

Flash

Operating Instructions

Preparations

Basics

Advanced Operations

Additional Information



Auto-lock Accessory Shoe

English

Before operating the product, please read this manual thoroughly and retain it for future reference.

WARNING

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

Do not expose the batteries to excessive heat such as sunshine, fire or the like.

Tape over lithium battery contacts to avoid short-circuit when disposing of batteries, and follow local regulations for battery disposal.

Keep batteries or things that could be swallowed away from young children. Contact a doctor immediately if an object is swallowed.

Immediately remove the batteries and discontinue use if...

- the product is dropped or subjected to an impact in which the interior is exposed.
- the product emits a strange smell, heat, or smoke.

Do not disassemble. Electric shock may occur if a high voltage circuit inside the product is touched.

IMPORTANT SAFETY INSTRUCTIONS

When using your photographic equipment, basic safety precautions should always be followed, including the following:

Read and understand all instructions before using.

Close supervision is necessary when any appliance is used by or near children. Do not leave appliance unattended while in use.

Care must be taken as burns can occur from touching hot parts.

Do not operate appliance with a damaged cord or if the appliance has been dropped or damaged- until it has been examined by a qualified serviceman.

Let appliance cool completely before putting away. Loop cord loosely around appliance when storing.

To reduce the risk of electric shock, do not immerse this appliance in water or other liquids.

To reduce the risk of electric shock, do not disassemble this appliance, but take it to a qualified serviceman when service or repair work is required. Incorrect reassembly can cause electric shock when the appliance is used subsequently.

The use of an accessory attachment not recommended by the manufacturer may cause a risk of fire, electric shock, or injury to persons.

Batteries may become hot or explode due to improper use.

Use only the batteries specified in this instruction manual.

Do not install the batteries with the polarity (+/-) reversed.

Do not subject batteries to fire or high temperatures.

Do not attempt to recharge (except for rechargeable batteries), short or disassemble.

Do not mix, batteries of different types, brands or ages.

SAVE THESE INSTRUCTIONS

CAUTION

Do not touch the flashtube during operation, it may become hot when the flash fires.

For customers in Europe



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.

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.

For the customers in the U.S.A.

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 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 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.

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Before use

Use this unit in combination with a Sony Interchangeable Lens Digital Camera that has an Auto-lock Accessory Shoe, or a Sony Interchangeable Lens Digital HD Video Camera Recorder that has an Auto-lock Accessory Shoe. Some functions cannot be used with some model cameras.

See the operating instructions of this unit and refer to the operating instructions of your camera.

Although this flash unit is designed with dustproofness and splash-proofness in mind, it may not keep dust or splashes completely out.

Do not place this flash unit in the following locations

Regardless of whether this flash unit is in use or in storage, do not place it in any of the following locations. Doing so may lead to a malfunction.

- Placing this flash unit in locations subject to direct sunlight such as on dashboards or near a heater may cause this unit to deform or malfunction.
- Locations with excessive vibration
- Locations with strong electromagnetism
- Locations with excessive sand

In locations such as the seashore and other sandy areas or where dust clouds occur, protect the unit from sand and dust.

This may lead to a malfunction.

Features

The HVL-F43AM is a compact flash with a guide number of 43 (meters, 105 mm position, ISO 100).

→ page 73

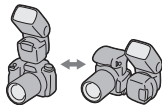
Can be used with compatible lenses to enable ADI (Advanced Distance Integration) flash metering, which is not affected by the reflection rate of the background or subject.

→ page 26

Enables High-speed Sync.

→ page 41

Quick shift bounce function enables you to set the upper or side position easily during bounce flash photography.



→ page 34

Built-in bounce sheet enables you to create a highlight in the subject's eyes.

→ page 33

This flash unit supports flash coverage to a focal length of 15 mm by using a built-in wide panel when the flash is triggered.

→ page 30

Corrects the white balance automatically using the color temperature information.*

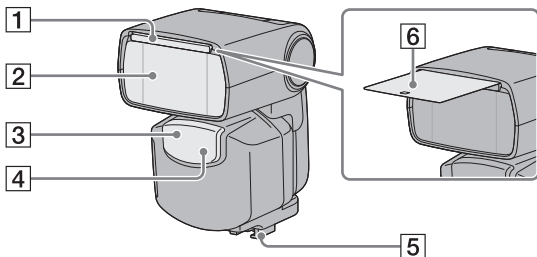
→ page 24

Adjusts the optimum flash coverage according to the image sensor size of the camera.*

→ page 28

*Except the DSLR-A100

Name of parts



- 1** Built-in wide panel (30)
- 2** Flashtube
- 3** Wireless control signal receiver (48)

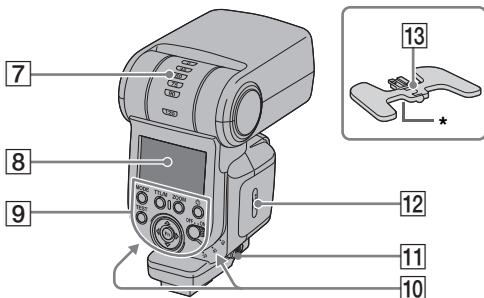
- 4** AF illuminator (61)

Remove the protective sheet from the front of the AF illuminator before use.

