SCN | Scene mode (p. 53) |
| 🎥 | Movie mode (p. 56) |

## SMART Smart Auto mode

In Smart Auto mode, the camera recognizes surrounding conditions and automatically adjusts factors that contribute to exposure, including shutter speed, aperture value, metering, White Balance, and exposure compensation. As the camera controls most of the functions, some shooting functions are limited. This mode is useful for capturing quick snapshots with the least amount of adjustment.

The camera may detect different scenes, even the same subjects, depending on external factors such as camera shake, lighting, and distance to the subject.

44

## **P** Program mode

The camera automatically adjusts shutter speed and aperture value so that an optimal exposure value can be achieved.

This mode is useful when you want to capture shots of constant exposure while being able to adjust other settings.
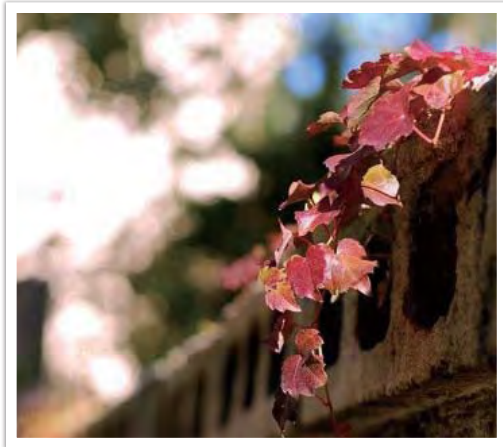


### Program Shift

Program Shift function lets you adjust the shutter speed and aperture value while the camera maintains the same exposure. When you scroll the jog dial to the left or rotate the navigation button counter-clockwise, the shutter speed decreases and the aperture value increases. When you scroll the jog dial to the right or rotate the navigation button clockwise, the shutter speed increases and the aperture value decreases.
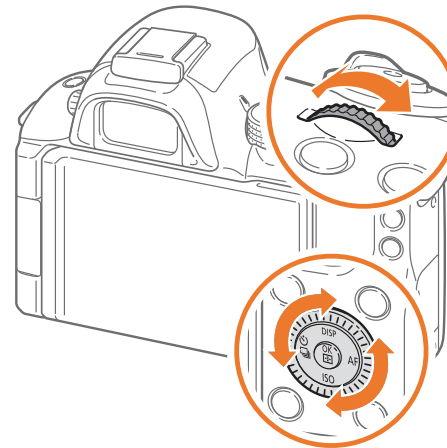
## **A** Aperture Priority mode

In Aperture Priority mode, the camera automatically calculates shutter speed according to the aperture value you choose. You can adjust the depth of field (DOF) by changing the aperture value. This mode is useful for taking portraits and landscape shots.
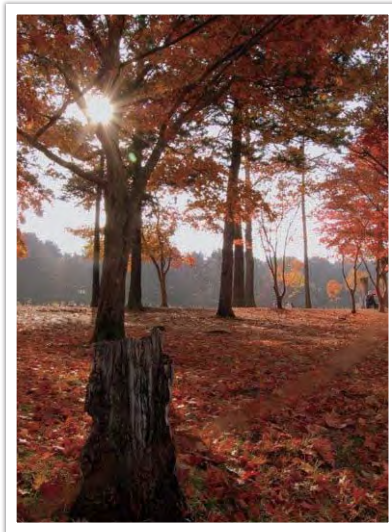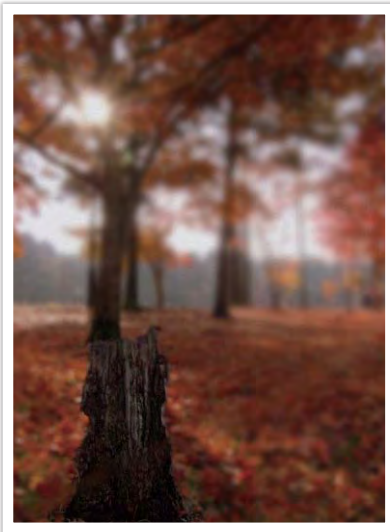


Large Depth of Field                    Small Depth of Field

In low-light settings, you may need to increase the ISO sensitivity to prevent blurred photos.

## **S** Shutter Priority mode

In Shutter Priority mode, the camera automatically adjusts the aperture value according to the shutter speed you choose. This mode is useful for capturing photos of fast-moving subjects or for creating tracer effects in a photo.

For example, set the shutter speed to over 1/500 s to freeze the subject. To make the subject appear blurred set the shutter speed to below 1/30 s.
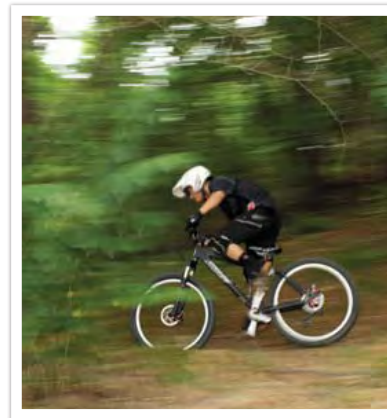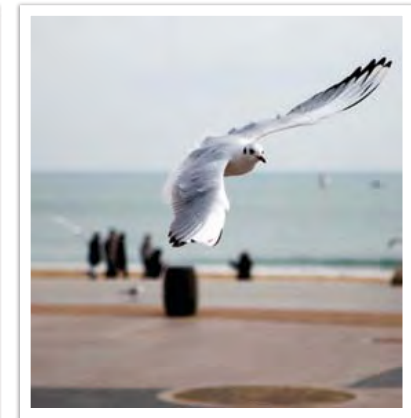


Slow shutter speed                    Fast shutter speed

In order to compensate for the reduced amount of light allowed by fast shutter speeds, open the aperture and let in more light. If your photos are still too dark, increase the ISO value.

*46*

# M Manual mode

Manual mode lets you adjust the shutter speed and aperture value manually. In this mode, you can fully control the exposure of your photos.

This mode is useful in controlled shooting environments, such as a studio, or when it is necessary to fine-tune camera settings. The Manual mode is also recommended for shooting night scenes or fireworks.

## Framing mode

When you adjust the aperture value or shutter speed, the exposure changes according to the settings, so the display may darken. With this function on, the brightness of the display is constant regardless of the settings, so you can better frame your shot.

| To use Framing Mode, | In Shooting mode, press [**MENU**] → ◉ ▣ → **Framing Mode** → an option. |
|---|---|

## Using bulb

Use a bulb to shoot night scenes or the night sky. While you are pressing [**Shutter**], the shutter is left open so you can create moving light effects.

| To use a bulb, | Completely scroll the jog dial to the left to **Bulb**. → Press and hold [**Shutter**] for the desired time. |
|---|---|

- If you set a high ISO value or open the shutter for a long time, image noise may increase.
- The continuous shooting function cannot be used with the Bulb function.
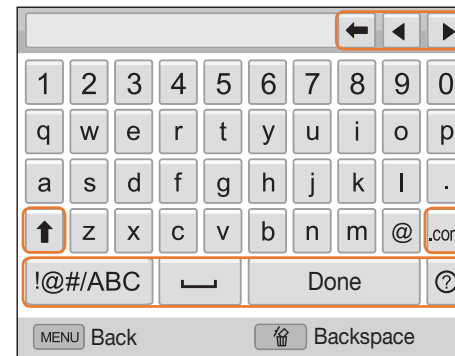
*47*

## C Custom mode

Custom mode lets you create your own shooting modes by adjusting options and saving them.

**Saving custom modes**

1 Rotate the mode dial to **P**, **A**, **S**, **M**, **C**, or ▸🎥.

2 Set shooting options.

3 Press [**MENU**], and then select 🧍🗐 → **Save as Custom Mode**.
- You can also use this function by pressing [**Fn**].

4 Scroll to **C₁**, **C₂**, or **C₃** to select a location, and then press [🆗].
- You can replace the existing custom mode with current settings.

5 Use the jog dial or the navigation button to scroll to a desired key, and then press [🆗] to enter a name for the mode.

| ← | ◀ | ▶ |
|---|---|---|

1 2 3 4 5 6 7 8 9 0
q w e r t y u i o p
a s d f g h j k l .
↑ z x c v b n m @ .com
!@#/ABC ␣ Done ?

