

α35

SONY®

4-281-650-11 (1)

Interchangeable Lens
Digital Camera

α35

Instruction Manual

A-mount

Preparing the camera

Before your operation

Shooting images

Using the shooting function

Using the viewing function

Changing your setup

Viewing images on a
computer

Printing images

Others

Index

Additional information on this product and answers to frequently asked questions can be found at our Customer Support Website.

<http://www.sony.net/>

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SLT-A35

Owner's Record

The model and serial numbers are located on the bottom.

Record the serial number in the space provided below.

Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. SLT-A35

Serial No. _____

WARNING

To reduce fire or shock hazard, do not expose the unit to rain or moisture.

IMPORTANT SAFETY INSTRUCTIONS SAVE THESE INSTRUCTIONS. DANGER - TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, CAREFULLY FOLLOW THESE INSTRUCTIONS.

If the shape of the plug does not fit the power outlet, use an attachment plug adaptor of the proper configuration for the power outlet.

Caution

Battery pack

If the battery pack is mishandled, the battery pack can burst, cause a fire or even chemical burns. Observe the following cautions.

- Do not disassemble.
- Do not crush and do not expose the battery pack to any shock or force such as hammering, dropping or stepping on it.
- Do not short circuit and do not allow metal objects to come into contact with the battery terminals.
- Do not expose to high temperature above 60°C (140°F) such as in direct sunlight or in a car parked in the sun.
- Do not incinerate or dispose of in fire.
- Do not handle damaged or leaking lithium ion batteries.
- Be sure to charge the battery pack using a genuine Sony battery charger or a device that can charge the battery pack.

- Keep the battery pack out of the reach of small children.
- Keep the battery pack dry.
- Replace only with the same or equivalent type recommended by Sony.
- Dispose of used battery pack promptly described the instructions.

Battery charger

Even if the CHARGE lamp is not lit, the battery charger is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet (wall socket). If some trouble occurs while using the battery charger, immediately shut off the power by disconnecting the plug from the wall outlet (wall socket).

When a power cord (mains lead) is supplied, the power cord (mains lead) can be used with this unit only, and should not be used with any other unit.

For Customers in the U.S.A. and Canada

RECYCLING LITHIUM-ION BATTERIES

Lithium-Ion batteries are recyclable.

You can help preserve our environment by returning your used rechargeable batteries to the collection and recycling location nearest you.



For more information regarding recycling of rechargeable batteries, call toll free 1-800-822-8837, or visit <http://www.rbrcc.org/>

Caution: Do not handle damaged or leaking Lithium-Ion batteries.

Battery pack

This device complies with Part 15 of the FCC Rules, Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and (2) this device must

accept any interference received, including interference that may cause undesired operation.

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

For Customers in the U.S.A.

UL is an internationally recognized safety organization.

The UL Mark on the product means it has been UL Listed.

If you have any questions about this product, you may call:

Sony Customer Information Center
1-800-222-SONY (7669)

The number below is for the FCC related matters only.

Regulatory Information

Declaration of Conformity
Trade Name: SONY
Model No.: SLT-A35
Responsible Party: Sony Electronics Inc.
Address: 16530 Via Esprillo,
San Diego, CA 92127 U.S.A.
Telephone No.: 858-942-2230

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

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

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

The supplied interface cable must be used with the equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

For Customers in Europe

Notice for the customers in the countries applying EU Directives

The manufacturer of this product is Sony Corporation, 1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan. The Authorized Representative for EMC and product safety is Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Germany. For any service or guarantee matters please refer to the addresses given in separate service or guarantee documents.

This product has been tested and found compliant with the limits set out in the EMC Directive for using connection cables shorter than 3 meters (9.8 feet).

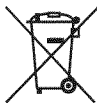
Attention

The electromagnetic fields at the specific frequencies may influence the picture and sound of this unit.

Notice

If static electricity or electromagnetism causes data transfer to discontinue midway (fail), restart the application or disconnect and connect the communication cable (USB, etc.) again.

Disposal of Old Electrical & Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems)



This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local Civic Office, your household waste disposal service or the shop where you purchased the product.

Disposal of waste batteries (applicable in the European Union and other European countries with separate collection systems)



This symbol on the battery or on the packaging indicates that the battery provided with this product shall not be treated as household waste.

On certain batteries this symbol might be used in combination with a chemical symbol. The chemical symbols for mercury (Hg) or lead (Pb) are added if the battery contains more than 0.0005% mercury or 0.004% lead.

By ensuring these batteries are disposed of correctly, you will help prevent potentially negative consequences for the environment and human health which could otherwise be caused by inappropriate waste handling of the battery. The recycling of the materials will help to conserve natural resources.

In case of products that for safety, performance or data integrity reasons require a permanent connection with an incorporated battery, this battery should be replaced by qualified service staff only.



To ensure that the battery will be treated properly, hand over the product at end-of-life to the applicable collection point for the recycling of electrical and electronic equipment.

For all other batteries, please view the section on how to remove the battery from the product safely. Hand the battery over to the applicable collection point for the recycling of waste batteries.

For more detailed information about recycling of this product or battery, please contact your local Civic Office, your household waste disposal service or the shop where you purchased the product.

Notice for customers in the United Kingdom

A moulded plug complying with BS 1363 is fitted to this equipment for your safety and convenience.

Should the fuse in the plug supplied need to be replaced, a fuse of the same rating as the supplied one and approved by ASTA or BSI to BS 1362, (i.e., marked with an  or  mark) must be used.

If the plug supplied with this equipment has a detachable fuse cover, be sure to attach the fuse cover after you change the fuse. Never use the plug without the fuse cover. If you should lose the fuse cover, please contact your nearest Sony service station.

Notes on using your camera

Shooting procedure

- This camera has two modes for monitoring subjects: the LCD monitor mode using the LCD monitor, and the viewfinder mode using the viewfinder.
- The recorded image may be different from the image you monitored before recording.

Notes on the functions available with the camera

- To check whether it is a 1080 60i-compatible device or 1080 50i-compatible device, check for the following marks on the bottom of the camera.
1080 60i-compatible device:60i
1080 50i-compatible device:50i
- You may feel uncomfortable symptoms such as eyestrain, nausea, or a tired feeling while watching 3D-images recorded with the camera on 3D-compatible monitors. When you watch 3D-images, we recommend that you take a break at regular time intervals. Since the need for or frequency of break times varies among individuals, please set your own standards. If you feel sick, stop watching 3D-images, and consult a doctor as needed. Also, refer to the operating instructions of the connected device or the software used with the camera. A child's vision is always vulnerable (especially for children under six years of age). Before allowing them to watch 3D-images, please consult with an expert, such as a pediatric or ophthalmic doctor. Be sure to make sure your children follow the precautions above.

No compensation for contents of the recording

The contents of the recording cannot be compensated for if recording or playback is not possible due to a malfunction of your camera or a memory card, etc.

Back up recommendation

To avoid the potential risk of data loss, always copy (back up) data to other medium.

Notes on the LCD monitor, electronic viewfinder, lens, and image sensor

- The LCD monitor and electronic viewfinder are manufactured using extremely high-precision technology so over 99.99% of the pixels are operational for effective use. However, there may be some tiny black points and/or bright points (white, red, blue or green in color) that constantly appear on the LCD monitor and electronic viewfinder. These points are normal in the manufacturing process and do not affect the images in any way.
- When you change your focus on the viewfinder, red, green, or blue flickers may appear on the screen. This is not a malfunction. These flickers are not recorded on the image.
- Do not expose the camera to sunlight or shoot sunward for a long time. The internal mechanism may be damaged. If sunlight is focused on a nearby object, it may cause a fire.
- Images may trail across on the screen in a cold location. This is not a malfunction. When turning on the camera in a cold location, the screen may become temporarily dark. When the camera warms up, the screen will function normally.

Note on using the lenses and accessories

It is recommended that you use Sony lenses/accessories* designed to suit the characteristics of this camera. Using the products of other manufacturers may cause the camera not to operate to its capability, or result in accidents and malfunctions of the camera.

* Konica Minolta products are included.

Notes on long-time recording

- When you continue to shoot for a long time, the temperature of the camera rises. If the temperature reaches above a certain level, the [] mark is indicated on the screen and the camera is turned off automatically. If the power is turned off, leave the camera for 10 minutes or longer to allow the temperature inside the camera to decrease to a safe level.
- Under high ambient temperatures, the temperature of the camera rises quickly.
- When the temperature of the camera rises, the image quality may deteriorate. It is recommended that you wait until the temperature of the camera drops before continuing to shoot.
- The surface of the camera may get warm. This is not a malfunction.

Notes when playing movies on other devices

- This camera uses MPEG-4 AVC/H.264 High Profile for AVCHD format recording. Movies recorded in AVCHD format with this camera cannot be played with the following devices.
 - Other devices compatible with AVCHD format that does not support High Profile
 - Devices incompatible with the AVCHD formatThis camera also uses MPEG-4 AVC/H.264 Main Profile for MP4 format recording. For this reason, movies recorded in MP4 format with this camera cannot be played on devices other than those that support MPEG-4 AVC/H.264.
- Discs recorded with HD image quality (high definition) can be played back only on AVCHD format-compatible devices. DVD-based players or recorders cannot play back HD image quality discs, as they are incompatible with the AVCHD format. Also, DVD-based players or recorders may fail to eject HD image quality discs.

Warning on copyright

Television programs, films, videotapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provisions of the copyright laws.



The pictures used in this manual




The photographs used as examples of pictures in this manual are reproduced images, and are not actual images shot using this camera.



On the data specifications described in this Instruction Manual

The data on performance and specifications is defined under the following conditions, except as described in this Instruction Manual: at an ordinary ambient temperature of 25°C (77°F), and using a battery pack that is charged for about an hour after the CHARGE lamp goes out.

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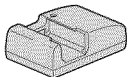
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Checking the accessories supplied

The number in parentheses indicates the number of pieces.

Common accessories

- BC-VW1 Battery charger (1)



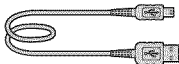
- Power cord (mains lead) (1) (not supplied in the U.S.A. and Canada)



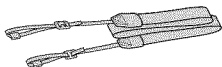
- Rechargeable battery pack NP-FW50 (1)



- USB cable (1)



- Shoulder strap (1)



- Body cap (1) (Attached on the camera)



- Eyecup (1) (Attached on the camera)
- CD-ROM (Application Software for α camera) (1)
- Instruction Manual (This manual) (1)

SLT-A35K

- DT18-55mm zoom lens/Front lens cap (1)/Packaging lid (1)

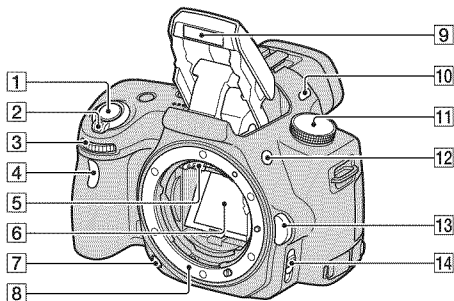
SLT-A35Y

- DT18-55mm zoom lens/Front lens cap (1)/Packaging lid (1)
- DT55-200mm zoom lens/Front lens cap (1)/Rear lens cap (1)/Lens hood (1)

Identifying parts

See the pages in parentheses for details of operation.

Front side



1 Shutter button (60)

2 Power switch (30)

3 Control dial (77)

4 Self-timer lamp (120)

5 Lens contacts*

6 Mirror*

7 Preview button (78)

8 Mount

9 Built-in flash* (99)

10 Microphone**

11 Mode dial (60 – 84)

12 ⚡ (Flash pop-up) button (99)

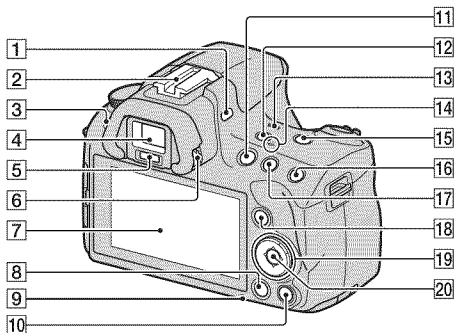
13 Lens release button (28)









14 Focus mode switch (89, 94)

* **Do not directly touch these parts.**

** **Do not cover this part during movie recording.**

Rear side

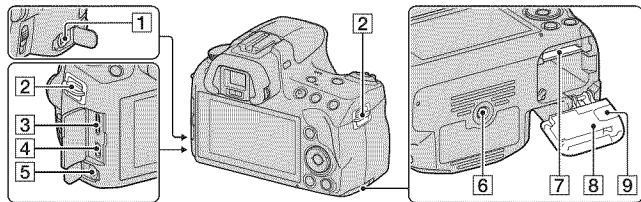


- 1** Microphone**
- 2** Auto-lock Accessory shoe (102)
- 3** MENU button (50)
- 4** Viewfinder* (40)
- 5** Eyepiece sensors (40)
- 6** Diopter-adjustment dial (31)
- 7** LCD monitor (43, 123, 129)
- 8**  (Playback) button (123)
- 9** Access lamp (23)
- 10** For shooting: Focus Magnifier button (95, 148)
For viewing:  (Delete) button (134)
- 11** MOVIE button (85)
- 12** FINDER/LCD button (40, 153)
- 13** Speaker
- 14**  Image sensor position mark (91)
- 15** D-RANGE (Dynamic range) button (110, 149)
- 16** For shooting: AEL (AE lock) button (82, 103)
For viewing:  (Zoom in) button (126)
- 17** For shooting:  (Exposure) button (104)
For viewing:  (Zoom out) button (126)/ (Image index) button (127)
- 18** For shooting: Fn (Function) button (48, 49)
For viewing:  (Image rotation) button (125)

- 19 Control button
When the menu is turned on: ▲/
▼/◀/▶ button (47)
When the menu is turned off:
DISP (Display) (41, 123)/WB
(White balance) (115)/☺ / ☐
(Drive) (119)/ISO (109)
- 20 Control button (Enter) (47)/AF
button (93)

* **Do not directly touch these parts.**

** **Do not cover this part during movie recording.**



1 REMOTE terminal

- When connecting the RM-S1AM/RM-L1AM Remote Commander (sold separately) to the camera, insert the plug of the Remote Commander into the REMOTE terminal, aligning the guide of the plug with the guide of the REMOTE terminal. Make sure that the cord of the Remote Commander faces forward.