- 5** Mounting foot (14)
- 6** Bounce sheet (33)

Figures in parentheses are the page numbers where a description of each LCD segment can be found.

Continued on the next page

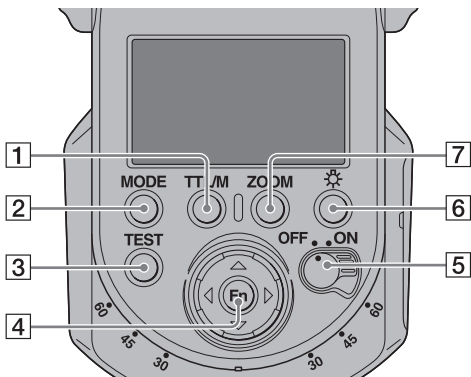


- 7** Bounce indicator (upper/lower angle) (32)
- 8** LCD panel (12)
- 9** Control panel (11)
- 10** Bounce indicator (side angle) (32)

- 11** Release button (15)
- 12** Battery chamber door (13)
- 13** Mini-stand (49)
- * Tripod attachment hole

Figures in parentheses are the page numbers where a description of each LCD segment can be found.

Control panel



- | | |
|---|---|
| 1 TTL/M (MANUAL/MULTI) button (38, 42, 53, 57, 62) | 4 Fn (function)/direction buttons (37, 42, 53, 54, 57, 63) |
| 2 MODE button (19) | 5 Power switch (16) |
| 3 TEST button (27)
The status while the lamp is lit
Amber: Flash ready
Green: Proper exposure | 6 LCD illuminator button |
| | 7 ZOOM button (29) |

LCD panel illuminator

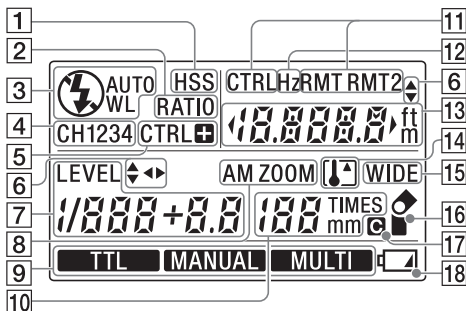
If the LCD panel is too dark, you can illuminate it by pressing the LCD illuminator button.

- The LCD panel remains illuminated for about 8 seconds when the flash unit is used by itself or connected to a camera that is in power save mode. This time is extended if the flash or camera is used.
- Press the LCD illuminator button again while the LCD panel is illuminated to extinguish the LCD panel illuminator.

Figures in parentheses are the page numbers where a description of each LCD segment can be found.

Continued on the next page

LCD panel



- | | |
|---|--|
| 1 HSS (High-speed-sync) indicator (41) | 11 Wireless controller/remote indicator (51, 54, 57) |
| 2 Ratio-flash indicator (57) | 12 Hz indicator (42) |
| 3 Flash mode indicator (19) | 13 Flash-range/Flash-range-warning (near side, far side)/ Multiple-flash frequency/flash-ratio display (23, 42, 57) |
| 4 Wireless channel indicator (60, 65) | 14 Overheat indicator (18) |
| 5 Wireless controller indicator (47) | 15 Wide-panel indicator (30) |
| 6 Operating indicator (63) | 16 Bounce indicator (31) |
| 7 Power-level indicator (37, 42) | 17 Custom indicator (63) |
| 8 Zoom indicator (28) | 18 Low-battery indicator (17) |
| 9 TTL/Manual-flash/Multiple-flash indicator (37, 42) | |
| 10 Zoom/Multiple-flash repetition display (28, 42) | |

Figures in parentheses are the page numbers where a description of each LCD segment can be found.

Inserting batteries

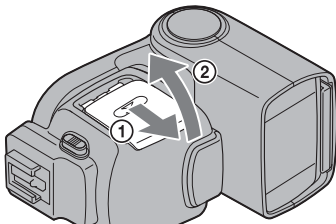
The HVL-F43AM may be powered by :

- Four LR6 (AA-size) alkaline batteries*
- Four AA-size rechargeable nickel-metal hydride (Ni-MH) batteries*

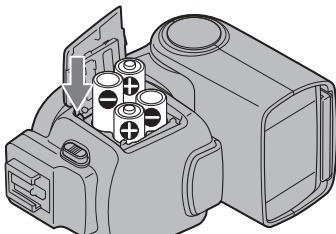
* Batteries are not supplied.

Always ensure that rechargeable nickel-metal hydride batteries are charged in the specified charger unit.