MENU Back 👢 Backspace

*48*

| Icon | Description |
|------|-------------|
| ← | Delete the last letter. |
| ◄ ► | Move the cursor. |
| ↑ | In ABC mode, change the case. |
| .com | Enter ".com". |
| !@#/ABC | Switch between Symbol mode and ABC mode. |
| ␣ | Enter a space. |
| Done | Save the displayed text. |
| ⊘ | View the entering text guide. |

- You can use only the English alphabet, regardless of the display language.
- To move to **Done** directly, press [▶].
- You can enter up to 64 characters.

6 Select **Done** to save a mode.

### Selecting custom modes

1 Rotate the mode dial to **C**.

2 Scroll the jog dial or rotate the navigation button, or press [⚐/**AF**] to select a mode, and then press [⊞].

- To select another custom mode, press [**MENU**], and then select ◉1 or ◉1 → **Custom** → a mode.

- You can change the shooting options in the selected custom mode, and save them as a new custom mode.
- To reset a custom mode, press [**MENU**], and then select ◉1 or ◉1 → **Custom Mode Reset** → the custom mode.

*49*

# ⓘ Lens Priority mode

### Using the ⓘ**effect** mode

You can select an appropriate scene (i-Scene) or a filter effect to the lens you attached. Available scenes and filter effects may differ depending on the lens attached.

1  Rotate the mode dial to ⓘ.

2  Press [**i-Function**] on the lens to select ⓘ**effect**.

   • You can also use this function by pressing [**Fn**].
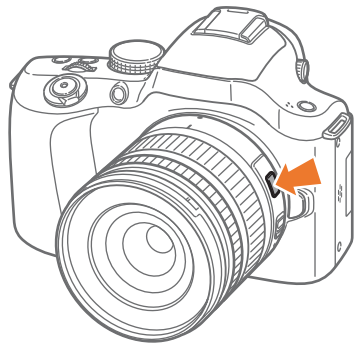
3  Adjust the focus ring to select a scene or filter effect.

   • You can also scroll the jog dial to select a scene or a filter effect.
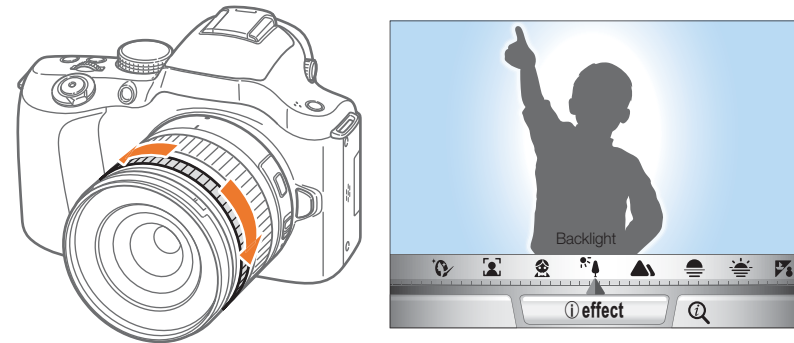
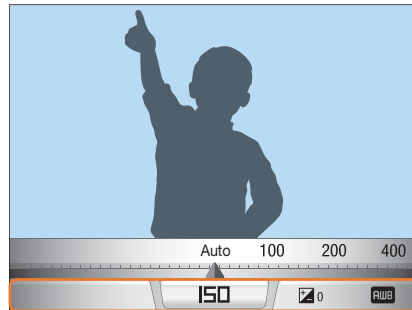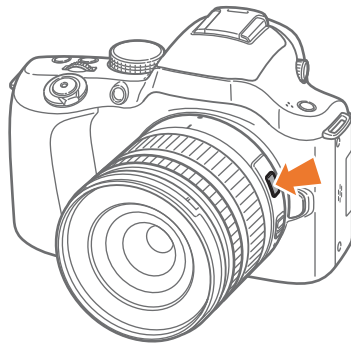4  Fully press [**Shutter**] to capture the photo.

> Available scene modes and filter effects (for SAMSUNG 18-55 mm F3.5-5.6 OIS III lens): Beauty Shot, Portrait, Children, Backlight, Landscape, Sunset, Dawn, Beach & Snow, Night, Vignetting, Miniature, Fish Eye, Sketch, Defog, Halftone Dots
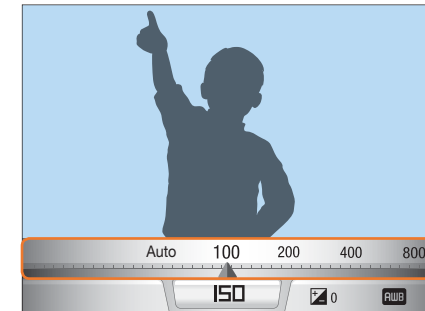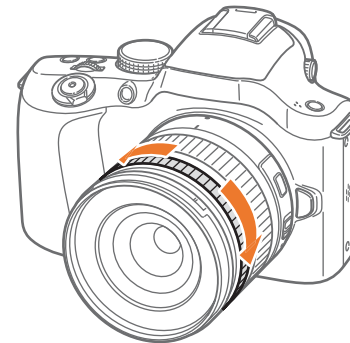
*50*

**Using i-Function in PASM modes**

When you use the i-Function button on an i-Function lens, you can manually select and adjust shutter speed, aperture value, exposure value, ISO sensitivity, and White Balance on the lens.

1  Rotate the mode dial to **P**, **A**, **S**, or **M**.

2  Press [**i-Function**] on the lens to select a setting.

- You can also rotate the navigation button or press [🐍/**AF**] to select a setting.



3  Adjust the focus ring to select an option.

- You can also scroll the jog dial to select an option.



4  Fully press [**Shutter**] to capture the photo.

51

## Available options

| Shooting mode | P | A | S | M |
|---|---|---|---|---|
| Aperture value | - | O | - | O |
| Shutter speed | - | - | O | O |
| Exposure value | O | O | O | - |
| ISO | O | O | O | O |
| White Balance | O | O | O | O |
| ⓘ ZOOM | O | O | O | O |

> To select items to appear when you press [**i-Function**] on the lens in Shooting mode, press [**MENU**] → 🧍🔁 → **iFn Customizing** → an option.

### Using ⓘ ZOOM

The ⓘ ZOOM allows you to zoom in on a subject with less degradation of photo quality than the Digital zoom. However, the photo resolution may change than when you zoom in by rotating the zoom ring.

**1** Rotate the mode dial to **P**, **A**, **S**, **M** or ⓘ.

**2** Press [**i-Function**] on the lens to select ⓘ ZOOM.
- You can also rotate the navigation button or press [✿/**AF**] to select a setting.

**3** Adjust the focus ring to select an option.
- You can also scroll the jog dial to select an option.
- Photo resolution varies according to the zoom rate if you use the ⓘ ZOOM.

| | 3:2 | 16:9 | 1:1 |
|---|---|---|---|
| x1.2 | 4560X3040 (13.9M) | 4560X2568 (11.7M) | 3040X3040 (9.2M) |
| x1.4 | 3888X2592 (10.1M) | 3888X2184 (8.5M) | 2592X2592 (6.7M) |
| x1.7 | 3264X2176 (7.1M) | 3264X1840 (6.0M) | 2176X2176 (4.7M) |
| x2 | 2736X1824 (5.0M) | 2736X1536 (4.2M) | 1824X1824 (3.3M) |

These figures are based on the maximum resolution at each image ratio.

**4** Fully press [**Shutter**] to capture the photo.

> - ⓘ ZOOM is not available when you capture burst shots.
> - ⓘ ZOOM is not available when you capture photos in the RAW file format.
> - ⓘ ZOOM is deactivated when you record videos by pressing the video recording button.

## SCN Scene mode
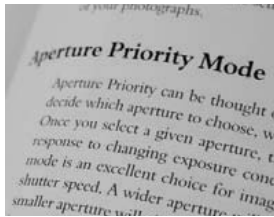
In Scene mode, the camera selects the best settings for each type of scene.