2 Hooks for shoulder strap (32)

3 HDMI terminal (136)

4 (USB) terminal (164)

5 Microphone jack

- When an external microphone is connected, the internal microphone is turned off automatically. When the external microphone is a plug-in-power type, the power of the microphone is supplied by the camera.

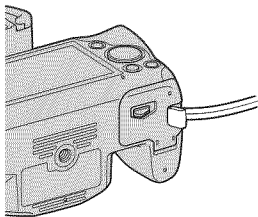
6 Tripod receptacle

- Use a tripod with a screw length of less than 5.5 mm (7/32 inch). You will be unable to firmly secure the camera to tripods having screws longer than 5.5 mm (7/32 inch), and may damage the camera.

7 Memory card insertion slot (21)

8 Battery/memory card cover (21)

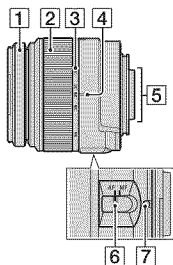
9 Connection plate cover



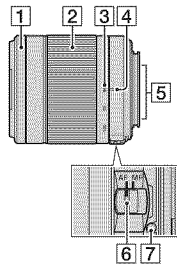
- For using the AC-PW20 AC Adaptor (sold separately) Be careful not to catch the cord of the AC Adaptor in the cover when you close the cover.

Lens

DT 18-55mm F3.5-5.6 SAM
(Supplied with the SLT-A35K/A35Y)



DT 55-200mm F4-5.6 SAM
(Supplied with the SLT-A35Y)



- 1 Focusing ring
- 2 Zoom ring
- 3 Focal-length scale
- 4 Focal-length index
- 5 Lens contacts
- 6 Focusing mode switch
- 7 Mounting index

- The DT 18-55mm F3.5-5.6 SAM/DT 55-200mm F4-5.6 SAM are designed for Sony A-mount cameras (models equipped with an APS-C sized image sensor). You cannot use these lens on 35mm-format cameras.
- For the lenses other than DT 18-55mm F3.5-5.6 SAM/DT 55-200mm F4-5.6 SAM, refer to the operating instructions supplied with the lens.

Charging the battery pack

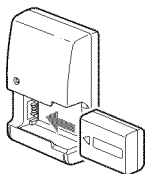
When using the camera for the first time, be sure to charge the NP-FW50 “InfoLITHIUM” battery pack (supplied).

The “InfoLITHIUM” battery pack can be charged even when it has not been fully depleted.

It can also be used when it has not been fully charged.

1 Insert the battery pack onto the battery charger.

Push the battery pack until it clicks.



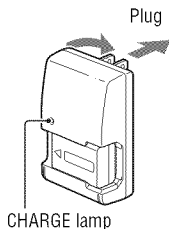
2 Connect the battery charger to the wall outlet (wall socket).

Light on: Charging

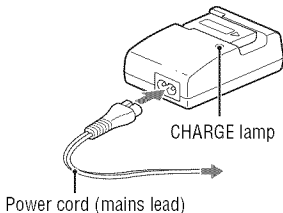
Light off: Charge completed

- The CHARGE lamp turns off when charging is finished.
- Time required to charge a fully depleted battery pack at a temperature of 25°C (77°F) is about 250 minutes.

For the U.S.A and Canada



For countries/regions other than the U.S.A. and Canada



Notes

- The charging time differs depending on the remaining capacity of the battery pack or charging conditions.
- We recommend charging the battery pack in an ambient temperature of between 10 to 30°C (50 to 86°F). You may not be able to efficiently charge the battery pack outside of this temperature range.
- Connect the battery charger to the nearest wall outlet (wall socket).
- Do not try to charge the battery pack again right after it has been charged, or when it has not been used after being charged. Doing so will affect the performance of the battery pack.
- Do not charge any battery pack other than the “InfoLITHIUM” W series battery pack in the battery charger (supplied) with your camera. Batteries other than the specified kind may leak, overheat, or explode if you attempt to charge them, posing a risk of injury from electrocution and burns.
- When the CHARGE lamp flashes, this may indicate a battery error or that a battery pack other than the specified type has been installed. Check that the battery pack is the specified type. If the battery pack is the specified type, remove the battery pack, replace it with new one or another one and check if the battery charger operates correctly. If the battery charger operates correctly, a battery error may have occurred.
- If the battery charger is dirty, charging may not be performed successfully. Clean the battery charger with dry cloth, etc.

To use your camera abroad — Power sources

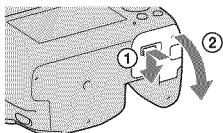
You can use your camera and the battery charger and the AC-PW20 AC Adaptor (sold separately) in any country or region where the power supply is within 100 V to 240 V AC, 50/60 Hz.

Note

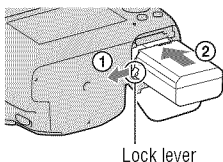
- Do not use an electronic voltage transformer, as this may cause a malfunction.

Inserting the battery pack/memory card (sold separately)

- 1 While sliding the cover open lever, open the cover.

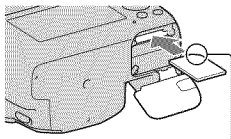


- 2 Firmly insert the battery pack all the way while pressing the lock lever with the tip of the battery.



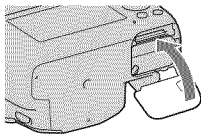
- 3 Insert a memory card.

- With the notched corner facing as illustrated, insert the memory card until it clicks into place.



Ensure the notched corner faces correctly.

- 4 Close the cover.

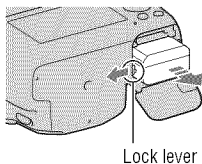


Available memory cards

- Only “Memory Stick PRO Duo” media, “Memory Stick PRO-HG Duo” media, SD memory cards, SDHC memory cards and SDXC memory cards can be used with this camera. A MultiMediaCard cannot be used with this camera. However, proper operation cannot be guaranteed for all memory cards functions.
- The “Memory Stick PRO Duo” media and “Memory Stick PRO-HG Duo” media are referred to as the “Memory Stick PRO Duo” media and the SD memory card, SDHC memory card and SDXC memory card are referred to as the “SD card” in this Instruction Manual.
- For recording movies, it is recommended that you use following memory cards.
 - **MEMORY STICK PRO DUO (Mark2)** (“Memory Stick PRO Duo” media (Mark2))
 - **MEMORY STICK PRO-HG DUO** (“Memory Stick PRO-HG Duo” media)
 - SD memory card, SDHC memory card, SDXC memory card (Class 4 or more)
- Images recorded on an SDXC memory card cannot be imported to or played on computers or AV devices that are not compatible with exFAT. Make sure that the device is compatible with exFAT before connecting it to the camera. If you connect your camera to an incompatible device, you may be prompted to format the card. Never format the card in response to this prompt, as doing so will erase all data on the card. (exFAT is the file system used on SDXC memory cards.)

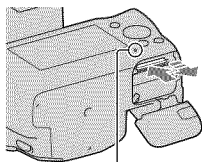
To remove the battery pack

Turn off the camera and slide the lock lever in the direction of the arrow. Be careful not to drop the battery pack.



To remove the memory card

Check that the access lamp is not lit, then open the cover, and push the memory card once.



Access lamp

To check the remaining battery level

Check the level with the following indicators and percent figures displayed on the screen.

Battery level						"Battery exhausted."
	High Low					You cannot shoot any more pictures.

What is an "InfoLITHIUM" battery pack?

An "InfoLITHIUM" battery pack is a lithium-ion battery pack that has functions for exchanging information related to operating conditions with your camera. Using the "InfoLITHIUM" battery pack, the remaining battery time in percent figures is displayed according to the operating conditions of your camera.

Notes on using the battery pack

- The displayed level may not be correct under certain circumstances.
- Do not expose the battery pack to water. The battery pack is not water-resistant.
- Do not leave the battery pack in extremely hot places, such as in a car or under direct sunlight.

Effective use of the battery pack

- Battery performance decreases in low temperature surroundings. So, the time that the battery pack can be used is shorter in cold places and the speed of continuous shooting slows down. We recommend that you put the battery pack in a pocket close to your body to warm it up, and insert it in your camera immediately before you start shooting.
- The battery pack will run out quickly if you use the flash frequently, use continuous shooting often, brighten the LCD monitor, or turn the camera on and off frequently.

Battery life

- The battery life is limited. Battery capacity decreases little by little as you use it more and more, and as time passes. If the battery operating time seems shortened considerably, a probable cause is that the battery pack has reached the end of its life. Buy a new battery pack.
- The battery life varies according to how it is stored and the operating conditions and environment in which each battery pack is used.

How to store the battery pack

If the battery pack is not to be used for a long time, charge it and then fully use it up once a year on your camera before storing the battery pack in a dry, cool place to prolong the battery life.



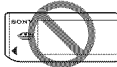
Notes on using memory cards

- Do not strike, bend or drop the memory card.
- Do not use or store the memory card under the following conditions:
 - High temperature locations such as the hot interior of a car parked in direct sunlight.
 - Locations exposed to direct sunlight.
 - Humid locations or locations with corrosive substances present.
- The memory card may be hot just after it has been used for a long time. Be careful when you handle it.
- When the access lamp is lit, do not remove the memory card or the battery pack, or turn off the power. The data may be corrupted.
- Data may be damaged if you place the memory card near strongly-magnetized material or use the memory card in a static-prone or electrically noisy environment.

- We recommend backing up important data, such as to a hard disk of a computer.
- When you carry or store the memory card, put it in the case supplied with it.
- Do not expose the memory card to water.
- Do not touch the terminal section of the memory card with your hand or a metal object.
- When the write-protect switch of a memory card is set to the LOCK position, you cannot perform operations, such as recording or deleting images.
- The memory cards formatted with a computer are not guaranteed to operate with this camera. Be sure to format the memory cards using the camera.
- Data read/write speeds differ depending on the combination of the memory cards and the equipment used.
- Do not press down hard when you write down on the memo area.
- Do not attach a label on the memory cards themselves.
- Do not disassemble or modify the memory cards.
- Do not leave the memory cards within the reach of small children. They might accidentally swallow it.

Notes on the “Memory Stick” media used with the camera

The types of “Memory Stick” media that can be used with this camera are listed in the table below. However, proper operation cannot be guaranteed for all “Memory Stick PRO Duo” media functions.

“Memory Stick PRO Duo” media *1*2*3	Available with your camera	
“Memory Stick PRO-HG Duo” media *1*2		
“Memory Stick Duo” media	Unavailable with your camera	
“Memory Stick” media and “Memory Stick PRO” media	Unavailable with your camera	

*1 This is equipped with MagicGate function. MagicGate is copyright protection technology that uses encryption technology. Data recording/playback that requires MagicGate functions cannot be performed with this camera.

*2 Supports high-speed data transfer using a parallel interface.

*3 When using “Memory Stick PRO Duo” media to record movies, only those marked with Mark2 can be used.

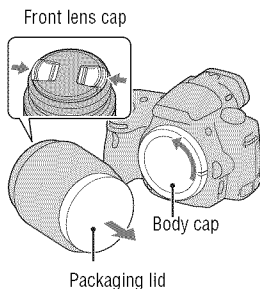
Notes on using “Memory Stick Micro” media (sold separately)

- This product is compatible with “Memory Stick Micro” media (“M2”). “M2” is an abbreviation for “Memory Stick Micro” media.
- To use a “Memory Stick Micro” media with the camera, be sure to insert the “Memory Stick Micro” media into an “M2” Adaptor as large as of Duo size. If you insert a “Memory Stick Micro” media into the camera without an “M2” Adaptor as large as of Duo size, you might not be able to remove it from the camera.
- Do not leave the “Memory Stick Micro” media within the reach of small children. They might accidentally swallow it.