1 Open the battery chamber door as shown.



2 Insert the batteries in the battery chamber as in the diagram.



3 Close the battery chamber door.

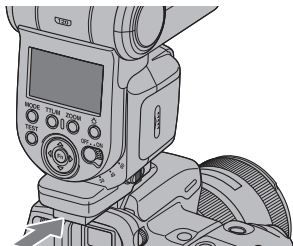
- Follow the reverse procedure when opening the battery chamber door.

Attachment and removal of the flash unit

Attaching the flash unit to the camera

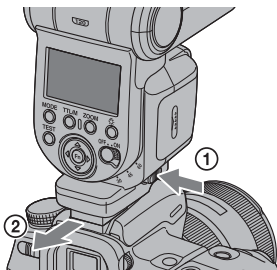
With the flash unit turned off, push the mounting foot firmly and fully into the Auto-lock Accessory Shoe of the camera.

- The flash unit is locked in place automatically.
- If the built-in flash in the camera is protruding, close it before attaching the flash unit.
- This unit is only suitable for an Auto-lock Accessory Shoe.
You cannot use this unit with a camera that has no Auto-lock Accessory Shoe.



Removing the flash unit from the camera

While pressing the release button ①, remove the flash unit in the direction of arrow ②.

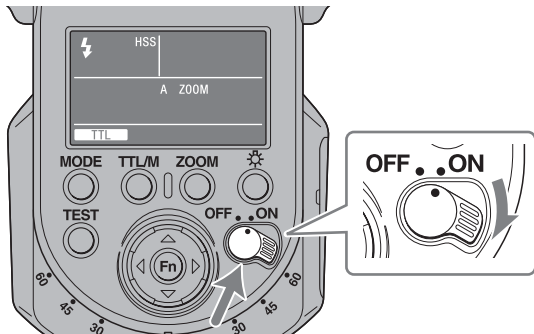


Turning on the power

Set the power switch to ON.

The power of the flash unit turns on.

- When the power of the flash unit is turned on, the LCD panel lights up.



- If nothing appears on the LCD panel when the power switch is set to ON, check the orientation of the batteries.

To turn the power off

Set the power switch to OFF.



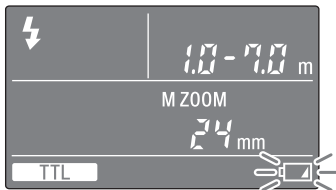
Power save mode


If the flash unit is not operated for 3 minutes when used by itself or connected to a camera that is in power save mode, it switches to power save mode to save the batteries and the LCD display goes out.

- During wireless flash photography (pages 51, 57), the flash unit changes to power save mode after 60 minutes.
 - You can change the time until power save, or disable power save. (page 67)
 - The flash unit automatically changes to power save mode when the power switch of the camera* is set to OFF.
- * Except the DSLR-A100
- When the camera is in power save mode, for example when the LCD monitor automatically turns off, the camera does not communicate with the flash unit. In this state, flash mode and TTL/M mode switching, automatic zoom, wide panel display and flash range display are not linked with your camera.

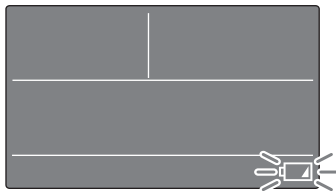
Checking Batteries

The  indicator on the data panel blinks when the batteries are low.



 blinking

Changing the batteries is recommended.
The flash unit can still be used when the TEST button lights up in amber.





Only  blinking

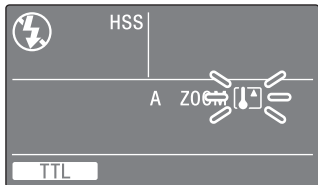
Flash cannot be used.
Insert new batteries.

Continued on the next page

indicator

When the temperature of this unit rises after continuous flash use or use in a high temperature environment, its internal safety circuit automatically suspends operation (overheating).

- The  indicator blinks when overheating is detected.
- Flash operation is suspended until the temperature of the unit falls and the  indicator turns off.
- When overheating is detected, set the power switch to OFF and stop using the flash unit for about 10 minutes to allow it to cool down.



Changing the flash mode

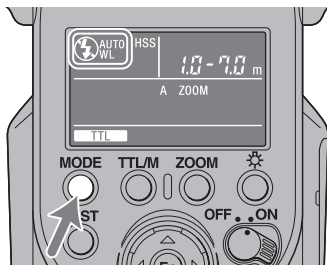
Press the MODE button.

- The indicator on the LCD panel changes as follows.
When the flash unit is not connected to your camera, or when the camera is in power save mode or the LCD monitor of the camera is being turned off when the flash unit is connected to the camera:

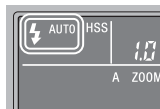
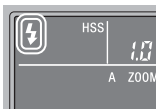
⚡ (⚡ AUTO) → WL → ⚡ → ⚡ (⚡ AUTO) → ...

When your camera is turned on and the flash unit is connected to your camera (WL is not set up):




⚡ (⚡ AUTO) → ⚡ → ⚡ (⚡ AUTO) → ...