You can select a desired scene by pressing [Fn] in Shooting mode.
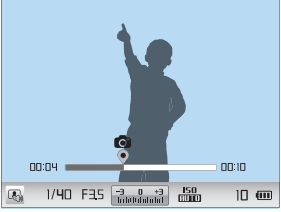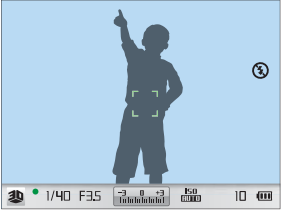
| Icon | Description |
|------|-------------|
| ▭ | **Panorama**: Capture a 2D or 3D panoramic photo. Captured 3D panoramic photos can be viewed only on a 3D TV.<br><br>• The maximum size of a 2D panoramic photo is 8000 X 1152 (horizontal) and 1728 X 4752 (vertical).<br>• The maximum size of a 3D panoramic photo is 3300 X 768 (horizontal).<br>• In Panorama mode, some shooting options are not available.<br>• The camera may stop shooting due to the shooting composition or the subject's movement.<br>• In Panorama mode, your camera may not capture the entire last scene if you stop moving the camera to improve the photo quality. To capture the entire scene, move your camera slightly beyond the point where you want the scene to end. |

| Icon | Description |
|------|-------------|
| | • In 3D Panorama mode, your camera may not capture the very beginning or end of a scene due to the nature of the 3D effect. To capture the entire scene, move slightly beyond the beginning and end points you want to capture.<br>• In 3D Panorama mode, photos are captured in both JPEG and MPO file formats.<br>• You can view an MPO file that supports the 3D effect only on an MPO-compatible display, such as 3D TV or 3D monitor. On your camera's display, you can view only JPEG files.<br>• Use proper 3D glasses when you view an MPO file on a 3D TV or 3D monitor. |
| ❂ | **Beauty Shot**: Hide facial imperfections. |
| ☾ | **Night**: Capture scenes at night or in low lighting. Use a tripod to prevent your camera from shaking that is caused by low shutter speed. |

*53*

| Icon | Description |
|------|-------------|
| ▲ | **Landscape**: Capture still-life scenes and landscapes. |
| 👤 | **Portrait**: Automatically detect and focus on human faces so that you can achieve clear, soft portraits. |
| 👶 | **Children**: Make children appear more noticeable by capturing their clothes and the background vividly. |
| 🏃 | **Sports**: Capture fast moving subjects. |

| Icon | Description |
|------|-------------|
| 🌷 | **Close Up**: Capture detailed parts of a subject or small subjects, such as flowers or insects. |
| 📋 | **Text**: Clearly capture text from printed or electronic documents. |
| ⬤ | **Sunset**: Capture scenes at sunset, with natural-looking reds and yellows. |
| ☀ | **Dawn**: Capture scenes at sunrise. |

| Icon | Description |
|---|---|
| 🌳 | **Backlight**: Capture backlit subjects. |
| ⚙ | **Fireworks**: Capture colorful fireworks at night. Use a tripod to prevent your camera from shaking. |
| 🏖 | **Beach & Snow**: Reduce underexposed photos due to sunlight reflected from sand or snow. |

| Icon | Description |
|---|---|
| 🔊 | **Sound picture**: Add a voice memo before and after capturing a photo. |

To set the recording time, press [**MENU**] → 📷 → **Sound Rec Time**.

| Icon | Description |
|---|---|
| 3D | **3D**: Capture 3D photos. (p. 140) |

## ▶️🎥 Movie mode

In Movie mode, you can shoot videos in Full High Definition (1920X1080) and capture sound via the camera's microphone.

In order to adjust the exposure level, you can select **Program** in the **Movie AE Mode** options menu so that the aperture value and shutter speed can be automatically set or select **Aperture Priority** to manually set the aperture value. You can also select **Shutter Priority** to manually set the shutter speed or select **Manual** to manually set both the aperture value and shutter speed. While shooting a video, press [**AF**] to activate or deactivate the AF function.

Select **Fader** to fade in or out a scene. You can also select **Voice** to mute or un-mute voice.

The camera lets you capture video files up to 25 minutes in length, and saves the files in MP4 (H.264) format. If you set the video signal output to **NTSC**, videos are recorded at 30 or 60 fps. If you set the video signal output to **PAL**, videos are recorded at 25 or 50 fps. 50 fps and 60 fps are available only with 1280X720 resolution.

- H.264 (MPEG-4 part10/AVC) is the latest video coding format established in 2003 collaboratively by ISO-IEC and ITU-T. Since this format uses a high compression rate, more data can be saved in less memory space.
- If you have the image stabilizer option on when shooting a movie, the camera may record the image stabilizer sound.
- The zoom sound or other lens sounds may be recorded if you adjust the lens while recording a video.
- When using an optional video lens, the autofocus noise is not recorded.
- If you remove the camera lens while recording a movie, the recording will be interrupted. Do not change the lens while recording.
- If you change the shooting angle of the camera suddenly while shooting a movie, the camera may not be able to record images accurately. Use a tripod to minimize camera shake.
- In Movie mode, the camera supports only the Multi AF function. You cannot use any other focus area setting functions, such as Face Detection AF.
- When the size of a movie file exceeds 4 GB, the camera automatically stops recording. If this occurs, continue shooting by starting a new movie file.
- If you use a slow writing memory card, the recording of your movie can be interrupted because the card cannot process data at the rate the video is being shot. If this occurs, replace the card with a faster memory card or reduce the image size (for example, from 1280X720 to 640X480).
- When formatting a memory card, always format using the camera. If you format on another camera or a PC, you can lose files on the card or cause a change in the capacity of the card.

## Available functions by shooting mode

For details about shooting functions, see Chapter 2.

| Function | Available in |
|---|---|
| Size (p. 59) | **P**/**A**/**S**/**M**/**C**/ⓘ/**SCN**\*/ ▸🎬/**SMART** |
| Quality (p. 61) | **P**/**A**/**S**/**M**/**C**/ⓘ/**SCN**\*/▸🎬 |
| ISO (p. 62) | **P**/**A**/**S**/**M**\*/**C**/▸🎬\* |
| White Balance (p. 63) | **P**/**A**/**S**/**M**/**C**/▸🎬 |
| Picture Wizard (p. 66) | **P**/**A**/**S**/**M**/**C**/▸🎬 |
| Color Space (p. 87) | **P**/**A**/**S**/**M**/**C**/ⓘ/**SCN**/**SMART** |
| AF Mode (p. 67) | **P**/**A**/**S**/**M**/**C**/ⓘ\*/**SCN**\*/▸🎬\* |
| AF Area (p. 69) | **P**/**A**/**S**/**M**/**C**/ⓘ\*/**SCN**\* |
| MF Assist (p. 72) | **P**/**A**/**S**/**M**/**C**/ⓘ/**SCN**/ ▸🎬/**SMART** |
| OIS (p. 73) | **P**/**A**/**S**/**M**/**C**/ⓘ/**SCN**/ ▸🎬/**SMART** |
| Drive (Continuous/Burst/Timer/ Bracketing) (p. 74) | **P**/**A**/**S**/**M**/**C**/ⓘ\*/**SCN**\*/ ▸🎬\*/**SMART**\* |

| Function | Available in |
|---|---|
| Flash (p. 78) | **P**\*/**A**\*/**S**\*/**M**\*/**C**\*/ **SCN**\*/**SMART**\* |
| Metering (p. 81) | **P**/**A**/**S**/**M**/**C**/▸🎬 |
| Dynamic Range Expansion (p. 84) | **P**/**A**/**S**/**M**/**C** |
| Smart Filter (p. 85) | **P**/**A**/**S**/**M**/**C**/▸🎬 |
| Selective Color (p. 86) | **P**/**A**/**S**/**M**/**C**/▸🎬 |
| Exposure compensation (p. 88) | **P**/**A**/**S**/**C**/ⓘ/**SCN**/▸🎬 |
| Exposure/focus lock (p. 88) | **P**/**A**/**S**/**C**/▸🎬\* |
| Noise Reduction (p. 127) | **P**/**A**/**S**/**M**/**C** |

\* Some functions are limited in these modes.

Chapter **2**

# Shooting Functions

Learn about the functions you can set in Shooting mode.
You can enjoy more customized photos and videos by using the shooting functions.