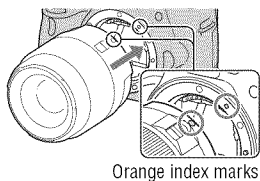
Attaching a lens

1 Remove the body cap from the camera, the packaging lid from the rear of the lens.

- When changing the lens, quickly change the lens away from dusty locations so as to keep dust or debris from getting inside the camera.
- When shooting, remove the front lens cap from the front of the lens.

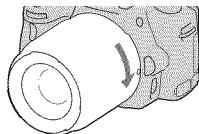


2 Mount the lens by aligning the orange index marks on the lens and camera.



3 Turn the lens clockwise until it clicks into the locked position.

- Be sure to put the lens on straight.



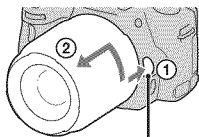
Notes

- When attaching a lens, do not press the lens release button.
- Do not use force when attaching a lens.
- E-mount lenses are not compatible with this camera.
- When you use a lens for which a tripod socket is provided, attach the lens onto the tripod using the tripod socket provided to help balance the weight of the lens.
- When you carry the camera with the lens attached, make sure to hold both the camera and the lens steadily.

- Do not hold by any part of the lens that protrudes when zooming or focusing.

To remove the lens

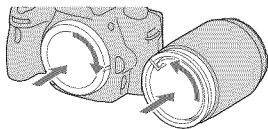
- 1 Press the lens release button all the way in and turn the lens counterclockwise until it stops.**



Lens release button

- 2 Attach the caps to the front and rear of the lens and the body cap to the camera.**

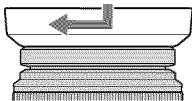
- Before you attach them, remove dust from them.
- A rear lens cap is not supplied with the DT 18-55mm F3.5-5.6 SAM Lens Kit. When you store the lens without attaching it to the camera, purchase the Rear Lens Cap ALC-R55.



To attach a lens hood

It is recommended that you use a lens hood to reduce flare and ensure maximum image quality.

Fit the hood into the mount on the end of the lens barrel and rotate the hood clockwise until it clicks.




- A lens hood is not included with the DT 18-55mm F3.5-5.6 SAM. You can use the ALC-SH108 (sold separately).
- When using a built-in camera flash, make sure to remove the lens hood to avoid blockage of the flash light.
- When storing, turn over the lens hood and place it onto the lens backwards.

Note on changing the lens

When changing the lens, if dust or debris gets inside the camera and adheres to the surface of the image sensor (the part that acts as the film), it may appear as dark spots on the image, depending on the shooting environment.

The camera is equipped with an anti-dust function to prevent dust from adhering to the image sensor. However, quickly change the lens away from dusty locations when attaching/removing a lens.

If dust or debris adheres to the image sensor

Clean the image sensor using [Cleaning Mode] in the  Setup menu (page 37).

Preparing the camera

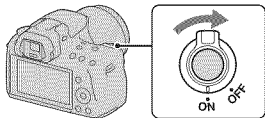
Setting up the date

When you turn the camera on for the first time, the date/time setup screen appears.

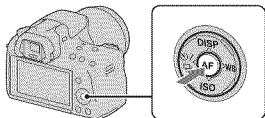
1 Set the power switch to ON to turn the camera on.

The screen used for setting date and time appears.

- To turn the camera off, set it to OFF.



2 Verify that [Enter] is selected on the LCD monitor, then press the center of the control button.



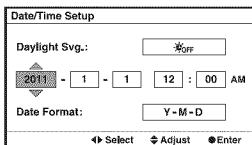
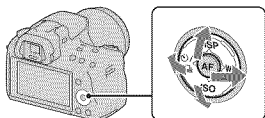
3 Select your area with ◀/▶ on the control button, then press the center of the control button.

4 Select each item with ◀/▶ and set the numeric value with ▲/▼.

[Daylight Svg.]: Turns on or off the daylight saving time setting.

[Date Format]: Selects the format to display date.

- Midnight is indicated as 12:00 AM, and noon as 12:00 PM.



5 Repeat step 4 to set other items, then press the center of the control button.


6 Verify that [Enter] is selected, then press the center of the control button.

To cancel the date/time setting operation

Press the MENU button.

To set up the date/time again

When you turn the camera on for the first time, the date/time setup screen appears automatically. The next time, set up the date and time from the menu.

MENU button →  1 → [Date/Time Setup]

To set up the area again

You can set the area where you are using the camera. This allows you to set the local area when you use the camera abroad.

MENU button →  1 → [Area Setting]

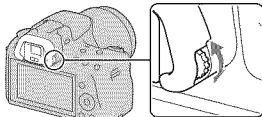
Maintaining the date and time setting

This camera has an internal rechargeable battery for maintaining the date and time and other settings regardless of whether the power is on or off, or the battery is installed or not. For details, see page 192.

Adjusting the focus of the finder (diopter adjustment)

Adjust the diopter-adjustment dial to your eyesight until the display appears clearly in the viewfinder.

- Training the camera on a light allows you to adjust the diopter easily.



Note

- The diopter adjustment attachment (sold separately) cannot be used with this camera.

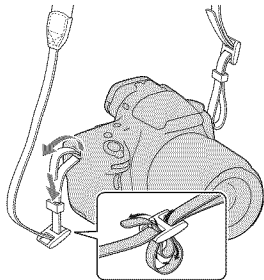
Using the accessories supplied

This section describes how to use the shoulder strap and eyecup. The other accessories are described in the following pages.

- Rechargeable battery pack (page 19)
- Battery charger (page 19)
- Power cord (mains lead) (not supplied in the U.S.A. and Canada) (page 19)
- USB cable (page 164)
- CD-ROM (page 160)

Attaching the shoulder strap

Attach both ends of the strap onto the camera.

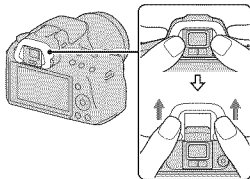


Removing the eyecup

When attaching the FDA-A1AM Angle Finder (sold separately) to the camera, remove the eyecup.

Carefully slide the eyecup off by pushing on each side of the eyecup.

- Put your fingers under the eyecup, and slide it upward.

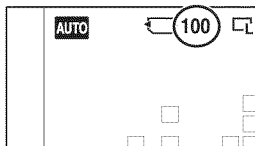


Note

- The Magnifier and Magnifying Eyepiece cannot be used with this camera.

Checking the number of recordable images

Once you insert a memory card into the camera and set the power switch to ON, the number of images that can be recorded (should you continue to shoot using the current settings) is displayed on the screen.



Notes

- When “0” (the number of recordable images) flashes in yellow, the memory card is full. Replace the memory card with another one, or delete images in the current memory card (page 134).
- When “NO CARD” (the number of recordable images) flashes in yellow, it means no memory card has been inserted. Insert a memory card.

The number of images that can be recorded on a memory card

The table shows the approximate number of images that can be recorded on a memory card formatted with this camera. The values are defined using Sony standard memory cards for testing. The values may vary depending on the shooting conditions and the type of memory card used.

Image: Size: L 16M

Image: Aspect Ratio: 3:2*

“Memory Stick PRO Duo”

(Units: Images)

Size \ Capacity	2GB	4GB	8GB	16GB	32GB
Standard	386	781	1587	3239	6406
Fine	270	548	1116	2279	4510
RAW & JPEG	74	154	319	657	1304
RAW	106	220	452	928	1840

* When [Image: Aspect Ratio] is set to [16:9], you can record more images than the numbers shown in the table above (except when [RAW] is selected).

The number of images that can be recorded using a battery pack

The approximate number of images that can be recorded is as follows when you use the camera with the battery pack (supplied) at full capacity.

Note that the actual numbers may be less than those indicated depending on the conditions of use.

	With the flash	Without the flash
LCD monitor mode	Approx. 440 images	Approx. 480 images
Viewfinder mode	Approx. 420 images	Approx. 460 images

- The number is calculated with a battery pack at full capacity and in the following situation:
 - At an ambient temperature of 25°C (77°F).
 - Using the battery pack that is charged for an hour after the CHARGE lamp goes out.
 - Using Sony “Memory Stick PRO Duo” media (sold separately).
 - [Image: Quality] is set to [Fine].
 - [Autofocus Mode] is set to [Automatic AF].
 - Shooting once every 30 seconds.
 - The power turns on and off once every ten times.
- About the number of images you can shoot when the flash is used:
 - The flash strobos once every two times.
 - The measurement method is based on the CIPA standard.
(CIPA: Camera & Imaging Products Association)

Cleaning

Cleaning the camera

- Do not touch the inside of the camera, such as lens contacts, or the mirror. Since dust on the mirror or around the mirror may affect the images or the performance of the camera, blow the dust away using a commercially available blower*. For details on cleaning the image sensor, see the next page.

* Do not use a spray blower. Using one may cause a malfunction.

- Clean the camera surface with a soft cloth slightly moistened with water, then wipe the surface with a dry cloth. Do not use the following as they may damage the finish or the casing.
 - Chemical products such as thinner, benzine, alcohol, disposable cloths, insect repellent, sunscreen or insecticide, etc.
 - Do not touch the camera with the above on your hand.
 - Do not leave the camera in contact with rubber or vinyl for a long time.

Cleaning the lens

- Do not use a cleaning solution containing organic solvents, such as thinner, or benzine.
- When cleaning the lens surface, remove dust using a commercially available blower. In case of dust that sticks to the surface, wipe it off with a soft cloth or tissue paper slightly moistened with lens cleaning solution. Wipe in a spiral pattern from the center to the outside. Do not spray lens cleaning solution directly onto the lens surface.

Cleaning the image sensor

If dust or debris enters the camera and adheres to the image sensor (the part that acts as the film), it may appear as dark spots on the photo image, depending on the shooting environment. If there is dust on the image sensor, clean the image sensor following the steps below.

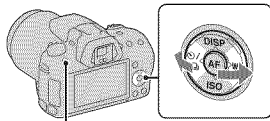
Notes

- Cleaning cannot be performed when the battery level is 50% or less.
- The camera starts beeping if the battery pack becomes low during cleaning. Stop cleaning immediately and turn the camera off. The use of an AC-PW20 AC Adaptor (sold separately) is recommended.
- The cleaning should be completed quickly.
- Do not use a spray blower because it may scatter water droplets inside the camera body.

To clean the image sensor automatically using the cleaning mode of the camera

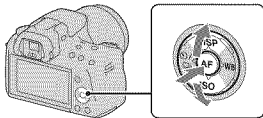
1 Confirm that the battery is fully charged (page 23).

2 Press the MENU button, then select **2** with **◀/▶** on the control button.



MENU button

3 Select [Cleaning Mode] with **▲/▼**, then press the center of the control button.



4 Select [Enter] with ▲, and press the center of the control button.

The image sensor vibrates for a short time, and eliminates dust from the sensor.

5 Turn off the camera.

To clean the image sensor using a blower

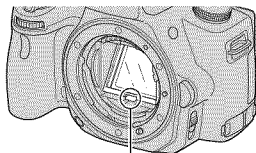
If another cleaning is needed after using the cleaning mode, clean the image sensor using a blower following the steps below.

1 Perform the cleaning operation described in steps 1 to 4 of “To clean the image sensor automatically using the cleaning mode of the camera.”

2 Detach the lens (page 28).

3 Push the ▼ mark on the mirror lock lever with a finger to lift up the mirror.

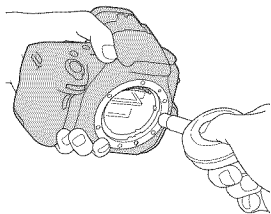
- Be careful not to touch the surface of the mirror.



Mirror lock lever

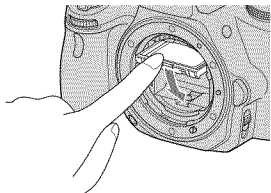
4 Use the blower to clean the image sensor surface and the surrounding area.

- Do not touch the image sensor with the tip of the blower and do not put the tip of a blower into the cavity beyond the mount.
- Hold the camera's face downward to prevent the dust from resettling in the camera. Complete the cleaning quickly.
- Also clean the back of the mirror using a blower.



5 After the cleaning is finished, lower the mirror with a finger until it clicks.

- Lower the frame of the mirror back down with a finger. Be careful not to touch the surface of the mirror.
- Lower the mirror down until it locks firmly.



6 Attach the lens and turn the camera off.

- Confirm that the mirror is locked down firmly when you attach the lens.

Notes

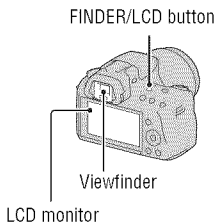
- After the cleaning is finished, confirm that the mirror is locked down firmly when you attach the lens. Otherwise, the lens may be scratched or this may be the cause of additional trouble. Also, if the mirror is not locked down firmly, the autofocus does not work during shooting.
- You cannot shoot while the mirror is lifted up.