- ⚡ lights up when the camera is set to Fill-flash. ⚡ AUTO lights up when the camera is set to Auto flash.



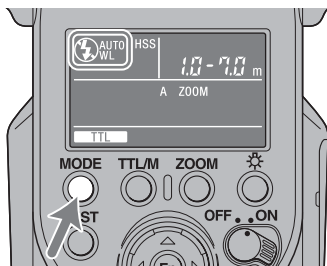
About flash mode

-  (Fill-flash mode)
The flash unit always fires.
-  AUTO (Auto flash mode)
The flash unit is set to this mode when the camera is set to auto flash.
- WL (Wireless flash mode)
This mode is used during wireless flash photography.
-  (Un-fill-flash mode)
The flash unit does not fire.

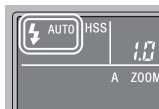
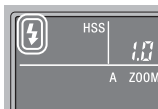
Program auto flash (The basics)

- If your camera has an AUTO mode or Scene Selection mode, they are dealt with here as program auto.

- 1 Select the P mode on the camera.
- 2 Press the MODE button to display [⚡ AUTO] or [⚡] on the LCD panel.

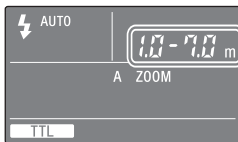


- [⚡] lights up when the camera is set to Fill-flash. [⚡ AUTO] lights up when the camera is set to Auto flash.



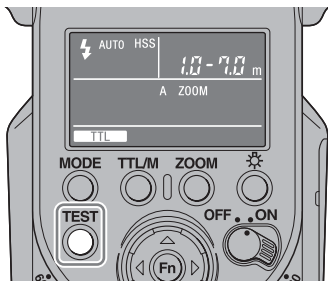
3 Press the shutter button halfway down and make sure that the subject is within the flash range.

- See page 23 for details on the flash range.



4 When the flash unit is charged, press the shutter button to take a photo.

- The flash unit is fully charged when the TEST button on the control panel is lit in amber.



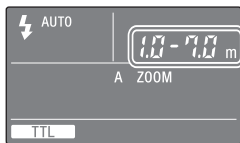
When the correct exposure has been obtained for the photo just taken, the TEST button on the control panel blinks in green.

- The photo will be under-exposed because of a lack of luminescence if taken before charging is complete.
- Press the shutter button after making sure that charging is complete when using the flash unit with the self-timer.
- The flash mode selected (auto flash (⚡ AUTO), fill-flash (⚡), or un-fill-flash (⚡)) depends on your camera. For details, refer to the operating instructions of your camera.

Flash range

Press the shutter button halfway down.

The flash range for the proper exposure is displayed on the LCD panel. Make sure that the subject is within this range and then take the photo.



The range that can be displayed on the LCD panel is from 1.0 m to 28 m (0.7 m to 28 m for downward bounce; see page 36). When the distance is beyond this range, ◀ or ▶ is lit on either side of the Flash range.



Proper exposure is obtained at less than 1.0 m.

If the flash range is less than 1.0 m, the lower area of the image on the LCD monitor of the camera may become dark. Change the flash range to adjust the aperture and ISO sensitivity.



Proper exposure is obtained from 1.0 m to 28 m or more.

- The flash ranges when using upward bounce flash or wireless flash are not shown.
- When you take a photo closer than the lower limit of the flash range, the photo may be over-exposed even if the TEST button blinks green, or the lower area of the image on the LCD monitor of the camera may darken. Always take a photo within the indicated flash range.

Auto WB Adjustment with Color Temperature Info

White balance is automatically adjusted by your camera (except the DSLR-A100) based on color temperature information when the flash unit fires.

- Auto WB Adjustment functions when you attach the flash unit to your camera and use TTL flash mode on the flash unit.
- This function does not work during manual flash photography. (page 37)

Using flash in each recording mode of the camera

If the camera is set to aperture priority (A mode), shutter speed priority (S mode) or manual exposure mode (M mode), TTL flash photography can be performed according to the mode.

1 Select A, S or M mode on the camera.

2 Press the MODE button to display [⚡].

- Fill-flash is selected.



3 Set the aperture and/or shutter speed according to the mode you select, and then focus the subject. See the table below.

Recording mode of the camera	Settings
A (Aperture priority flash photography)	Set the aperture. <ul style="list-style-type: none">• Reduce the aperture (i.e. increase the f-stop) to reduce the flash range, or open the aperture (i.e. reduce the f-stop) to increase the flash range.• The shutter speed is set automatically.
S (Shutter speed priority flash photography)	Set the shutter speed.

Continued on the next page

Recording mode of the camera	Settings
M (Manual exposure mode flash photography)	Set the aperture and shutter speed. <ul style="list-style-type: none"> • Reduce the aperture (i.e. increase the f-stop) to reduce the flash range, or open the aperture (i.e. reduce the f-stop) to increase the flash range.