# Size

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 will also increase. Select a low resolution for photos that will be displayed in a digital picture frame or uploaded to the web.

| To set the size, | In Shooting mode, press [**Fn**] → **Photo Size** or **Movie Size** → an option. |
|---|---|

## Photo size options

| Icon | Size | Recommended for |
|---|---|---|
| 20M | 20.0M (5472X3648) (3:2) | Printing on A1 paper. |
| 10.1M | 10.1M (3888X2592) (3:2) | Printing on A2 paper. |
| 5.9M | 5.9M (2976X1984) (3:2) | Printing on A3 paper. |
| 2M | 2.0M (1728X1152) (3:2) | Printing on A5 paper. |
| 16.9M | 16.9M (5472X3080) (16:9) | Printing on A1 paper or viewing on an HDTV. |
| 7.8M | 7.8M (3712X2088) (16:9) | Printing on A3 paper or viewing on an HDTV. |
| 4.9M | 4.9M (2944X1656) (16:9) | Printing on A4 paper or viewing on an HDTV. |
| 2.1M | 2.1M (1920X1080) (16:9) | Printing on A5 paper or viewing on an HDTV. |
| 13.3M | 13.3M (3648X3648) (1:1) | Printing a square photo on A1 paper. |
| 7M | 7.0M (2640X2640) (1:1) | Printing a square photo on A3 paper. |
| 4M | 4.0M (2000X2000) (1:1) | Printing a square photo on A4 paper. |
| 1.1M | 1.1M (1024X1024) (1:1) | Printing a square photo on A5 paper. |

## Video size options

### When you set the video signal output to NTSC:

| Icon | Size | Recommended for |
|---|---|---|
| 1080 30P | 1920X1080 (30 FPS) (16:9) | Viewing on a Full HDTV. |
| 720 60P | 1280X720 (60 FPS) (16:9) | Viewing on an HDTV. |
| 720 30P | 1280X720 (30 FPS) (16:9) | Viewing on an HDTV. |
| 480 30P | 640X480 (30 FPS) (4:3) | Viewing on a TV. |
| 240 30P | 320X240 (30 FPS) (4:3) | Uploading to the web. |
| 240 WEB | 320X240 (30 FPS) (4:3) | Post on a website using the wireless network (30 seconds maximum). |

### When you set the video signal output to PAL:

| Icon | Size | Recommended for |
|---|---|---|
| 1080 25P | 1920X1080 (25 FPS) (16:9) | Viewing on a Full HDTV. |
| 720 50P | 1280X720 (50 FPS) (16:9) | Viewing on an HDTV. |
| 720 25P | 1280X720 (25 FPS) (16:9) | Viewing on an HDTV. |
| 480 25P | 640X480 (25 FPS) (4:3) | Viewing on a TV. |
| 240 25P | 320X240 (25 FPS) (4:3) | Uploading to the web. |
| 240 WEB | 320X240 (25 FPS) (4:3) | Post on a website using the wireless network (30 seconds maximum). |

# Quality

The camera saves photos in either the JPEG or RAW format.

Photos captured by a camera are often transformed to the JPEG format and stored in the memory according to the settings of the camera at the time of shooting. RAW files are not transformed to the JPEG format and are stored in the memory without any changes.

RAW files have the file extension "SRW". To adjust and calibrate exposures, White Balances, tones, contrasts, and colors of the RAW files, or to convert them into JPEG or TIFF format, use the Samsung RAW Converter program found on the supplied CD-ROM. Ensure you have enough available memory to save photos in the RAW format.

| To set the quality, | In Shooting mode, press [Fn] → **Quality** → an option. |
|---|---|

## Photo quality options

| Icon | Format | Description |
|---|---|---|
| | JPEG | **Super Fine**:<br>• Compressed for the best quality.<br>• Recommended for printing in large size. |
| | JPEG | **Fine**:<br>• Compressed for better quality.<br>• Recommended for printing in normal size. |

| Icon | Format | Description |
|---|---|---|
| | JPEG | **Normal**:<br>• Compressed for normal quality.<br>• Recommended for printing in small size or uploading to the web. |
| | RAW | **RAW**:<br>• Save a photo without data loss.<br>• Recommended for editing after shooting. |
| | RAW+JPEG | **RAW + S.Fine**: Save a photo in both the JPEG (S.Fine quality) and RAW format. |
| | RAW+JPEG | **RAW + Fine**: Save a photo in both the JPEG (Fine quality) and RAW format. |
| | RAW+JPEG | **RAW + Normal**: Save a photo in both the JPEG (Normal quality) and RAW format. |

## Video quality options

| Icon | Extension | Description |
|---|---|---|
| | MP4 (H.264) | **Normal**: Record videos in normal quality. |
| | MP4 (H.264) | **HQ**: Record videos in high quality. |

*61*

# ISO sensitivity

The ISO sensitivity value represents the sensitivity of camera to light.

The larger the ISO value, the more sensitive the camera is to light. Consequently, by selecting a higher ISO sensitivity value, you can capture photos in dim or dark places at faster shutter speeds. However, this may increase electronic noise and result in a grainy photo.

| To set ISO sensitivity, | In Shooting mode, press [**ISO**] → an option. |
|---|---|

## Examples
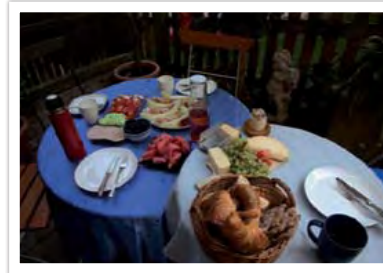

ISO 100


ISO 400


ISO 800


ISO 3200

- Increase the ISO value in places where flash use is prohibited. You can capture a clear photo by setting a high ISO value without having to secure more light.
- Use the Noise Reduction function in order to reduce the visual noise that can appear on photos of a high ISO value. (p. 127)

# White Balance (light source)

The color of a photo depends on the type and quality of the light source. If you want the color of your photo to be realistic, select an appropriate lighting condition to calibrate the White Balance, such as **Auto WB**, **Daylight**, **Cloudy**, or **Tungsten**, or adjust color temperature manually. You can also adjust color for the preset light sources so that the colors of the photo match the actual scene under mixed lighting conditions.

| To set the White Balance, | In Shooting mode, press [**Fn**] → **White Balance** → an option. |
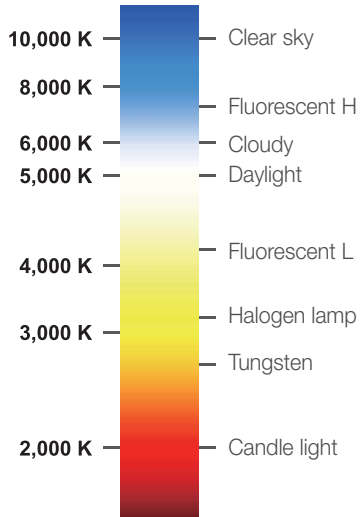
## White Balance options

| Icon | Description |
|---|---|
| **AWB** | **Auto WB**\*: Use automatic settings depending on the lighting conditions. |
| ☀ | **Daylight**\*: Select when taking outdoor photos on a sunny day. This option results in photos closest to the natural colors of the scene. |
| ☁ | **Cloudy**\*: Select when taking outdoor photos on a cloudy day or in shadows. Photos captured on cloudy days tend to be more bluish than on sunny days. This option offsets that effect. |
| W | **Fluorescent White**\*: Select when shooting under a daylight fluorescent lamp. Especially for white fluorescent light with a color temperature of about 4200K. |

| Icon | Description |
|---|---|
| N | **Fluorescent NW**\*: Select when shooting under a daylight fluorescent lamp. Especially for white fluorescent light of very white hues with a temperature of about 5000K. |
| D | **Fluorescent Daylight**\*: Select when shooting under a daylight fluorescent lamp. Especially for white fluorescent light of slightly bluish hue with a temperature of about 6500K. |
| ☀ | **Tungsten**\*: Select when taking indoor photos under incandescent bulbs or halogen lamps. Incandescent tungsten bulbs tend to have a reddish hue. This option offsets that effect. |
| ⚡ | **Flash WB**\*: Select when using a flash. |
| ▢ | **Custom Set**: Use your pre-defined settings. You can manually set the White Balance by shooting a white sheet of paper. Fill the spot metering circle with the paper and set the White Balance. |

\* These options can be customized.