Screen indicators

Switching the screen mode between the LCD monitor and the electronic viewfinder

When you look into the viewfinder, the viewfinder mode is activated, and when you take your face away from the viewfinder, the screen mode returns to the LCD monitor mode.

You can also switch the screen mode using the FINDER/LCD button.



To focus on a subject quickly using the viewfinder

When you look into the viewfinder, the subject located in the AF area comes into focus automatically (Eye-Start AF).

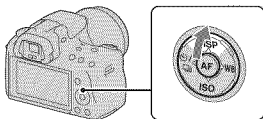
MENU button → 1 → [Eye-Start AF] → [On]

When the FDA-A1AM Angle Finder (sold separately) is attached to the camera, setting [Eye-Start AF] to [Off] is recommended because the eyepiece sensors located below the viewfinder may be activated.

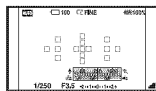
Switching the recording information display (DISP)

Each time you press DISP on the control button, the recording information display changes as follows.

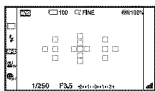
The status of the screen in the viewfinder changes as follows (“Recording information on” (For Live View) is skipped). You can switch the screen in the viewfinder separately from the screen on the LCD monitor.



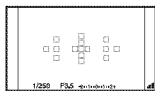
Graphic Display



Recording information on (For Live View)

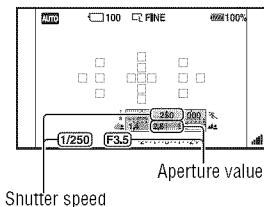


Recording information off



Graphic Display

The Graphic Display shows the shutter speed and aperture value as graphs, and clearly illustrates how the exposure works. The pointers on the shutter speed indicator and aperture indicator indicate the current value. When the exposure is adjusted, the position of the pointers follows the setting value.

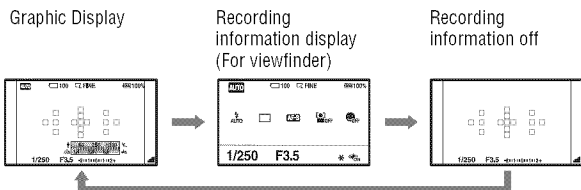


Recording information display (For viewfinder)

You can switch the “Recording information on” display on the LCD monitor to a screen that is suitable for shooting when you look into the viewfinder. The screen in the viewfinder is for Live View.

MENU button → ⚙ 2 → [Display Rec. Data] → [For viewfinder]

Each time you press DISP on the control button, the screen changes as follows.



To turn off indication of the shutter speed, aperture value, EV scale, and SteadyShot scale in the viewfinder

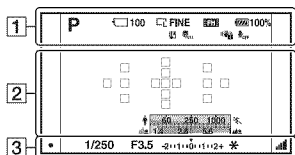
When you turn off the recording information, you can also turn off the indication of the shutter speed, aperture value, EV scale, and SteadyShot scale.

MENU button → ⚙ 2 → [Sets display in finder] → [When operating]

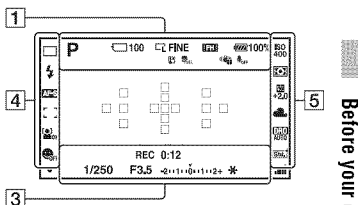
- The shutter speed, aperture value, EV scale, and SteadyShot scale will be displayed only while the exposure is being adjusted.

Recording information display (Graphic Display/Recording information (For Live View))

Graphic Display



Recording information display (For Live View)



Before your operation

1

Display	Indication
AUTO+ P A S M T 	Exposure mode (60 – 84)
	Memory card (21)
100	Remaining number of recordable images (34)
M S M S WIDE STD 3D 16:9 3D STD 3D WIDE	Image size of still images (140)/Aspect ratio of still images (141)/Image size of panoramic images (140)

Display	Indication
RAW RAW+J FINE STD	Image quality of still images (141)
FR : [1080] VGA	Image size of movies (141)
100%	Remaining battery (23)
	Overheating warning (189)
FULL ERROR	Database file full (189)/ Database file error (189)
	Camera shake warning (58)
	No audio recording of movies (87)

2

Display	Indication
	Spot metering area (108)
	AF area (93)
	Shutter speed indicator (79)
	Aperture indicator (76)

3

Display	Indication
REC 0:12	Recording time of the movie (m:s)
	Focus (90)
1/250	Shutter speed (79)
F3.5	Aperture (76)
-2+1+0+1+1+2+	EV scale (82, 122)
	AE lock (103)
	SteadyShot scale (58)

4

Display	Indication
	Drive mode (119)
	Flash mode (99)/Red-eye reduction (101)
	Focus mode (92)
	AF area (93)
	Face Detection (96)
	Smile Shutter (97)

Display	Indication
	Smile Detection
	Sensitivity indicator (97)

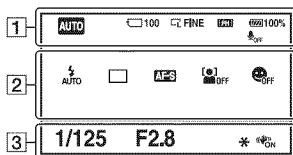
5

Display	Indication
	ISO sensitivity (109)
	Metering (108)
	Flash compensation (106)
	White balance (Auto, Preset, Custom, Color temperature, Color filter) (115)
	D-Range Optimizer (110)/Auto HDR (111)
	Creative Style (113)

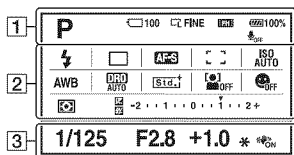
Recording information display (For viewfinder)

See pages in parentheses for details of operation.

In AUTO, AUTO+, or Scene Selection mode



In Tele-zoom Continuous Advance Priority AE/P/A/S/M mode


























1

Display	Indication
AUTO AUTO+ P A S M T []	Exposure mode (60 – 84)
[]	Memory card (21)
100	Remaining number of recordable images (34)
[] [] [] [] [] []	Image size of still images (140)/Aspect ratio of still images (141)
RAW RAW+J FINE STD	Image quality of still images (141)
[] [] [] [] [] []	Image size of movies (141)


Display	Indication
[] 100%	Remaining battery (23)
[] OFF	No audio recording of movies (87)

2

Display	Indication
[] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] []	Flash mode (99)/Red-eye reduction (101)
[] [] [] [] [] [] [] [] [] [] [] []	Drive mode (119)
[] [] [] [] [] [] [] []	Focus mode (92)
[] [] [] [] [] [] [] []	Face Detection (96)
[] [] [] [] [] [] [] []	Smile Shutter (97)
[] [] [] [] [] [] [] []	AF area (93)
[] [] [] []	ISO sensitivity (109)

Display	Indication
AWB      WB   7500K G9	White balance (Auto, Preset, Custom, Color temperature, Color filter) (115)
  HDR  AUTO	D-Range Optimizer (110)/Auto HDR (111)
     	Creative Style (113)
  	Metering mode (108)
 	Exposure compensation (104)/Metered Manual (82)
	Flash compensation (106)
	EV scale (82, 122)

3

Display	Indication
1/125	Shutter speed (79)
F2.8	Aperture (76)
+1.0	Exposure (104)
*	AE lock (103)
	SteadyShot (58)

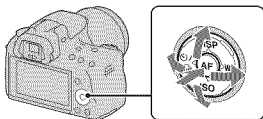
Selecting a function/setting

You can select a function for shooting or playback with the one of buttons, such as the Fn (Function) button, or the MENU button.

When you start an operation, an operation guide of control button functions will be displayed at the bottom of the screen.

◀▶: Press ▲/▼/◀/▶ on the control button to move the cursor.

●: Press the center button to execute the selection.



In this Instruction Manual, the process of selecting a function with the control button and the Fn button from the list displayed on the screen is described as follows (we explain the process with the default icons.):

Example: Fn button → AWB (White Balance) → Select the desired setting

The operation guide list

The operation guide also indicates operations other than the control button operation. The indications of icons are as follows.

	MENU button
	Returns with MENU button
	(Delete) button
	(Zoom in) button
	(Zoom out) button
	(Playback) button
	Control dial

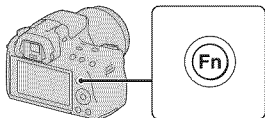
Help guide

The Help Guide shows the information on a function selected with the Fn button, MENU button, etc. You can also turn it off (page 150).

Selecting a function with the Fn (Function) button

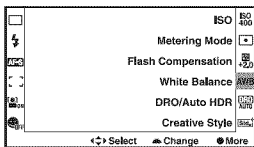
This button is used for setting up or executing functions used frequently in shooting.

1 Press the Fn button.



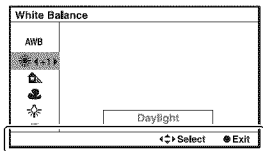
2 Select the desired item with ▲/▼/ ◀/▶ on the control button, then press the center ● to execute.

The setup screen appears.



3 Following the operation guide, select and execute the desired function.

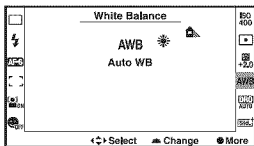
- For details on how to set up each item, see the corresponding page.



Operation guide

To set up the camera directly from the recording information screen

Turn the control dial without pressing the center ● in step 2. You can set up the camera directly from the recording information screen.



The functions selected by the Fn (Function) button











SCN/Picture Effect (64, 67)	Selects an appropriate mode from among the Scene Selection preset settings to suit shooting conditions, or an effect from among the Picture Effect filters.
Sweep Shooting (69)	Switches between Sweep Panorama and 3D Sweep Panorama.
Drive Mode (119)	Sets the shooting mode to single-shot adv., continuous adv., self-timer, bracket shooting, etc.
Flash Mode (99)	Sets the flash mode to Autoflash, Fill-flash, Flash Off, etc.
Autofocus Mode (92)	Selects the method for focusing according to movement of the subject.
AF area (93)	Selects the area of focus.
Face Detection (96)	Automatically captures people's face(s) with the optimal focus and exposure.
Smile Shutter (97)	Camera shoots when a smile is detected.
ISO (109)	Sets the sensitivity to light. The larger the number, the faster the shutter speed.
Metering Mode (108)	Selects the method for measuring brightness.
Flash Compensation (106)	Adjusts the intensity of flash output. + direction increases brightness of subject, and the - direction increases darkness.
White Balance (115)	Adjusts the color tone of images.
DRO/Auto HDR (110)	Compensates for the brightness and contrast automatically.
Creative Style (113)	Selects your desired image processing.

The functions selected by the MENU button












You can set up the basic settings for the camera as a whole or execute functions such as shooting, playback, or other operations.

Press the MENU button, select the desired page with ◀/▶ on the control button, and select the desired item with ▲/▼.












Recording menu

	  2 3	    
  	Image: Size (140)	Selects the size of still images.
	Image: Aspect Ratio (141)	Selects the aspect ratio for still images.
	Image: Quality (141)	Sets the images quality for still images.
	Movie: File Format (86)	Selects the movie file format.
	Movie: Size (141)	Selects the size of the recorded movie frame.
	Movie: Audio Rec. (87)	Sets whether or not to record audio when shooting a movie.
	SteadyShot (58)	Sets SteadyShot.



 1  2  3		    	
  	Panorama: Size (140)	Selects the size of panoramic images.	
	Panorama: Direction (71)	Sets the shooting direction for panoramic images.	
	3D Pan.: Image Size (140)	Selects the size of 3D-images.	
	3D Pan.: Direction (71)	Sets the shooting direction for 3D-images.	
	Flash control (107)	Sets the method for determining the intensity of flash output.	
	AF Illuminator (101)	Sets the AF illuminator, which sheds light on a dark scene to aid focusing.	
	Color Space (114)	Changes the range of reproducible colors.	






 1  2  3		    	
  	Long Exposure NR (147)	Sets noise reduction processing for shots in which shutter speed will be 1 second or longer.	
	High ISO NR (147)	Sets noise reduction processing for high-sensitivity shooting.	
	D-RANGE button (149)	Allows you to assign the desired function to the D-RANGE button.	












Custom menu











 	Eye-Start AF (40)	Sets whether or not to use auto focus when you look through viewfinder.
	FINDER/LCD Setting (153)	Sets the method for switching between the viewfinder and LCD monitor.
	AEL button (148)	Sets the operation method of the AE lock button for fixing exposure during shooting.
	Focus Hold Button (148)	Sets the function of the focus hold button of the lens.
	Focus Magnifier (148)	Sets whether or not to assign the  (Delete) button to the functions used with the Focus Magnifier feature.
	Red Eye Reduction (101)	Reduces the red-eye phenomenon during flash use.
	Release w/oLens (150)	Sets whether shutter can open when lens is not attached.



  1 2    		
  	Grid Line (153)	Sets a grid line display to enable alignment to a structural outline.
	Histogram (105)	Sets whether or not to include the histogram display when switching screen display.
	Sets display in finder (42)	Sets the indication of the shutter speed, aperture value, EV scale, and SteadyShot scale in the viewfinder when the recording information is turned off.
	Display Rec. Data (41)	Selects the status of the recording information display on the LCD monitor, either [For Live View] or [For viewfinder].
	Auto Review (152)	Displays the captured image after shooting. Sets auto review.
	Auto+ Cont. Advance (63)	Sets whether or not to shoot continuously in AUTO+ mode.
	Auto+ Image Extract. (63)	Sets whether or not to save all the images that were shot continuously in AUTO+ mode.