4 Press the shutter button when charging is complete.

TTL flash

Manual flash provides a fixed flash intensity irrespective of the brightness of the subject and the camera setting. TTL* flash measures the light from the subject that is reflected through the lens.

TTL metering also has a P-TTL metering function, which adds a pre-flash to TTL metering, and an ADI metering function, which adds distance data to the P-TTL metering.

This flash unit defines all P-TTL and ADI metering as TTL flash and

TTL is displayed on the LCD panel.

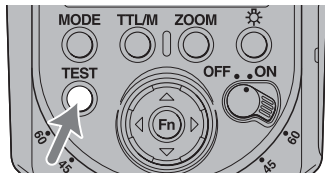
*TTL = through the lens

- ADI metering is possible in combination with a lens with a built-in distance encoder. Before using the ADI metering function, check whether your lens has a built-in distance encoder by referring to the specifications in the operating instructions supplied with your lens.

Test-flash

You can try a test flash before shooting. Check the light level using the test flash when you use a flash meter, etc., in the manual flash (M) mode.

Press the TEST button when the TEST button lights up in amber.



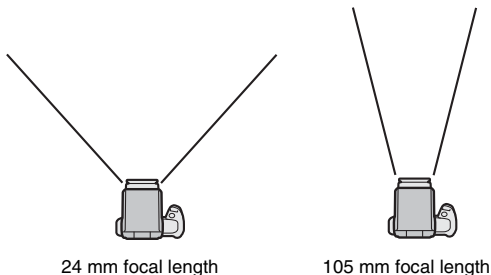
- The TEST button is turned on as follows, according to the current state of the flash unit.
 - Amber: Flash ready
 - Green: Proper exposure
- The light level of the test-flash depends on the light level setting (page 37). The flash unit fires with a light level of 1/1 in TTL mode.
- You can check shadows on the subject before taking photos with the test-flash (modeling flash) function. The flash unit has two modeling flash modes, three times flashes mode and modeling flash mode in which the flash unit fires repeatedly for four seconds. For details on setting the test-flash mode, see “C05 To change the test-flash mode” (page 67) in “Custom settings”.

Zoom flash coverage

Auto zoom

This flash unit automatically switches optimum flash coverage (zoom flash coverage) to cover a range of focal lengths from 24 mm to 105 mm when photographing (auto zoom). Normally, you do not need to switch the flash coverage manually.

The auto zoom is working when [A ZOOM] is displayed on the LCD panel. The zoom is not displayed on the LCD panel when [A ZOOM] is displayed.



- When a lens having a focal length of less than 24 mm is used with auto zoom, [WIDE] on the LCD panel blinks. Use of the built-in wide panel (page 30) is recommended in this case to prevent darkening at the periphery of the image.

Auto zoom control optimized for image sensor size

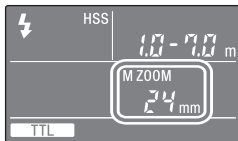
This unit provides optimal flash coverage according to the image sensor size (APS-C format/35mm format) of the camera (except the DSLR-A100).

Manual zoom

You can manually set the flash coverage regardless of the focal length of the lens in use (manual zoom).

Press the ZOOM button to select the flash coverage to be set.

- The zoom coverage is changed in the following order.
105 mm → 70 mm → 50 mm → 35 mm → 28 mm → 24 mm → A ZOOM
→ 105 mm → ...



- When zoom is set manually, [M ZOOM] is displayed above zoom coverage.
- If the flash coverage is set to less than the focal length of the lens in use, the periphery of the screen darkens.
- The flash coverage of the manual zoom on the LCD panel is the angle of view of the 35mm-format focal length.

Flash coverage & focal length

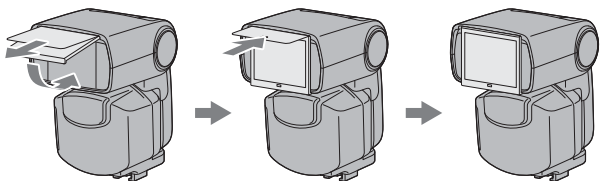
The larger the focal length figure of the lens on a camera, the further away a subject can be photographed to take up the full screen; but the area that can be covered becomes smaller. Conversely, with a smaller focal length figure, subjects can be photographed with wider coverage. The flash coverage is the area that the light from the flash at a set intensity or greater can cover evenly, expressed as an angle. The flash coverage at which you can photograph is determined by the focal length.

By having flash coverage determined in accordance with focal length, flash coverage can be expressed as the figure for focal length.

Built-in wide panel (15 mm zoom angle)

Pulling out the built-in wide panel extends flash coverage to include focal lengths from 15 mm to less than 24 mm.

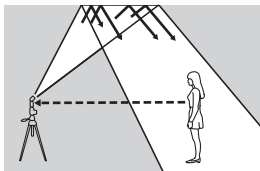
Pull out the wide panel and set it at the front of flash tube, and then push back the bounce sheet.