| Option | Description |
|---|---|
| K | **Color Temperature**: Manually adjust the color temperature of the light source. Color temperature is a measurement in degrees Kelvin that indicates the specific type of light source. As the color temperature increases, the color distribution becomes cooler. Alternatively, as the color temperature decreases, the color distribution becomes warmer.<br><br>10,000 K — Clear sky<br>8,000 K<br> — Fluorescent H<br>6,000 K — Cloudy<br>5,000 K — Daylight<br>4,000 K — Fluorescent L<br>3,000 K — Halogen lamp<br> — Tungsten<br>2,000 K — Candle light |

## Customizing preset options

You can also customize preset White Balance options.

| To customize preset options, | In Shooting mode, press [**Fn**] → **White Balance** → an option → [**DISP**] → rotate the navigation button or scroll the jog dial, or press [**DISP/ISO/⚍/AF**]. |
|---|---|

White Balance : Daylight

Daylight

G

B    A

M

MENU  Back        Reset
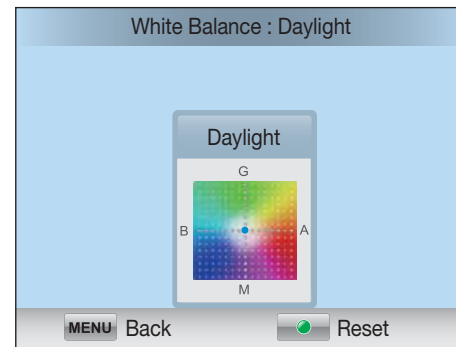
## Examples



Auto WB



Daylight
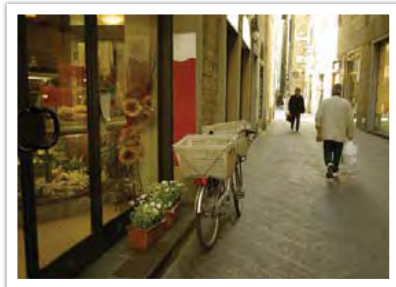


Fluorescent Daylight



Tungsten

65
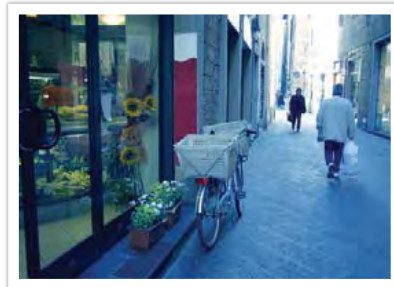
# Picture Wizard (photo styles)

Picture Wizard lets you apply different photo styles to your photo to create various looks and emotional moods. You can also create and save your own photo styles by adjusting color, saturation, sharpness, and contrast for each style.

There is no rule for which style is suitable in which conditions. Experiment with different styles and find your own settings.

| To set a photo style, | In Shooting mode, press [Fn] → **Picture Wizard** → an option. |
|---|---|

## Examples



Standard



Vivid



Portrait



Landscape



Forest



Retro



Cool



Calm



Classic

You can also adjust the value of the preset style settings. Select a Picture Wizard option, press [DISP], and then adjust color, saturation, sharpness, or contrast.

*66*

# AF mode

Learn how to adjust the camera's focus according to the subjects.

You can select a focusing mode appropriate to the subject among Single Auto Focus, Continuous Auto Focus, and Manual Focus. The AF function is activated when you press [**Shutter**] halfway. In the MF mode, you have to rotate the focus ring on the lens to focus manually.

In most cases, you can have a focus by selecting **Single AF**. Fast moving subjects or subjects of a color similar to the background are difficult to focus. Select an appropriate focusing mode for such instances.

If your lens has an AF/MF switch, set the switch to MF to adjust the focus manually.
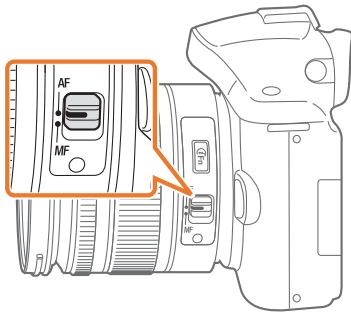


When your lens has no AF/MF switch, press [**AF**] to select a desired AF mode.

| To set the auto focus mode, | In Shooting mode, press [**AF**] → an option. |
|---|---|

## Single AF

Single AF is appropriate for shooting a still subject. When you press [**Shutter**] halfway, the focus fixes in the focus area. The area turns green when the focus is achieved.
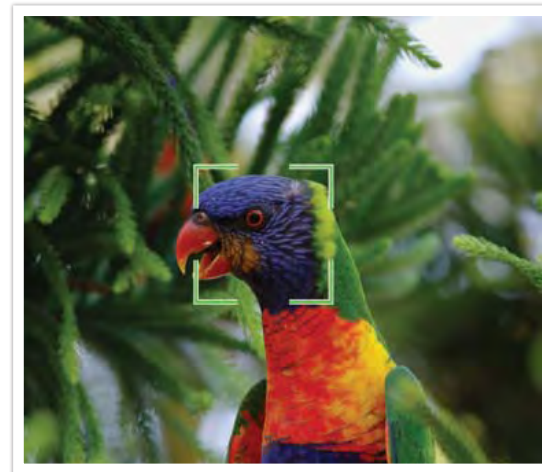
## Continuous AF

While you are pressing [**Shutter**] halfway, the camera continues to automatic focusing. Once the focus area is fixed on the subject, the subject is always in focus even when moving. This mode is recommended for shooting a person on a bicycle, a running dog, or a car racing scene.
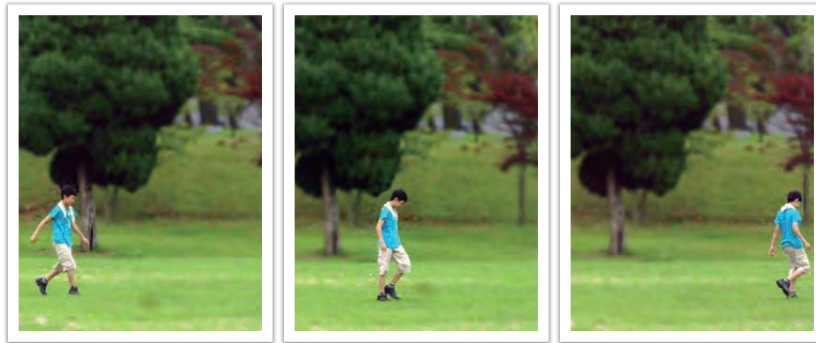


## Manual focus

You can manually focus on a subject by rotating the focus ring on the lens. The MF Assist function lets you easily achieve a focus. While you are rotating the focus ring, the focus area is magnified or the focus aid bar appears to help you achieve a clear focus. This mode is recommended for shooting an object similar in color to the background, a night scene, or fireworks.
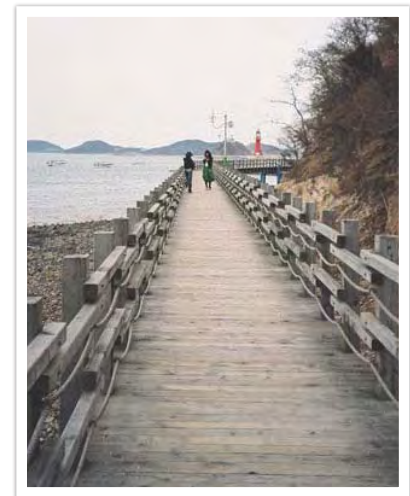
# AF area

The AF area function changes the positions of the focus area.

Generally, cameras focus on the nearest subject. When there are a lot of subjects, however, unwanted subjects can be in focus. In order to prevent unwanted subjects from being in focus, change the focus area so that a desired subject is in focus. You can get a clearer and sharper photo by selecting an appropriate focus area.

| To set the auto focus area, | In Shooting mode, press [**Fn**] → **AF Area** → an option. |
|---|---|

## Selection AF

You can set the focus on an area you want. Apply an out-of-focus effect to make the subject more distinguishable.

The focus on the photo below was repositioned and resized so that it fits the subject's face.



AF Zoom      Move
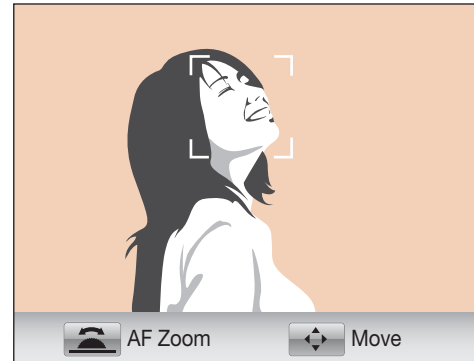
> To resize or move the focus area, in Shooting mode, press [OK]. Use the navigation button to move the focus area. Scroll the jog dial to resize the focus area.