Playback menu

  1 2   		
  	Delete (134)	Deletes images.
	Still/Movie Select (124)	Switches between the still image playback screen and the movie playback screen.
	Slide Show (127)	Shows a slide show.
	Image Index (127)	Displays the image list.
	3D Viewing (137)	Plays back 3D-images using a 3D-compatible TV connected to the camera.
	Protect (133)	Protects or cancels protection for an image.
	Specify Printing (171)	Specifies or unspecifies the images for DPOF.





	Volume Settings (124)	Sets the volume for movie playback.
	Select Folder (123)	Changes the folder for images to play back.
	Select Date (125)	Displays images from another date.
	Playback Display (123)	Sets how to play back an image recorded in portrait.












Memory Card Tool menu



	Format (144)	Formats the memory card.
	File Number (143)	Sets the method used to assign file numbers to still images and movies.
	Folder Name (143)	Sets the folder format for still images.
	Select REC Folder (144)	Changes the selected folder for storing still images.
	New Folder (144)	Creates a new folder for storing still images and movies.
	Recover Image DB (145)	Recovers the image database file for movies and enables recording and playback.
	Display Card Space (145)	Displays the remaining recording time of movies and the recordable number of still images on the memory card.













Clock setup menu

     1 		
  	Date/Time Setup (30)	Sets date and time, and daylight savings.
	Area Setting (31)	Sets the location of use.



Setup menu

      1 2 3		
  	LCD Brightness (152)	Sets the brightness of the LCD monitor.
	Viewfinder Bright. (152)	Sets the brightness of the viewfinder.
	Power Save (150)	Sets the interval after which power save mode engages.
	CTRL FOR HDMI (138)	Operates the camera from a TV that support "BRAVIA" Sync.
	 Language (151)	Selects the language.
	Help Guide Display (150)	Sets the display of the help guide for explaining functions displayed during operation.





	Upload Settings (145)*	Sets the upload function of the camera when using an Eye-Fi card.
	USB Connection (164)	Sets the USB connection method.
	Audio signals (150)	Sets whether or not to use the beep sound when the focus is achieved or the self-timer is working.
	Cleaning Mode (37)	Starts the cleaning mode to clean the image sensor.
	Version (154)	Displays the camera software version.
	Demo Mode (151)	Sets the demonstration playback of a movie to on or off.
	Menu start (151)	Selects a first-displayed menu from the top menu or the last menu screen.



* Appears when an Eye-Fi card (sold separately) is inserted in the camera.



Reset Default (155)	Restores the settings to their defaults.
----------------------------	--

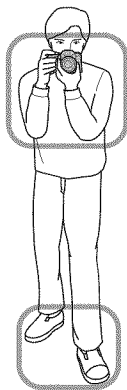
Shooting an image without camera shake

“Camera shake” refers to unwanted movement of the camera that occurs after the shutter button has been pressed, resulting in a blurred image. To reduce camera shake, follow the instructions below.

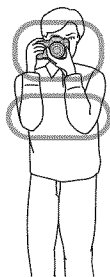
Correct posture

Stabilize your upper body and take a position that keeps the camera from moving.

In LCD monitor mode



In viewfinder mode



Point ①

One hand holds the grip of the camera, and the other hand supports the lens.

Point ②


Take a secure stance with your feet shoulder-width apart.

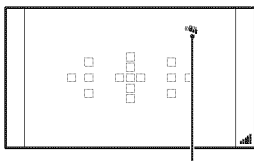
Point ③


Lightly tuck your elbows against your body.

When shooting in a kneeling position, steady your upper body by placing your elbow on your knee.


Camera shake warning indicator

Due to potential camera shake, the  (Camera shake warning) indicator flashes. In this case, use a tripod or the flash.



 (Camera shake warning) indicator

Note


- The  (Camera shake warning) indicator is displayed only in the modes that automatically set the shutter speed. This indicator is not displayed in M/S modes.

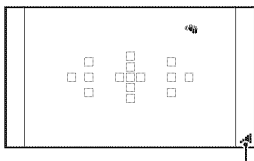
Using the SteadyShot function


The SteadyShot function can reduce the effect of camera shake by the equivalent of approximately 2.5 to 4 Ev in shutter speed.

The SteadyShot function is set to [On] in the default setting.


The SteadyShot scale indicator

The  (SteadyShot scale) indicator shows the camera shake status. Wait until the scale becomes low, then start shooting.



 (SteadyShot scale) indicator

To deactivate the SteadyShot function

MENU button →  1 → [SteadyShot] → [Off]

Note

- The SteadyShot function may not work optimally when the power has just been turned on, right after you point the camera towards a subject, or when the shutter button has been pressed all the way down without stopping halfway.

Using a tripod

In the following cases, we recommend that you mount the camera on a tripod.

- Shooting without a flash under dark conditions.
- Shooting with slow shutter speeds, which are typically used in night-time shooting.
- Shooting a close subject, such as in macro shooting.
- Shooting with a telescopic lens.


Note


- When using a tripod, deactivate the SteadyShot function because there is a potential for malfunction of the SteadyShot function.

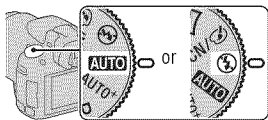
Shooting with the automatic setting

AUTO Shooting with appropriate settings automatically

The “AUTO” mode allows you to easily shoot any subject under any conditions because the camera makes appropriate judgments on the situation to adjust the settings.


Select  when shooting in a location where the use of a flash is restricted.

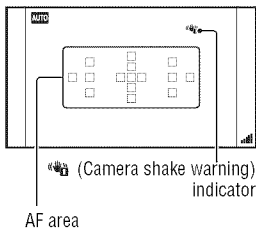
- 1** Set the mode dial to **AUTO** or  (Flash Off).



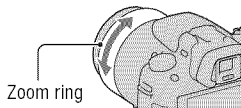
- 2** Hold the camera and look into the LCD monitor or viewfinder.

- 3** Overlay the AF area on the desired subject.

- If the  (Camera shake warning) indicator flashes, carefully shoot the subject, holding the camera steady, or by using a tripod.



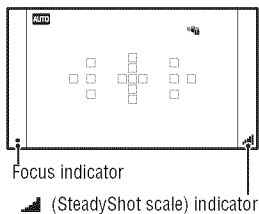
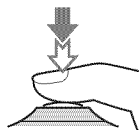
- 4** When using a zoom lens, turn the zoom ring, then decide on your shot.



5 Press the shutter button halfway down to focus.

When the focus is confirmed, ● or (Focus indicator) lights up (page 90).

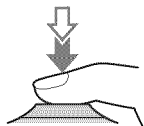
- Waiting until the (SteadyShot scale) indicator is low makes the SteadyShot function more effective.



Focus indicator

(SteadyShot scale) indicator

6 Press the shutter button fully down to shoot.



Note

- Since the camera turns on the automatic setting function, many features will be unavailable, such as exposure compensation, ISO setting. If you want to adjust various settings, set the mode dial to P, then shoot your subject.

AUTO+ Shooting with the settings that the camera adjusts automatically

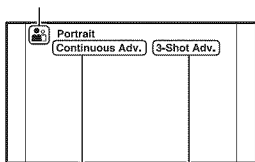
The camera recognizes and evaluates the shooting condition, and appropriate settings are set automatically. The camera saves one appropriate image by combining or separating images, as necessary.

1 Set the mode dial to **AUTO+** (Auto+).

2 Point the camera towards the subject.

When the camera recognizes and adjusts for shooting conditions, the following information is indicated: recognized scene mode mark, appropriate shooting function, the number of images to be shot.

Recognized scene mode mark



Shooting function

Number of images to be shot

3 Adjust the focus and shoot the subject.

The camera shoots with the automatically selected settings.

Scene recognized by the camera

(Night View)	(Hand-held Twilight)	(Landscape)
(Backlight Portrait)	(Portrait)	(Tripod Night View)
(Backlight)	(Macro)	(Night Portrait)

Shooting function

Continuous adv. (119)	Slow Sync. (99)	Auto HDR (111)
Daylight Sync.	Slow Shutter	

To set the continuous shooting

MENU button →  **2** → **[Auto+ Cont. Advance]** → **Select the desired setting**

To select the storage method to be used for recorded images

In continuous shooting, you can select a storage method that allows the camera either to store one appropriate image from among the continuously shot images or store all the images.

MENU button →  **2** → **[Auto+ Image Extract.]** → **Select the desired setting**

Notes

- Even when you set [Auto+ Image Extract.] to [Off] with [Hand-held Twilight] selected from recognized scene mode, one combined image is saved.
- The numbers of images that were not saved are skipped when the images are extracted.

Shooting with a suitable setting for the subject

Selecting an appropriate mode for the subject or the shooting conditions allows you to shoot the image with a suitable setting for the subject. When you turn the mode dial, the explanation of the selected mode and methods of shooting are displayed on the screen (Help Guide Display).

SCN/🔄 Shooting with preset settings according to the scene (Scene Selection)

This mode is suitable for

- Shooting with preset settings according to the scene



















1 Set the mode dial to SCN/🔄 (SCN/Picture Effect).

2 Press the center of the control button.

3 Select the desired mode with ▲/▼, then press the center of the control button.

- To change the scene, press the Fn button, then select another scene.
 - The items used for Picture Effect are indicated after the items used for Scene Selection.
-

 (Portrait)	<p>Blurs away backgrounds and sharpens the subject. Expresses skin tones softly.</p> <ul style="list-style-type: none"> • To blur the background more, set the lens to the telephoto position. • You can shoot a vivid image by focusing on the eye that is closer to the lens. • Use the lens hood to shoot backlit subjects. • Use the red-eye reduction function if the eyes of your subject turn red from the flash (page 101). 	
 (Sports Action)	<p>Shoots a moving subject at a fast shutter speed so that the subject looks as if it is standing still. The camera shoots images continuously while the shutter button is pressed.</p> <ul style="list-style-type: none"> • Press and hold the shutter button halfway down until the right moment. 	
 (Macro)	<p>Shoots close subjects such as flowers, foods.</p> <ul style="list-style-type: none"> • You can shoot a closer subject using a macro lens (sold separately). • Set the flash mode to [Flash Off] when you shoot a subject within 1 m (3.3 feet). • When shooting in macro mode, the SteadyShot function will not be fully effective. Use a tripod to achieve better results. • The shortest focal distance does not change. 	
 (Landscape)	<p>Shoots the entire range of scenery in sharp focus with vivid colors.</p> <ul style="list-style-type: none"> • To accentuate the openness of the scenery, set the lens to wide angle. 	
 (Sunset)	<p>Shoots the red of the sunrise or sunset beautifully.</p>	
 (Night View)	<p>Shoots night scenes at a distance without losing the dark atmosphere of the surroundings.</p> <ul style="list-style-type: none"> • The shutter speed is slower, so using a tripod is recommended. • The picture may not be taken properly when shooting a wholly dark night scene. 	

<p> (Hand-held Twilight)</p>	<p>Shoots night scenes with less noise and blur without using a tripod. A burst of shots are taken, and image processing is applied to reduce subject blur, camera shake, and noise.</p> <ul style="list-style-type: none"> • Reducing blur is less effective even in [Hand-held Twilight] when shooting: <ul style="list-style-type: none"> – Subjects with erratic movement – Subjects are too close to the camera – Subjects with a repeating pattern such as tiles, and subjects with little contrast such as sky, sandy beach, or lawn – Subjects with constant change such as waves or water falls • In the case of [Hand-held Twilight], block noise may occur when using a light source that flickers, such as fluorescent lighting. 	
<p> (Night Portrait)</p>	<p>Shoots portraits in night scenes.</p> <ul style="list-style-type: none"> • The shutter speed is slower, so using a tripod is recommended. 	

Shooting technique

- When you want finer images, set the mode dial to P, A, S, or M and use the creative style function (page 113). In such cases, you can adjust the exposure, ISO, etc.

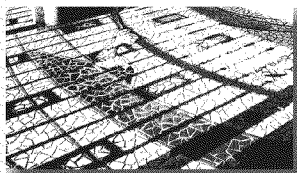
Notes

- Since the camera judges the settings automatically, many features will be unavailable, such as exposure compensation, ISO setting.
- The flash is set to [Autoflash] or [Flash Off] for each Scene Selection mode. You can change these settings (page 99).

SCN/🌀 Shooting with an effect filter to obtain the various textures (Picture Effect)

This mode is suitable for

- Shooting with an effect filter to obtain the various textures.









1 Set the mode dial to SCN/🌀 (SCN/Picture Effect).

2 Press the center of the control button.

3 Select the desired mode with ▲/▼, then press the center of the control button.

- To change the effect, press the Fn button, then select another effect.
- The items used for Picture Effect are indicated after the items used for Scene Selection.