- [WIDE] is displayed on the LCD panel.
- When putting the wide panel back, push it back in completely and confirm that [WIDE] on the LCD display turns off.
- Do not pull out the wide panel forcibly. This may damage the wide panel.
- When photographing a flat subject from in front at a focal length of less than 18 mm, the periphery of the screen may darken slightly because of the difference in intensity of the light that reaches the center and periphery of the screen.
- When using a wide-angle lens with a focal length below 15 mm, the periphery of the screen may darken.
- The focal length corresponds to the equivalent 35mm-format focal length.
- This flash unit does not support the angle of view of a 16 mm F2.8 Fisheye lens.
- Push back the wide panel and the bounce sheet into the inside of the flash head when this flash unit is stored in the supplied case.

Bounce flash

Using the flash unit with a wall directly behind the subject produces strong shadows on the wall. By directing the flash unit at the ceiling you can illuminate the subject with reflected light, reducing the intensity of the shadows and producing a softer light on the screen.

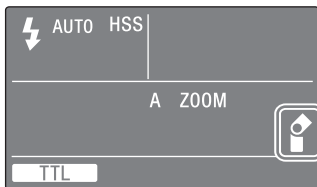
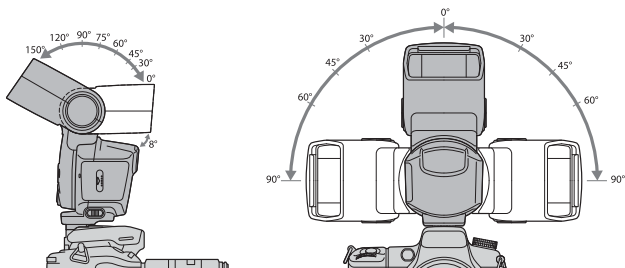


Bounce flash



Normal flash

Rotate the flash unit upwards or to the left and right while holding the camera firmly.



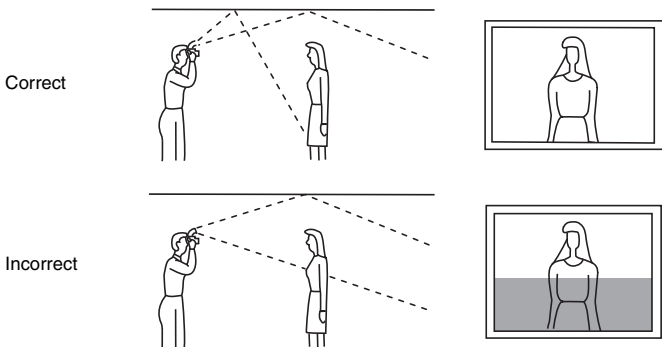
- When the flash is rotated upwards, the flash range is not displayed on the LCD panel. High-speed sync (page 41) is also cleared.
- When the flash is rotated upwards, the bounce indicator does not appear.
- Use a white ceiling or wall to reflect the flash. A colored surface may color the light. High ceilings or glass are not recommended.

Adjusting bounce angle

Simultaneously using direct light and bounced light from the flash unit produces uneven lighting. Adjust to the best bounce angle while performing a test flash in actual shooting conditions.

Examples of shooting conditions:

- distance from camera to reflective surface
- flash range
- focal length of lens



When the flash is bounced upwards

Determine the angle in relation to the following table.

Focal length of lens	Bounce angle
70 mm minimum	30°, 45°
28 mm - 70 mm	60°
28 mm maximum	75°, 90°

Using the bounce sheet

The bounce sheet creates a highlight in the subject's eyes and makes the subject look more vibrant.

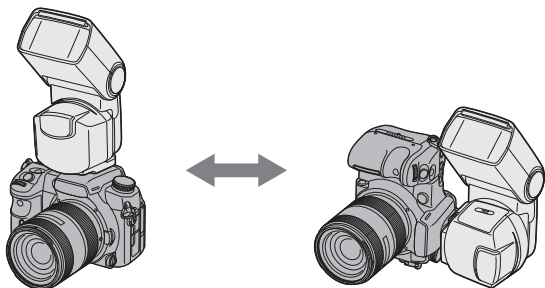
- The bounce sheet is pulled out when the wide panel is pulled out. Push back the wide panel.

Continued on the next page

- When using the bounce sheet, set the bounce angle to 90° upwards.

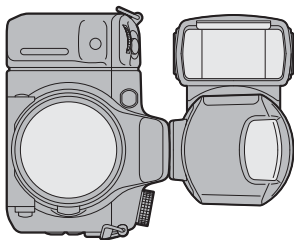
Quick shift bounce


When shooting in the portrait position, you can set the same bounce flash as that used when shooting in the landscape position, and also use the control panel at proper direction.