*69*

## Multi AF

The camera displays a green rectangle in places where focus is set correctly. The photo is divided into two or more areas, and the camera obtains focus points of each area. It is recommended for scenery photos.

When you press [**Shutter**], the camera displays the focus areas in green as shown in the photo below.



## Face detection AF

The camera focuses on human faces preferentially. Faces of up to 10 people can be detected. This setting is recommended for shooting a group of people.

When you press [**Shutter**] halfway, the camera focuses on faces as shown in the photo below. In cases of shooting a group of people, the camera displays the focus on the nearest person's face in white and the rest of the people's faces in gray.



*70*
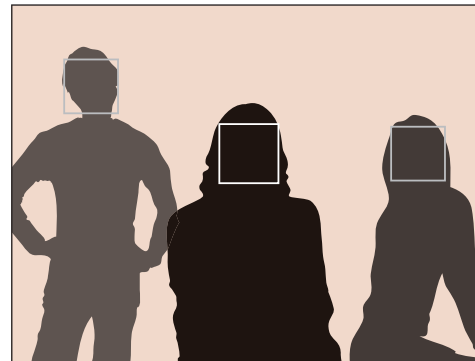
## Self-portrait AF

It can be difficult to check whether your face is in focus when you are taking a self-portrait. When this function is on, the focus distance is set to close-up and the beep from the camera gets faster when in focus.

71
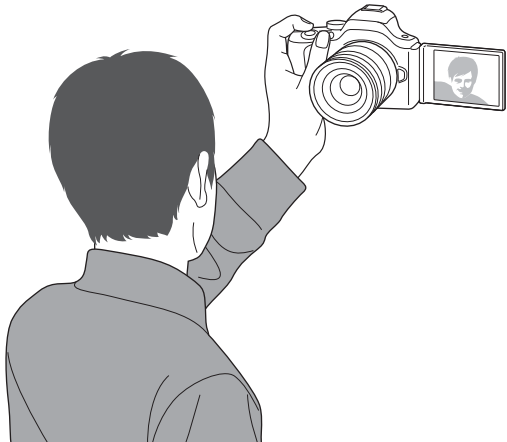
# MF assist

In the manual focus (MF) mode, you have to rotate the focus ring on the lens to focus manually. When you set the MF Assist function, you can achieve a clearer focus. This function is only available on a lens that supports manual focus.
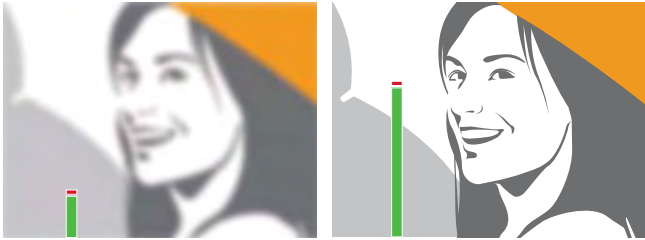
| To set the manual focus assist, | In Shooting mode, press [**MENU**] → 📷▣ or 🎥▣ → **MF Assist** → an option. |

\* Default

| Option | Description |
|---|---|
| Off | Do not use the function. |
| Enlarge x5* | The focus area is magnified by 5 times when you rotate the focus ring. |

\* Default

| Option | Description |
|---|---|
| Enlarge x8 | The focus area is magnified by 8 times when you rotate the focus ring. |
| FA | The focus aid bar rises as the focus improves, when you rotate the focus ring. |

72

# Optical Image Stabilization (OIS)

Use the Optical Image Stabilization (OIS) function to minimize camera shake. OIS may not be available with some lenses.

Came shake tends to occur in dark places or when shooting indoors. In such cases, the camera uses slower shutter speeds in order to increase the amount of light taken in, which can result in a blurry photo. You can prevent this situation by using the OIS function.

If your lens has an OIS switch, you have to turn the switch to use the OIS function.

| To set OIS options, | In Shooting mode, press [**MENU**] → ⬚ or ⬚ → **OIS** → an option. |
|---|---|

## OIS options

* Default

| Icon | Description |
|---|---|
| 🖐 | **Mode 1**: The OIS function is applied only when you press [**Shutter**] in full or half. |
| 🖐 | **Mode 2**\*: The OIS function is on. |
| 🖐 | **Off**: The OIS function is always off. (This option may not be available with some lenses.) |



Without OIS correction          With OIS correction

73

# Drive (shooting method)

You can set the shooting method such as Continuous, Burst, Timer and so on.

Select **Single** to capture one photo at a time. Select **Continuous** or **Burst** to shoot fast moving subjects. Select **AE Bracket**, **WB Bracket**, or **P Wiz Bracket** to adjust exposure, White Balance, or apply Picture Wizard effects. You can also select **Timer** to capture a photo of yourself.

| To set the shooting method, | In Shooting mode, press [🗐] → an option. |
|---|---|

## Single

Capture one photo whenever you press [**Shutter**]. Recommended for general conditions.

## Continuous

Continuously capture photos while you are pressing [**Shutter**]. You can capture up to 3 photos (**Continuous Low (3fps)**) or 8 photos (**Continuous High (8fps)**) per second.

## Burst

Consecutively capture up to 10 shots per second (3 seconds), 15 shots per second (2 seconds), or 30 shots per second (1 second) when you press [**Shutter**] once. Recommended for shooting the rapid motion of fast moving subjects such as racing cars.
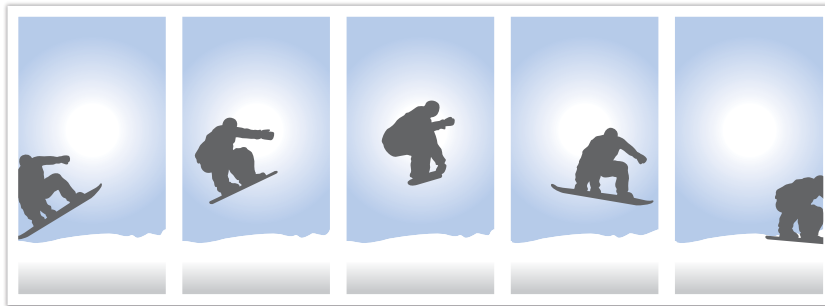


To set the number of shots, in Shooting mode, press [🖐] → **Burst**, and then press [**DISP**].

## Timer

Capture a photo with a delay of 2 to 30 seconds. The delay is adjustable in increments of 1 second.
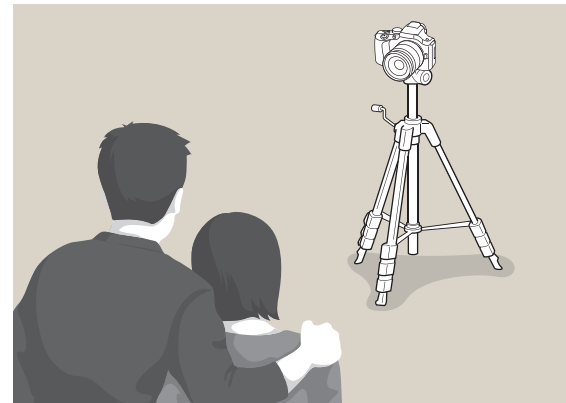


To set the delay, in Shooting mode, press [🖐] → **Timer**, and then press [**DISP**].

## Auto Exposure Bracketing (AE Bracket)

When you press [**Shutter**], the camera captures 3 consecutive photos: the original, one a step darker, and one a step lighter. Use a tripod to prevent blurry photos as the camera captures three photos continuously. You can adjust the settings in **Bracket Set** menu.



Exposure -2

Original

Exposure +2

## White Balance Bracketing (WB Bracket)

When you press [**Shutter**], the camera captures 3 consecutive photos: the original and two more with different White Balance settings. The original photo is captured when you press [**Shutter**]. The other two are automatically adjusted according to the White Balance you have set. You can adjust the settings in **Bracket Set** menu.



WB-2

Original

WB+2

76

## Picture Wizard Bracketing (P Wiz Bracket)

When you press [**Shutter**], the camera captures three consecutive photos, each with a different Picture Wizard setting. The camera captures a photo and applies the three Picture Wizard options you have set to the image captured. You can select three different settings in **Bracket Set** menu.