🌀 (Posterization (Color))	Creates a high contrast, abstract look by heavily emphasizing primary colors.
🌀 (Posterization (B/W))	Creates a high contrast, abstract look in black and white.
🌀 (Pop Color)	Creates a vivid look by emphasizing color tones.
🌀 (Retro Photo)	Creates the look of an aged photo with sepia color tones and faded contrast.
🌀 (Partial Color (Red))	Creates an image which retains the color red, but converts others to black and white. <ul style="list-style-type: none">• Images may not retain the selected color, depending on the shooting condition or subject.

 (Partial Color (Green))	Creates an image which retains the color green, but converts others to black and white. <ul style="list-style-type: none"> • Images may not retain the selected color, depending on the shooting condition or subject.
 (Partial Color (Blue))	Creates an image which retains the color blue, but converts others to black and white. <ul style="list-style-type: none"> • Images may not retain the selected color, depending on the shooting condition or subject.
 (Partial Color (Yellow))	Creates an image which retains the color yellow, but converts others to black and white. <ul style="list-style-type: none"> • Images may not retain the selected color, depending on the shooting condition or subject.
 (High-key)	Creates an image with the indicated atmosphere: bright, transparent, ethereal, tender, soft.
 (High Contrast Monochrome)	Creates an image with high contrast in black and white.
 (Toy Camera)	Creates the look of a Toy Camera photo with shaded corners and pronounced colors.

Notes

- Since the camera judges the settings automatically, many features will be unavailable, such as ISO, creative style function.
- If you select the Picture Effect mode, with [RAW] or [RAW & JPEG] selected, [Image: Quality] is temporarily set to [Fine].

☒ Shooting panoramic images (Sweep Shooting)

This mode is suitable for

- Shooting expansive scenery, or high-rise buildings with dynamic composition.



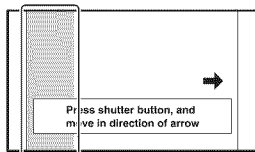
1 Set the mode dial to ☒ (Sweep Shooting).

2 Press the center of the control button.

3 Select [Sweep Panorama] with ▲/▼, then press the center of the control button.

- To select [3D Sweep Panorama], press the Fn button, then select it.

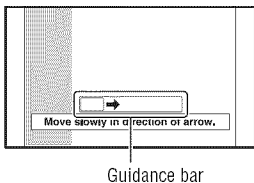
4 Point the camera at the edge of the subject, then press the shutter button halfway down to adjust the focus.



This part will not be taken

5 Press the shutter button fully down.

6 Pan or tilt the camera to the end, following the guidance on the screen.

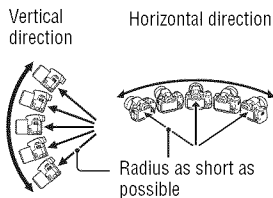


Notes

- If you cannot pan or tilt the camera across the entire subject within the given time, a gray area occurs in the composed image. If this happens, move the camera fast to record a full panoramic image.
- Since several images are stitched together, the stitched part will not be recorded smoothly. While shooting, do not tilt the camera back and forth, or right and left when you swing the camera straight ahead.
- Under low light conditions, panoramic images may be blurred or not be recorded.
- Under lights that flicker such as fluorescent light, the brightness or color of the combined image is not always the same.
- When the whole angle of panoramic shooting and the angle in which you fixed the focus and exposure with AE/AF lock are extremely different in brightness, color and focus, the shooting will not be successful. If this happens, change the lock angle and shoot again.
- [Sweep Panorama] is not suitable when shooting:
 - Subjects are moving.
 - Subjects are too close to the camera.
 - Subjects with a repeating pattern such as tiles, and subjects with little contrast such as sky, sandy beach, or lawn.
 - Subjects with constant change such as waves or water falls.
 - Subjects with the sun or electric lights, etc. that are much brighter than surroundings.
- [Sweep Panorama] recording may be discontinued in the following situations:
 - You pan or tilt the camera too fast or too slow.
 - There is too much camera shake.
- The camera continues shooting during [Sweep Panorama] recording, and the shutter keeps clicking until the end of the shooting.

Tips for shooting a panoramic image

Pan or tilt the camera in an arc with a constant velocity and in the same direction as the indication on the screen. [Sweep Panorama] is better suited for still subjects, rather than moving ones.



- In Sweep Panorama, it is recommended that you use a wide-angle lens.
- When you use a lens that has a long focal length, pan or tilt the camera more slowly than when you use a wide-angle lens.
- Determine the scene and press the shutter button halfway, so that you can lock the focus, exposure, and white balance.
- If a section with greatly varied shapes or scenery is concentrated along a screen edge, the image composition may fail. In such case, adjust the frame composition so that the section is in the center of the image, then shoot again.
- You can select the image size: MENU button → 2 → [Panorama: Size].

To create 3D-images

Set the mode dial to (Sweep Shooting), select [3D Sweep Panorama], and shoot the image. Using the same operation as that for Sweep Panorama, the camera records multiple images and combines them to create a 3D-image. You can view these 3D images using a 3D-compatible TV. For details on 3D-shooting, see page 195.

To set the pan or tilt direction

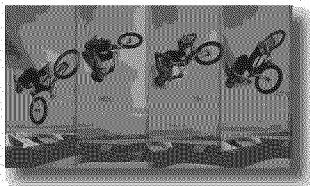
You can set the direction in which to pan or tilt the camera.

MENU button → 2 → [Panorama: Direction] or [3D Pan.: Direction] → Select the desired setting

Shooting continuously at high speed (Tele-zoom Continuous Advance Priority AE)

This mode is suitable for

- Shooting a fast-moving subject continuously to capture a moment.
- Shooting a child's expressions, changing continuously from moment to moment.



1 Set the mode dial to (Tele-zoom Continuous Advance Priority AE).

2 Adjust the focus and shoot the subjects.

- The camera continues to shoot while the shutter button is pressed fully down.
- The camera records the images continuously at a maximum of about 7 images per second.
- The camera zooms in on the subject by 1.4 times, the image size is set to M, and the aspect ratio is set to 3:2.

Shooting techniques

- When the autofocus mode is set to [Continuous AF], the focus and the exposure continue to be adjusted during shooting.
- In manual focus mode or when the autofocus mode is set to [Single-shot AF], you can adjust the ISO sensitivity and the aperture.
- When [Single-shot AF] is selected, the focus is adjusted based on the first image. In addition, when [Metering Mode] is set to [Multi segment], the exposure is also adjusted based on the first image.

Notes

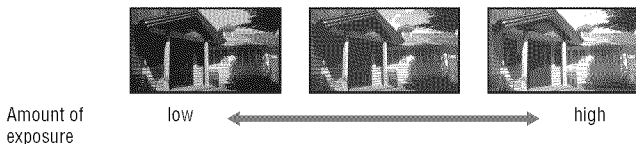
- The Face Detection function is turned off.
- When [Auto HDR] is selected, the DRO process is performed temporarily according to the DRO setting.
- You cannot set [Image: Quality] to [RAW] or [RAW & JPEG].
- Our measurement conditions. The speed of continuous shooting is slower, depending on shooting conditions.

Shooting an image the way you want it (Exposure mode)

With an Interchangeable Lens Digital Camera, you can adjust the shutter speed (how long the shutter is open) and aperture (the range that is in focus: depth of field) to enjoy a variety of photographic expressions.

Adjusting the shutter speed and aperture not only creates the photographic effects of movement and focus, but also determines the brightness of the image by controlling the amount of exposure (the amount of light the camera takes in), which is the most important factor in photo shooting.

Changing the brightness of the picture by the amount of exposure



When using a faster shutter speed, the camera opens the shutter for a shorter time. This means less time for the camera to take in light, resulting in a darker picture. To take a brighter picture, you can open the aperture (the hole through which the light passes) to some extent in order to adjust the amount of light the camera takes in at one time.

The brightness of the picture adjusted by the shutter speed and aperture is called “exposure.”

This section will show you how to adjust the exposure and enjoy various photo expressions by the use of movement, focus, and light.

P Shooting with program auto


This mode is suitable for

- Using the automatic exposure, while keeping the custom settings for ISO sensitivity, Creative Style, D-Range optimizer, etc.



1 Set the mode dial to P.

2 Set the shooting functions to your desired settings (pages 89 to 122).

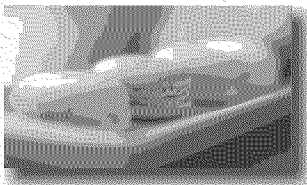
- To fire the flash, press the  button.

3 Adjust the focus and shoot the subject.

A Shooting by controlling the blur of the background (Aperture priority)

This mode is suitable for

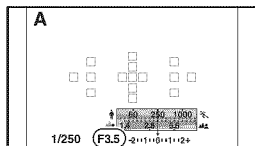
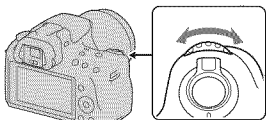
- Putting the subject in sharp focus and blur everything in front of and beyond the subject. Opening the aperture narrows the range that is in focus. (Depth of field becomes shallower.)
- Shooting the depth of the scenery. Narrowing down the aperture widens the range that is in focus. (Depth of field becomes deeper.)



1 Set the mode dial to A.

2 Select the aperture value (F-number) with the control dial.

- Smaller F-number: The foreground and background of the subject are blurred.
Larger F-number: The subject and its foreground and background are all in focus.
- You cannot check the blurring of an image on the LCD monitor or in the viewfinder. Check the recorded image and adjust the aperture.

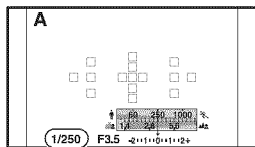


Aperture (F-number)

3 Adjust the focus and shoot the subject.

The shutter speed is automatically adjusted to obtain correct exposure.

- When the camera judges that the proper exposure is not obtained with the selected aperture value, the shutter speed flashes. In such cases, adjust the aperture again.




Shutter speed

Shooting techniques

- The shutter speed may become slower depending on the aperture value. When the shutter speed is slower, use a tripod.
- To blur the background more, use a telephoto lens or a lens that is equipped with a smaller aperture value (bright lens).
- You can check the approximate blurring of the image before recording using the preview button.

Note

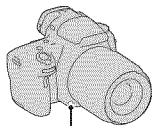
- Press the  button when you shoot with the flash. However, the flash range differs according to the aperture value. When you shoot with the flash, check the flash range (page 101).

To check blurring of the background (Preview button)

The LCD monitor and the viewfinder shows an image captured with the widest aperture. The change in aperture affects the sharpness of the subject image, creating a discrepancy between the sharpness of the image before shooting and that of the actual image.

While you are pressing the preview button, you can see the image with the aperture used in the actual shot so that you can check the approximate sharpness of the subject before shooting.

- Press the preview button after you adjust the focus.
- You can adjust the aperture in preview mode.

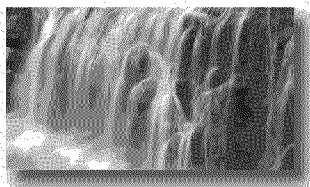
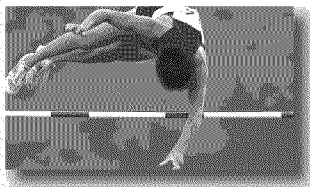


Preview button

S Shooting a moving subject with various expressions (Shutter speed priority)

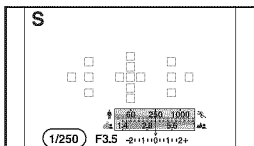
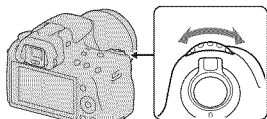
This mode is suitable for

- Shooting a moving subject at a moment in time. Use a faster shutter speed to crisply shoot an instant of the movement.
- Tracing the movement to express the dynamism and flow. Use a slower shutter speed to shoot a trailing image of the moving subject.



1 Set the mode dial to S.

2 Select the shutter speed with the control dial.

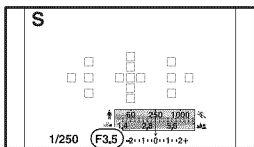


Shutter speed

3 Adjust the focus and shoot the subject.

The aperture is automatically adjusted to obtain correct exposure.

- When the camera judges that the proper exposure is not obtained with the selected shutter speed, the aperture value flashes. In such cases, adjust the shutter speed again.





Aperture (F-number)

Shooting techniques

- When the shutter speed is slower, use a tripod.
- When shooting an indoor sport, select a higher ISO sensitivity.

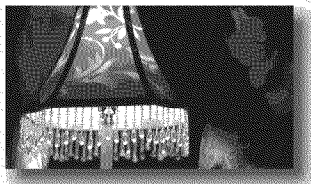
Notes

- The  (Camera shake warning) indicator is not indicated in shutter speed priority mode.
- The higher the ISO sensitivity, the more conspicuous the noise.
- When the shutter speed is one second or more, noise reduction (Long Exposure NR) will be done after shooting. You cannot do any further shooting during the reduction.
- Press the  button when you shoot with the flash. However, when using the flash, if you close the aperture (a larger F-number) by making the shutter speed slower, the light of the flash will not reach distant subjects.