90° sideways bounce

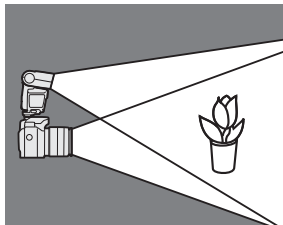
When the bounce angle is set to 90° sideways and 0° upwards while shooting in the portrait position, the top and bottom of the photo may darken. In this case, use the built-in wide panel or set the bounce angle to 0° sideways.



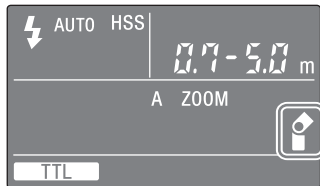
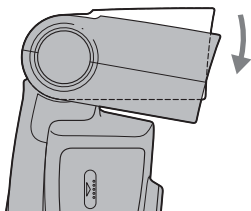
-  blinks on the LCD panel.
- When the zoom flash coverage is set to [A ZOOM] while using 90° sideways bounce, the coverage is adjusted automatically to the wide angle. In this case, the flash range is shorter than that for 0° sideways bounce.


Close-up photography (downward bounce)

Tilt the flash slightly downwards when photographing objects between 0.7 m and 1.0 m from the camera to ensure accurate illumination.



Rotate the flash downwards with holding the camera firmly.

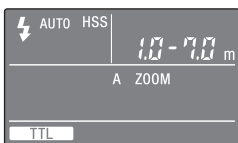


- The rotation angle is 8°.
-  appears on the LCD panel.
- When photographing at a distance closer than 0.7 m, the flash will not be able to completely cover the subject and the bottom of the picture will be darker. Use an off-camera flash, Macro Twin Flash, or Ring Light.
- The downward bounce can be used only when the bounce angle is set to 0° or 90° sideways.
- The lenses with long length may obstruct the flash light.

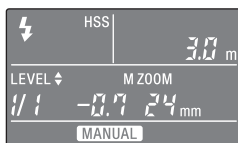
Manual flash (M)

Normal TTL flash metering automatically adjusts the flash intensity to provide the proper exposure for the subject. Manual flash provides a fixed flash intensity irrespective of the brightness of the subject and the camera setting.

- As manual flash is not affected by the reflectivity of the subject, it is convenient for use with subjects with extremely high or low reflectivity.
- Manual flash can only be used when the camera is set to M (Manual) mode. In other modes, TTL measuring is selected automatically.
- You can change the custom settings of this unit to enable manual flash photography in modes other than M mode of your camera. (page 63)



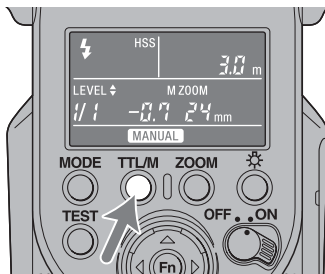
TTL flash metering



Manual flash metering

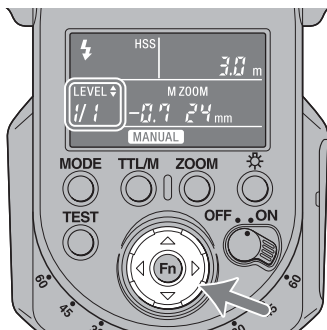
1 Press the TTL/M button to display **MANUAL** on the LCD panel.

- The modes change in the following order.

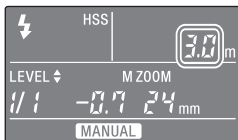


2 Press the Δ or ∇ button to select the power level to be set.

- The power level can be set to the following.
1/1 (maximum) \rightarrow 1/2 \rightarrow 1/4 \rightarrow 1/8 \rightarrow 1/16 \rightarrow 1/32 \rightarrow 1/64 \rightarrow 1/128 (minimum)
- The power level indication may sometimes differ depending on whether the power level was increased or decreased, even if the power level is the same.
 ∇ button
1/1 \rightarrow 1/1(-0.3) \rightarrow 1/1(-0.7) \rightarrow 1/2 \rightarrow 1/2(-0.3) ... 1/64(-0.3) \rightarrow 1/64(-0.7) \rightarrow 1/128
 Δ button
1/1 \leftarrow 1/2(+0.7) \leftarrow 1/2(+0.3) \leftarrow 1/2 \leftarrow 1/4(+0.7) ... 1/128(+0.7) \leftarrow 1/128(+0.3) \leftarrow 1/128
- The power can be set to up to 22 levels by changing the power level interval. See “C09 To Change the power level interval” on page 68 for details.



- When the shutter button is pressed halfway down, the distance at which the proper exposure is obtained appears on the LCD panel. Set the aperture to match the displayed distance to the shooting distance.



Proper exposure is obtained at less than 1.0 m.

If the flash range is less than 1.0 m, the lower area of the image on the LCD monitor of the camera may become dark. Change the flash range to adjust the aperture and ISO sensitivity.



Proper exposure is obtained at more than 28 m.

- In manual flash photography, if the power level is set at 1/1 then the flash will go off at full power. The power level range (e.g. 1/1 → 1/2) corresponds to the aperture range (e.g. F4 → 5.6).
- The flash range check indication of the TEST button (blinks in green) does not work after a photo is taken with the manual flash.