Vivid

Standard

Retro

## Bracketing setting

You can set up the options for AE Bracket, WB Bracket, and P Wiz Bracket.

| To set a bracketing option, | In Shooting mode, press [**MENU**] → 👤① → **Bracket Set** → an option. |

| Option | Description |
| --- | --- |
| AE Bracket Set | Set the order and the area of bracket. <br> • **Bracket Order**: Set the order in which the camera captures the original, lighter, and darker photo (represented by 0, +, and -). <br> • **Bracket Area**: Set the exposure range of the 3 bracketed photos. |
| WB Bracket Set | Adjust the White Balance interval range of the 3 bracketed photos. <br> For example, AB-/+3 adjusts the Amber value plus or minus three steps. MG-/+3 adjusts the Magenta value the same amount. |
| P Wiz Bracket Set | Select 3 Picture Wizard settings the camera uses to capture the 3 bracketed photos. |

# Flash

In order to capture a realistic photo of a subject, the amount of light should be constant. When the light source varies, you can use a flash and supply a constant amount of light. Select appropriate settings according to a light source and a subject.

| To set flash options, | In Shooting mode, press [**Fn**] → **Flash** →an option. |

## Flash options

| Icon | Description |
|------|-------------|
| ![off] | **Off**: Do not use the flash. |
| **SMART** | **Smart Flash**: The camera automatically adjusts the brightness of the flash according to the amount of light in the surrounding environment. |
| A | **Auto**: The flash automatically fires in dark places. |
| 👁 | **Auto Red-eye**\*: The flash automatically fires and prevents red-eyes. |
| F | **Fill in**: The flash fires whenever you capture a photo. |
| 👁 | **Fill-in Red**: The flash fires whenever you capture a photo and prevents red-eyes. |

| Icon | Description | |
|------|-------------|---|
| 1⚡2 | **1st Curtain**: The flash fires immediately after the shutter opens. The camera captures a photo of a subject earlier in an action sequence clearly. | Ball moving direction |
| 12⚡ | **2nd Curtain**: The flash fires just before the shutter closes. The camera captures a photo of a subject later in an action sequence clearly. | Ball moving direction |
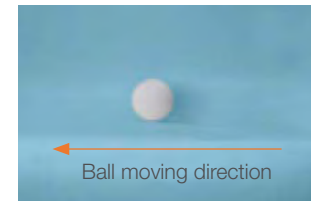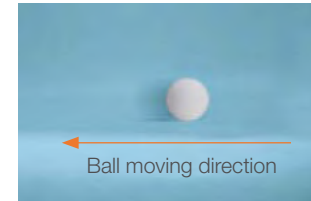
- The available options may differ depending on the shooting mode.
- There is an interval between two bursts of the flash. Do not move until the flash fires a second time.

⚠ Use only Samsung-approved flashes. Using incompatible flashes may damage your camera.

## Correcting the red-eye effect

If the flash fires when you capture a photo of a person in the dark, a red glow may appear in the eyes. To prevent this, select **Fill-in Red**.


Without red-eye correction


With red-eye correction


If the subject is too far from the camera or moves when the first flash fires, red-eyes may not be reduced.

## Using the built-in flash

To open the built-in flash, press the flash pop-up button. The flash does not fire when the built-in flash is closed, but automatically pops up and fires in **SMART**, **SCN** modes.



79
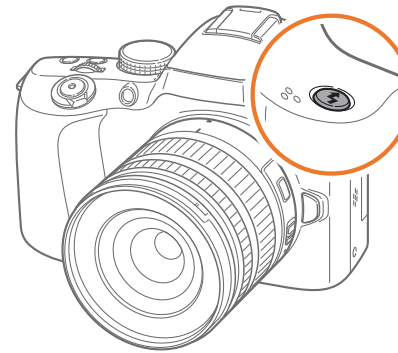
## Adjusting the flash intensity

Adjust the flash intensity to avoid overexposure or underexposure.
You can adjust it by ±2 levels.

| To set the flash intensity, | In Shooting mode, press [**Fn**] → **Flash** → an option → [**DISP**] → scroll the jog dial or rotate the navigation button, or press [⚡/**AF**]. |
|---|---|



Flash : Fill in

Flash Option

⚡ -1.5    -2    0    2

MENU Back    ● Reset
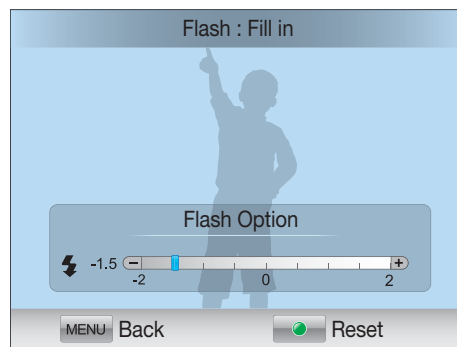
- Adjusting the flash intensity may not be effective when:
  - the subject is too close to the camera
  - you set a high ISO sensitivity
  - the exposure value is too big or too small
- In some shooting modes, you cannot use this function.
- If you use the built-in flash, press the flash pop-up button and open the built-in flash to adjust the flash intensity.
- If you attach an intensity-adjustable external flash to the camera, the intensity settings of the flash will be applied.
- If the subject is too close when you use the flash, some light may be blocked, resulting in a dark photo. Ensure that the subject is within the recommended range, which varies by lens.
- When a lens hood is attached, the light from the flash can be blocked by the hood. Remove the hood to use the flash.

# Metering

The metering mode refers to the way in which a camera measures the quantity of light.

The camera measures the amount of light in a scene, and in many of its modes, uses the measurement to adjust various settings. For example, if a subject looks darker than its actual color, the camera captures an overexposed photo of it. If a subject looks lighter than its actual color, the camera captures an underexposed photo of it.

The brightness and overall mood of the photo can also be affected by how the camera measures the amount of light. Select an appropriate setting for a shooting condition.

| To set a metering option, | In Shooting mode, press [▨] → an option. |
|---|---|

## Multi

The Multi mode calculates the amount of light in multiple areas. When light is sufficient or insufficient, the camera adjusts the exposure by averaging the overall brightness of the scene. This mode is suitable for general photos.

## Center-weighted

The Center-weighted mode calculates a broader area than the Spot mode does. It sums up the amount of light in the center portion of the shot (60 ~ 80 %) and that of the rest of the shot (20 ~ 40 %). It is recommended for situations where there is a slight difference in brightness between a subject and a background or an area of the subject is large compared to the overall composition of the photo.



## Spot

The Spot mode calculates the amount of light in the center. When you capture a photo in conditions where there is a strong backlight behind a subject, the camera adjusts the exposure so as to shoot a subject correctly. For example, when you select the Multi mode in a strong backlight condition, the camera calculates that the overall amount of light is abundant, which results in a darker photo. The Spot mode can prevent this situation as it calculates the amount of light in a designated area.



The subject is in bright color while the background is dark. The Spot mode is recommended for a situation like this where a huge difference in the exposure exists between a subject and a background.

82

### Measuring the exposure value of the focus area

When this function is turned on, the camera automatically sets an optimal exposure by calculating the brightness of the focus area. This function is only available when you select **Spot** metering or **Multi** metering, and **Selection AF**.

| To set this function, | In Shooting mode, press [**MENU**] → ◎▣ → **Link AE to AF Point** → an option. |
| --- | --- |

# Dynamic Range Expansion

Dynamic range refers to the ratio between the lightest and darkest regions that the image sensor can capture. A wide dynamic range allows photos to more accurately represent the range of intensity levels found in real scenes.

| To set Dynamic Range Expansion options, | In Shooting mode, press [**MENU**] → ◎ ⊡ → **D-Range Expansion** → an option. |
|---|---|

## Smart Range

This function automatically corrects the loss of bright detail that can occur due to shading differences in the photo.
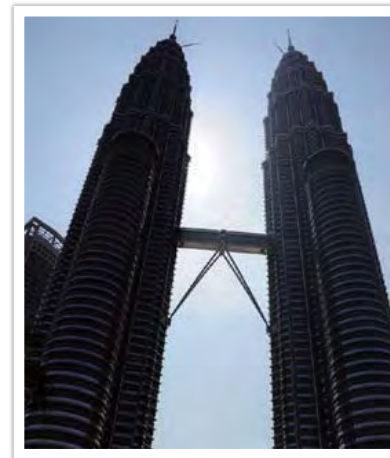


Without Smart Range effect          With Smart Range effect

## High Dynamic Range

The camera automatically adjusts the bright and the dark areas of a photo. You can adjust the intensity levels by selecting **HDR Low** or **HDR High**. If you select **HDR Auto**, the camera automatically adjusts the intensity levels.