M Shooting with the exposure adjusted manually (Manual exposure)

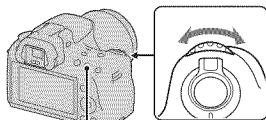
This mode is suitable for

- Shooting with the desired exposure setting by adjusting both the shutter speed and aperture.

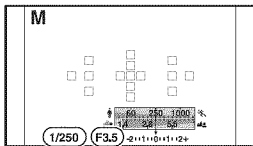


1 Set the mode dial to M.

- ## 2 Rotate the control dial to adjust the shutter speed, and while pressing the button, rotate the control dial to adjust the aperture.



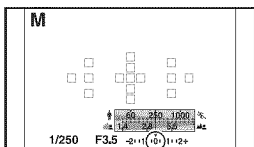
 button



1/250 F3.5 2 1/1 1/1 0 1/1 1/2 +
Aperture (F-number)
Shutter speed



3 Shoot the image after the exposure is set.

- Check the exposure value on the EV scale (Metered Manual*).
Toward +: Images become brighter.
Toward -: Images become darker.
The ◀ ▶ arrow appears if the set exposure is beyond the range of the EV scale. The arrow starts flashing if the difference becomes greater.
- * When the camera is in M mode, it will show an under or over compensation value based on the correct exposure using the index on the exposure compensation indicator.



Standard value

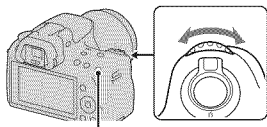
Notes

- The  (Camera shake warning) indicator is not indicated in manual exposure mode.
- When the mode dial is set to M, the ISO setting [AUTO] is set to [100]. In M mode, the ISO setting [AUTO] is not available. Set the ISO sensitivity as necessary (page 109).
- Press the  button when you shoot with the flash. However, the flash range differs according to the aperture value. When you shoot with the flash, check the flash range (page 101).

Manual shift

You can change the shutter speed and aperture value combination without changing the exposure you set.

Rotate the control dial while pressing the AEL button to select the shutter speed and aperture value combination.

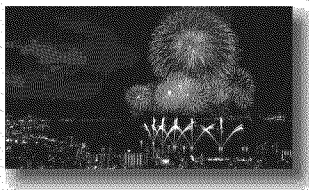


AEL button

M Shooting trails with long exposure (BULB)

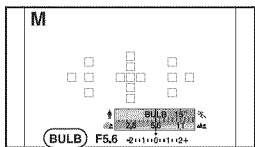
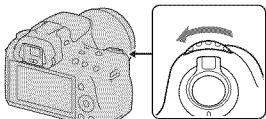
This mode is suitable for

- Shooting trails of light, such as fireworks.
- Shooting trails of stars.




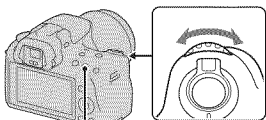
1 Set the mode dial to M.

2 Rotate the control dial to the left until [BULB] is indicated.



BULB

3 While pressing the  button, rotate the control dial to adjust the aperture (F-number).



 button

4 Press the shutter button halfway down to adjust the focus.

5 Press and hold the shutter button for the duration of the shooting.

As long as the shutter button is pressed, the shutter remains open.

Shooting techniques

- Use a tripod.
- Set the focus to infinity in manual focus mode when shooting fireworks, etc. When the infinity position of the lens is not known, first adjust the focus on fireworks that is set off in the same general area, then shoot them.
- If you use a Remote Commander that is equipped with a shutter button lock function (sold separately), you can leave the shutter open using the Remote Commander.

Notes

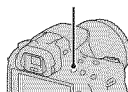
- When using a tripod, turn off the SteadyShot function (page 58).
- The longer the exposure time, the more conspicuous the noise on the image.
- After shooting, noise reduction (Long Exposure NR) will be done for the same amount of time that the shutter was open. You cannot do any further shooting during the reduction.
- When the Smile Shutter or Auto HDR function is activated, you cannot set the shutter speed to [BULB].
- If the Smile Shutter or Auto HDR function is used with the shutter speed set to [BULB], the shutter speed is temporarily set to 30 seconds.
- It is recommended that you start BULB shooting after the temperature of the camera drops to prevent the quality of the image from deteriorating.

Recording movies

1 Press the MOVIE button to start recording.

- Movie recording can be started from any exposure mode.
- The shutter speed and aperture are adjusted automatically.
- The camera continues to adjust the focus when it is in autofocus mode.

MOVIE button



2 Press the MOVIE button again to stop recording.

Shooting techniques

- The following settings that were set during still image shooting are used without change.
 - White Balance
 - Creative Style
 - Exposure compensation
 - AF area
 - Metering mode
 - Picture Effect
- Exposure compensation can be used during movie recording.
- Start recording after you adjust the focus.
- When [AF area] is set to [Local], you can change the AF area during shooting.
- If you want to adjust the blurring of the background, set the mode dial to “A” and set the camera to the manual focus mode. You can adjust the aperture using the control dial before shooting.

Notes

- The Face Detection function cannot be used.
- When [Display Rec. Data] is set to [For viewfinder], the LCD monitor is switched to the recording information display at the moment movie recording starts.

- Do not shoot a strong light source, such as the sun. The internal mechanism of the camera may be damaged.
- When you import AVCHD movies to a computer, use “PMB” (page 164).
- When you continue to shoot for a long time, the temperature of the camera rises and the image quality may deteriorate.
- When the [H] mark is indicated, the temperature of the camera is too high. Turn the camera off and wait until the temperature of the camera drops. If you continue to shoot, the camera is turned off automatically.
- In bright conditions, if you use the autofocus, the image motion may not be smooth (high speed shutter). In such a case, the manual focus mode is recommended.
- When you are recording a movie, the aperture cannot be adjusted.
- In Tele-zoom Continuous Advance Priority AE mode, the recording area displayed on the monitor is enlarged. If you start movie recording in this mode, the monitor then shows the area that is being recorded.

To change the movie file format

MENU button →  **1** → **[Movie: File Format]** → **Select the desired format**

AVCHD	<p>This file format is suitable for viewing smooth video images on a high-definition TV.</p> <p>Movies shot with this camera are recorded in AVCHD format, approximately 60 fields/sec (1080 60i-compatible devices) or 50 fields/sec (1080 50i-compatible devices), in interlace mode, with Dolby Digital audio, AVCHD format.</p> <ul style="list-style-type: none"> • To check if your camera is a 1080 60i-compatible device or 1080 50i-compatible device, check for the following marks on the bottom of the camera. 1080 60i-compatible device: 60i 1080 50i-compatible device: 50i
MP4	<p>This file format is suitable for WEB uploads, e-mail attachments or playing back on computers.</p> <p>Movies shot with this camera are recorded in MPEG-4 format at approximately 30 frames/sec (1080 60i-compatible devices) or approximately 25 frames/sec (1080 50i-compatible devices), in progressive mode, with AAC audio, mp4 format.</p>

Audio recording

When you record movies, the operating noise of the camera or lens may be recorded. You can reduce the noise of the camera by using a tripod, and setting the SteadyShot function to off.

You can also record movies without audio.

MENU button →  **1** → [Movie: Audio Rec.] → [Off]

To change the size

MENU button →  **1** → [Movie: Size] → Select the desired size

For details, see page 141.

Available recording time for a movie


The table below shows the approximate total recording times using a memory card formatted with this camera.

“Memory Stick PRO Duo”

(h (hour), m (minute))

File format/ Size \ Capacity	2GB	4GB	8GB	16GB	32GB
	AVCHD 1920 × 1080	13 m	28 m	57 m	1 h 54 m
MP4 1440 × 1080	20 m	41 m	1 h 23 m	2 h 46 m	5 h 34 m
MP4 VGA	1 h 14 m	2 h 29 m	5 h	10 h 2 m	20 h 07 m

Notes

- The recordable time of movies varies for the reason that the camera equipped with VBR (Variable Bit Rate) which automatically adjusts image quality depending on shooting scene. When you record fast-moving subject, the image is clearer but the recordable time is shorter because it spends much memory to record. The recordable time also vary depending on the shooting condition or subject or setting of image quality/size.
- The values shown are not the continuous recording time.
- Recording time may depend on shooting conditions and the memory card used.
- When  is indicated, stop recording the movie. The temperature inside the camera has increased to an unacceptable level.

- For details on movie playback, see page 124.

Notes on continuous movie recording

- It requires a lot of power to perform high quality movie recording or continuous shooting using the APS-C size image sensor. Therefore, if you continue to shoot, the temperature inside the camera will rise, especially that of the image sensor. In such cases, the camera is turned off automatically since higher temperatures affect the quality of the images or burden the internal mechanism of the camera.
- The duration of time available for movie recording is as follows when the camera starts recording after the power of the camera has been turned off for a while. (The following values indicate the continuous time from when the camera starts recording until the camera stops recording.) If you disable the SteadyShot function during movie recording, the recording time is longer.

Ambient temperature	SteadyShot	
	[On]	[Off]
20°C (68°F)	About 29 minutes	About 29 minutes
30°C (86°F)	About 14 minutes	About 29 minutes
40°C (104°F)	About 10 minutes	About 29 minutes

- The duration of time available for movie recording in the table above is measured on the condition that [LCD Brightness] is set to [± 0.0].
- The duration of time available for movie recording varies with the temperature or condition of the camera before you start recording. If you frequently recompose or shoot images after the power is turned on, the temperature inside the camera rises and the recording time available is shorter than the values indicated in the table above.
- If the camera stops recording due to the temperature, leave it for several minutes with the power turned off. Start recording after the temperature inside the camera drops fully. (When the camera is left for 5 to 10 minutes at a room temperature of 30°C (86°F), recording will be possible for about 3 to 4 minutes.)
- If you observe the following points, the recording time is longer.
 - Keep the camera out of direct sunlight.
 - Turn the camera off when it is not being used.
 - If possible, use a tripod and disable the SteadyShot function.
- The maximum size of a movie file is about 2 GB. When the file size is about 2 GB, the recording stops automatically when the file format is MP4, and a new movie file is created automatically when the file format is AVCHD.
- The maximum continuous recording time is 29 minutes.

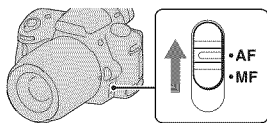
Selecting the focus method

There are two methods for adjusting the focus: autofocus and manual focus. Depending on the lens, the method for switching between the auto focus and manual focus is different.

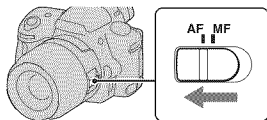
The type of lens	The switch to be used	To switch to auto focus	To switch to manual focus
The lens is equipped with a focus mode switch	Lens (Always set the focus mode switch on the camera to AF.)	Set the focus mode switch on the lens to AF.	Set the focus mode switch on the lens to MF.
The lens is not equipped with a focus mode switch	Camera	Set the focus mode switch on the camera to AF.	Set the focus mode switch on the camera to MF.

Using autofocus

- 1 Set the focus mode switch on the camera to AF.**

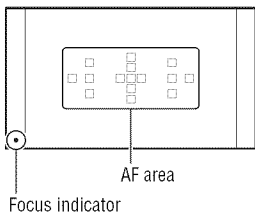


- 2 When the lens is equipped with the focus mode switch, set it to AF.**



3 Press the shutter button halfway down to check the focus and shoot the image.

- When the focus is confirmed, the focus indicator changes to ● or (●) (below).
- The AF area where the focus has been confirmed turns green.



Note

- While the camera is focusing automatically, do not touch the rotating focusing ring of the attached lens.

Shooting technique

- To select the AF area used for focusing, set up [AF area] (page 93).

Focus indicator

Focus indicator	Status
● lit	Focus locked. Ready to shoot.
(●) lit	Focus is confirmed. Focal point moves following a moving subject. Ready to shoot.
(●) lit	Still focusing. You cannot release the shutter.
● flashing	Cannot focus. The shutter is locked.

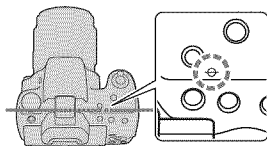
Subjects that may require special focusing

Using the autofocus, it is hard to focus on the following subjects. In such cases, use the focus lock shooting feature (page 91) or manual focus (page 94).

- A subject that is low in contrast, such as blue sky or a white wall.
- Two subjects at different distances overlapping in the AF area.
- A subject that is composed of repeating patterns, such as the facade of a building.
- A subject that is very bright or glittering, such as the sun, the body of an automobile, or the surface of water.
- Ambient light is not sufficient.

To measure the exact distance to the subject

The \oplus mark located on the top of the camera shows the location of the image sensor*. When you measure the exact distance between the camera and the subject, refer to the position of the horizontal line.



* The image sensor is the part of the camera that acts as the film.

Note

- If the subject is closer than the minimum shooting distance of the attached lens, the focus cannot be confirmed. Make sure you put enough distance between the subject and the camera.

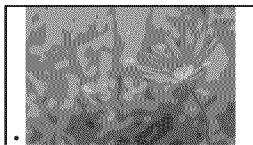
Shooting with your desired composition (Focus-lock)

- 1 Place the subject within the AF area and press the shutter button halfway down.**

The focus and exposure are fixed.



- 2 Keep the shutter button halfway down, and put the subject back in the original position to re-compose the shot.**



- 3 Press the shutter button fully down to take the picture.**

Selecting the focus method to suit the movement of the subject (Autofocus Mode)

Fn button → **AF-A (Autofocus Mode) → Select the desired setting**

AF-S (Single-shot AF)	The camera focuses and the focus is locked when you press the shutter button halfway down.
AF-A (Automatic AF)	The [Autofocus Mode] is switched between Single-shot AF and Continuous AF according to the movement of the subject. When you press and hold the shutter button halfway down, if the subject is motionless, the focus is locked and if the subject is in motion, the camera continues to focus.
AF-C (Continuous AF)	The camera continues to focus while the shutter button is pressed and held halfway down. <ul style="list-style-type: none">• The audio signals will not sound when the subject is in focus.• Focus-lock cannot be used.

Shooting techniques

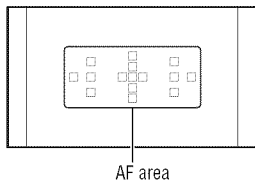
- Use [Single-shot AF] when the subject is motionless.
- Use [Continuous AF] when the subject is in motion.

Notes

- [Automatic AF] is selected when the exposure mode is set to AUTO, AUTO+, Picture Effect or one of the following Scene Selection modes: [Portrait], [Landscape], [Sunset], [Night View], [Night Portrait], or [Hand-held Twilight].
[Single-shot AF] is selected when the exposure mode is set to [Macro] in Scene Selection.
[Continuous AF] is selected when the exposure mode is set to [Sports Action] in Scene Selection.
- [Continuous AF] is selected when the Smile Shutter function is used.

Selecting the focus area (AF area)

Select the desired AF area to suit the shooting conditions or your preference. The AF area where the focus has been confirmed turns green and the other AF areas disappear.



Fn button → [] (AF area) → **Select the desired setting**

[] (Wide)	The camera determines which of the 15 AF areas is used in focusing.
⊕ (Spot)	The camera uses the AF area located in the center area exclusively.
⊕ (Local)	Choose the area for which you want to activate the focus from among 15 AF areas with the control button. Press the AF button to display the setup screen and select the desired area.

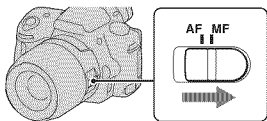
Notes

- When the exposure mode is set to AUTO, AUTO+, Sweep Panorama or Scene Selection, Picture Effect, or the Smile Shutter is activated, [AF area] is fixed to [Wide] and you cannot select the other settings.
- The AF area may not be illuminated during continuous shooting or when the shutter button is pressed all the way down without pause.

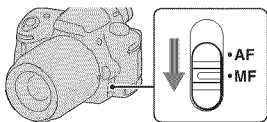
Adjusting the focus manually (Manual focus)

When it is difficult to get the proper focus in autofocus mode, you can adjust the focus manually.

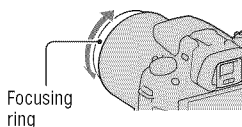
- 1 Set the focus mode switch on the lens to MF.**



- 2 When the lens is not equipped with the focus mode switch, set the focus mode switch on the camera to MF.**



- 3 Rotate the focusing ring of the lens to achieve a sharp focus.**




Notes

- In the case of a subject that can be focused in autofocus mode, the ● indicator lights up when the focus is confirmed. When the Wide AF area is used, the center area is used, and when the Local AF area is used, the area that is selected with the control button is used.
- When using a tele converter (sold separately), etc., rotation of the focusing ring may not be smooth.
- The correct focus in the viewfinder is not achieved if the diopter is not adjusted properly in viewfinder mode (page 31).
- Make sure to set the focusing mode switch to MF for manual focus. Do not rotate the focusing ring without setting to MF. Rotating the focusing ring forcibly without switching to MF may damage the focusing ring.

Checking the focus by enlarging the image

You can check the focus by enlarging the image before shooting.

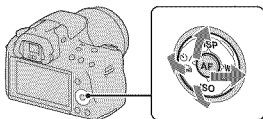
1 MENU button →  **1** → **[Focus Magnifier]** → **[On]**

2 Press the Focus Magnifier button.



Focus Magnifier button

3 Press the Focus Magnifier button again to enlarge the image and select the portion you want to enlarge with ▲/▼/◀/▶ on the control button.



- Each time you press the Focus Magnifier button, the zoom scaling changes as follows: Full display → Approx. $\times 7.5$ → Approx. $\times 15$

4 Confirm and adjust the focus.

- Rotate the focusing ring to adjust the focus in manual focus mode.
- If you press the AF button in autofocus mode, the Focus Magnifier function is canceled and the autofocus is activated.
- The Focus Magnifier function is canceled if you press the shutter button halfway down.

5 Press the shutter button fully down to shoot the image.

- You can record images when an image is enlarged, however the recorded image is for full display.
- The Focus Magnifier function will be released after shooting.

Detecting faces

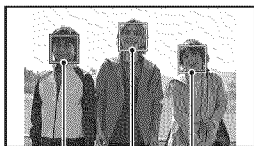
Using the Face Detection function

The camera detects faces, adjusts the focus, exposure, performs image processing, and adjusts flash settings. The Face Detection function is set to [On] in the default setting.

The Face Detection frame

When the camera detects faces, white Face Detection frames appear. When the camera judges that autofocus is possible, the Face Detection frames turn orange. When you press the shutter button halfway down, the Face Detection frames turn green.

- If a face is not positioned inside the AF area available when you press the shutter button halfway down, the AF area that is used for focusing turns green.
- When the camera detects multiple faces, the camera automatically selects a priority face and the single Face Detection frame turns orange.



Face Detection frames
(white)

Face Detection frames (orange)

To deactivate the Face Detection function

Fn button →  (Face Detection) → [Off]

Shooting technique

- Compose to overlay the Face Detection frame and the AF area.

Notes

- When the exposure mode is Sweep Panorama, Tele-zoom Continuous Advance Priority AE, or during movie recording, the Face Detection function cannot be used.

- Up to eight faces can be detected.
- The camera may not detect any faces, or may detect some other object, depending on the shooting conditions.

Capturing smiling faces (Smile Shutter)

When the camera detects a smile, the shutter is released automatically.

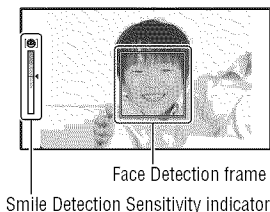
1 Fn button → ☺_{OFF} (Smile Shutter) → [On] → Select the desired Smile Detection Sensitivity mode

- When the Smile Shutter is activated, the Smile Detection Sensitivity indicator appears on the screen.

2 Wait detecting a smile.

The camera detects a smile and the focus is confirmed. When the smile level exceeds the ◀ point on the indicator, the camera records images automatically.

- When the camera detects faces, orange Face Detection frames appear around the faces. The Face Detection frames turn green when these subjects come into focus.
- The smile level of the face surrounded by the double Face Detection frame is indicated on the Smile Detection Sensitivity indicator.



3 To stop shooting, Fn button → ☺_{ON} (Smile Shutter) → [Off]

Smile Detection Sensitivity

You can set the sensitivity of the Smile Shutter function for detecting smiles to one of the following three options: ☺_{ON} (Slight Smile), ☺_{ON} (Normal Smile), and ☺_{ON} (Big Smile).

Shooting techniques

- To focus on the smile, overlay the Face Detection frame and AF area.
- Do not cover the eyes with bangs, etc. Keep the eyes narrowed.
- Do not obscure the face with a hat, a mask, sunglasses, etc.
- Try to orient the face in front of the camera and keep it as level as possible.
- Hold a clear smile with an open mouth. The smile is easier to detect when the teeth are showing.
- If you press the shutter button while the Smile Shutter function is activated, the camera shoots the image, and then returns to Smile Shutter.

Notes

- When the exposure mode is set to Sweep Panorama or Tele-zoom Continuous Advance Priority AE, the Smile Shutter function cannot be used.
- The drive mode is automatically set to [Single-shot Adv.] or [Remote Cdr.].
- The AF illuminator does not work with the Smile Shutter function.
- If the camera does not detect a smile, change the settings for Smile Detection Sensitivity.
- Smiles may not be detected correctly, depending on the shooting conditions.

Using the flash

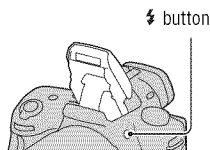
In a dark location, using the flash allows you to shoot the subject brightly, and it also helps to prevent camera shake. When shooting into the sun, you can use the flash to shoot a bright image of the backlit subject.

1 Fn button → ⚡ (Flash Mode) → Select the desired setting

2 Press the ⚡ button.

The flash pops up.

- In AUTO, AUTO+ or Scene Selection mode, the flash automatically pops up if the amount of light is insufficient or the subject is backlit. The built-in flash does not pop up even if you press the ⚡ button.









3 After the flash has finished charging, shoot the subject.

- Flashing: The flash is being charged. When the indicator flashes, you cannot release the shutter.
- Lit: The flash has been charged and is ready to fire.
- When you press the shutter button halfway down under dark lighting in autofocus mode, the flash may be fired to help focus on a subject (AF Illuminator).
- ● is indicated only in the recording information display (For Live View) mode.



● (Flash charging) indicator

 (Flash Off)	Does not fire even the built-in flash pops up.
 (Autoflash)	Fires if it is dark or against light.
 (Fill-flash)	Fires every time you trigger the shutter.
 (Slow Sync.)	Fires every time you trigger the shutter. Slow sync shooting allows you to shoot a clear image of both the subject and the background by slowing the shutter speed.
 (Rear Sync.)	Fires right before the exposure is completed everytime you trigger the shutter.
 (Wireless)	Fires an external flash (sold separately) that is off the camera and away from it (Wireless flash shooting).

Shooting techniques

- The lens hood may block the light of the flash. Remove the lens hood when using the flash.
- When using the flash, shoot the subject at a distance of 1 m (3.3 feet) or greater.
- When shooting indoors or shooting nightscapes, you can use slow sync to shoot a brighter image of people and backgrounds.
- You can use rear sync to shoot a natural image of the trail of a moving subject such as a moving bicycle or a walking person.
- When using the HVL-F58AM/HVL-F43AM Flash (sold separately), you can shoot with the High-speed sync feature at any shutter speed. For details, refer to the operating instructions supplied with the flash.

Notes



- Do not hold the camera by grabbing the flash emitter.
- Shooting conditions required to prevent shadows from appearing on an image vary, depending on the lens.
- When the exposure mode is set to AUTO, AUTO+, Scene Selection, or Picture Effect, the [Slow Sync.], [Rear Sync.], and [Wireless] items cannot be selected.
- When the exposure mode is set to P, A, S, M, the [Flash Off] or [Autoflash] items cannot be selected. If you do not want to use the flash, push the flash down.
- If you use the flash with a stereo microphone or similar device attached to the Auto-lock Accessory shoe, the flash may not pop up to the correct position and recorded images may have a shadow on their corners. Remove any device from the Auto-lock Accessory shoe.

The flash range


The range of the built-in flash depends on the ISO sensitivity and aperture value. Refer to the following table.

Aperture		F2.8	F4.0	F5.6
ISO setting	100	1 – 3.6 m (3.3 – 12 feet)	1 – 2.5 m (3.3 – 8.2 feet)	1 – 1.8 m (3.3 – 5.9 feet)
	200	1 – 5.1 m (3.3 – 17 feet)	1 – 3.5 m (3.3 – 12 feet)	1 – 2.5 m (3.3 – 8.3 feet)
	400	1.4 – 7.1 m (4.7 – 23 feet)	1 – 5 m (3.3 – 16 feet)	1 – 3.6 m (3.3 – 12 feet)
	800	2 – 10 m (6.6 – 33 feet)	1.4 – 7.1 m (4.6 – 23 feet)	1 – 5.1 m (3.3 – 17 feet)

The AF illuminator

- AF illuminator does not operate when [Autofocus Mode] is set to **AF-C** (Continuous AF) or the subject is moving in **AF-A** (Automatic AF). (The  or  indicator lights.)
- The AF illuminator may not operate with focal lengths of 300 mm or longer.
- When an external flash (sold separately) that is equipped with an AF illuminator is attached, the AF illuminator of the external flash is used.
- AF illuminator does not operate when [Smile Shutter] is set to [On].

To deactivate the AF illuminator

MENU button →  **2** → [AF Illuminator] → [Off]

To use the red-eye reduction

The red-eye reduction reduces the red-eye phenomenon by providing pre-flash (low-flash light) a few times before shooting when using the flash.

MENU button →  **1** → [Red Eye Reduction] → [On]