Without HDR effect          With HDR effect

84

# Smart Filter

Smart Filter lets you apply special effects to your photos. You can select various filter options to create special effects that are difficult to be achieved with normal lenses.

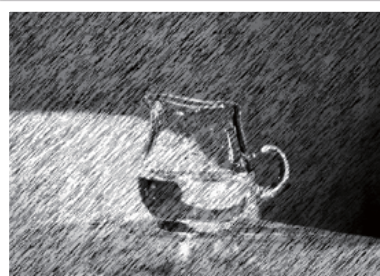| To set Smart Filter options, | In Shooting mode, press [Fn] → Smart Filter → an option. |
|---|---|

## Examples



Vignetting



Fish-Eye



Sketch



Halftone Dots

| Icon | Description |
|---|---|
| | **Off**: No effect |
| | **Vignetting**: Apply the retro-looking colors, high contrast, and strong vignette effect of Lomo cameras. |
| | **Miniature**: Apply a tilt-shift effect to make the subject appear in miniature. |
| | **Fish-Eye**: Distort close objects to imitate the visual effect of a fisheye lens. |
| | **Sketch**: Apply a pen sketch effect. |
| | **Defog**: Make image clearer. |
| | **Halftone Dots**: Apply a halftone effect. |
| | **Soft Focus**: Hide facial imperfections or apply dreamy effects. |
| | **Old Film 1**: Apply a vintage film effect. |
| | **Old Film 2**: Apply a vintage film effect. |
| | **Negative**: Apply a negative film effect. |

# Selective Color

This function lets you select a color that you want to emphasize, and desaturates the others. You can select red, green, or blue from the menu. You can also select a color in an image.

| To set Selective Color options, | In Shooting mode, press [Fn] → Selective Color → an option. |
|---|---|

## Examples


Original
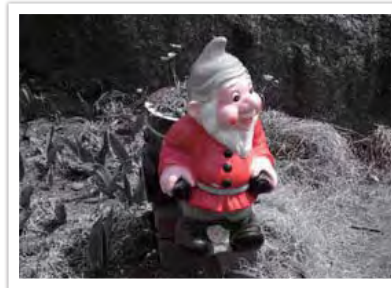

When red is selected

### Selecting a color in an image

All colors other than the selected color are desaturated.

| To select a color, | In Shooting mode, press [Fn] → Selective Color → 🖻 → [DISP] → position the focus frame over the desired color, and then press [Shutter]. |
|---|---|



Measure     MENU  Back

*86*

# Color space

Digital imaging devices such as digital cameras, monitors, and printers have their own methods for representing colors, which are called color spaces.

Your camera lets you select two color spaces: **sRGB** or **Adobe RGB**.

sRGB is widely used for creating colors on PC monitors and is also the standard color space for Exif. sRGB is recommended for regular images and images you intend to publish on the Internet.

Adobe RGB is used for commercial printing and has a larger color range than sRGB. Its wider range of colors helps you to easily edit photos on a computer. Note that individual programs are generally compatible with a limited number of color spaces. If you open an image in a program that is not compatible with the image's color space, the colors will appear lighter.

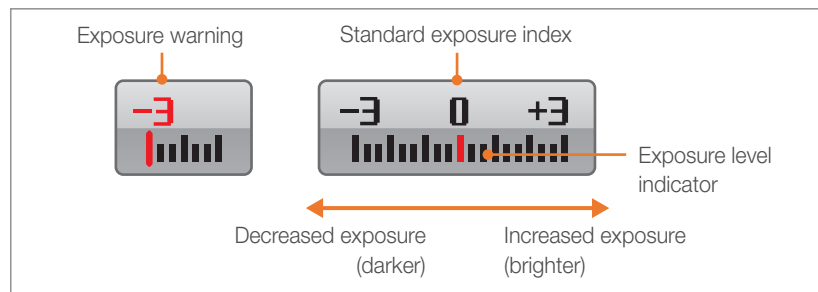| To set the color space, | In Shooting mode, press [**MENU**] → 📷1 → **Color Space** → an option. |
|---|---|

Adobe RGB

sRGB

*87*
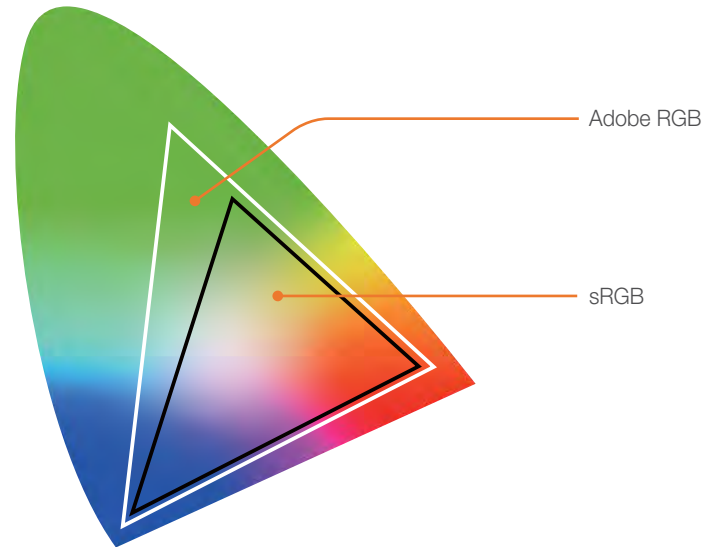
# Exposure compensation

The camera automatically sets the exposure by measuring the levels of light from the photo's composition and the position of a subject. If the exposure set by the camera is higher or lower than you expected, you can adjust the exposure value manually. The exposure value is adjustable in ±3 increments. The camera displays the exposure warning in red for each step beyond ±3 range.

To adjust the exposure value, while holding down [⊞], scroll the jog dial or rotate the navigation button. You can also adjust the exposure value by pressing [Fn], and then selecting **EVC (Exposure Value Compensation)**.

You can check the exposure value by the position of the exposure level indicator.

-2
+2
Original

Exposure warning
Standard exposure index
Exposure level indicator
Decreased exposure (darker)
Increased exposure (brighter)

# Exposure/Focus lock

When you cannot achieve an appropriate exposure because of a strong color contrast or you want to capture a photo on which the subject is out of the auto focus area, lock the focus or exposure and then capture a photo.
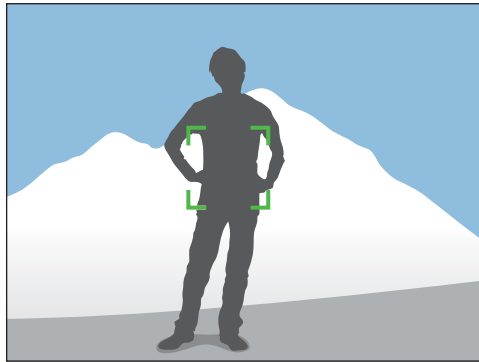
To lock the exposure or focus, adjust the photo's composition on which you want to focus or calculate the exposure, and then press [**AEL**].
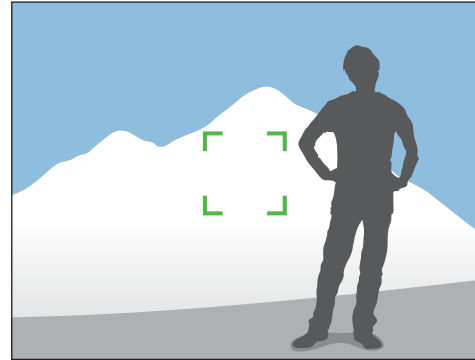
After locking the exposure or focus, aim the lens where you desire, and press [**Shutter**].

> You can change the function assigned to the button to focus lock, or both of them. A function executed by half-pressing [**Shutter**] varies according to the function assigned to [**AEL**]. (p. 129)

*89*