High-speed sync (HSS)



High-speed sync



Normal flash

High-speed sync eliminates the restrictions of flash sync speed and enables the flash to be used through the entire shutter speed range of the camera. The increased selectable aperture range allows flash photography with a wide aperture, leaving the background out of focus and accentuating the front subject. Even when photographing at a wide f-stop in the A mode or M mode of the camera, when the background is very bright and the shot will normally be over-exposed, you can adjust the exposure by using the high-speed shutter.

For details on turning the HSS setting off, see “Custom settings” (page 63).

Flash Sync Speed

Flash photography is generally associated with a maximum shutter speed referred to as the flash sync speed. This restriction does not apply to cameras designed for high-speed sync (HSS) photography, since they allow flash photography at the maximum shutter speed of the camera.

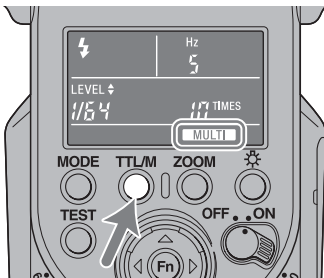
Multiple flash (MULTI)

The flash is triggered a number of times while the shutter is open (multiple flash). Multiple flash allows motion of the subject to be captured in a photograph for later analysis.

- The camera must be set to the M mode for multiple flash photography. In modes other than the M mode of the camera, the proper exposure may not be obtained.
- The custom settings of this unit enable multiple flash photography in modes other than the M mode of your camera. (page 63)

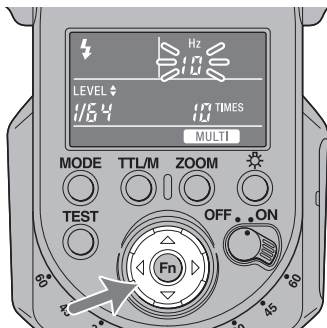


- 1 Press the TTL/M button to display **MULTI** on the LCD panel.



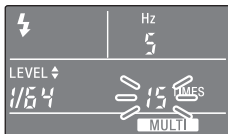
2 Press the Fn button to make [Hz] blink, and then press the Δ or ∇ button to select the flash frequency.

- The figures show the number of flashes per second.
- The flash frequency may be selected from the following.
100, 90, 80, 70, 60, 50, 40, 30, 20, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1
- Keep the Δ or ∇ button pressed down to repeatedly change the value.



3 Press the Fn button to make [TIMES] blink, and then press the Δ or ∇ button to select the number of flashes.

- The number of flashes may be selected from the following.
--, 100, 90, 80, 70, 60, 50, 45, 40, 35, 30, 25, 20, 15, 10, 9, 8, 7, 6, 5, 4, 3, 2
- Keep the Δ or ∇ button pressed down to repeatedly change the value.
- When "--" is selected, flashes continue at the set frequency while the shutter is open.



Continued on the next page

4 Press the Fn button to make the power-level indicator blink, and then press the Δ or ∇ button to select the power level to be set.

- The power level can be set to the following.
1/8 \rightarrow 1/16 \rightarrow 1/32 \rightarrow 1/64 \rightarrow 1/128
- You can change the power level interval so that the power can be set to up to 13 levels.
See “C09 To Change the power level interval” on page 68 for details.



5 Press the Fn button to finish the setting.

6 Set the shutter speed and aperture.

- The shutter speed should at least equal the number of flashes (TIME) divided by the flash frequency (Hz).
For example, if the number of flashes is 10 and the flash frequency is 5, set the shutter speed of your camera to 2 seconds or more.

7 When the flash is fully charged, press the shutter button to take the photo.

- The distance at which the proper exposure is obtained with a single flash is displayed on the LCD panel.
- To prevent shaking, the use of a tripod is recommended during multiple flash photography.
- Test flash will fire at the selected frequency/number/level while the TEST button is being pressed if [TEST1] is selected in the custom setting. When [TEST3] or [TESTM] is selected, the flash three times or the four second modeling flash has priority.

Maximum number of continuous flashes

The maximum number of continuous flashes during multiple flash photography is limited by the charge in the battery. Use the following values as a guide.

With alkaline batteries

Power level	Flash frequency (Hz)																		
	100	90	80	70	60	50	40	30	20	10	9	8	7	6	5	4	3	2	1
1/8	5	5	5	5	5	5	5	5	6	6	6	6	7	7	8	9	10	100*	100*
1/16	8	8	9	9	9	9	10	10	10	15	15	20	20	30	45	65	100*	100*	100*
1/32	15	15	15	15	17	17	18	18	20	40	50	65	80	100*	100*	100*	100*	100*	100*
1/64	30	30	32	32	35	37	40	45	75	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*
1/128	60	60	65	65	70	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*

100* signifies more than 100.

With nickel-metal hydride batteries (When using 2100 mAh)

Power level	Flash frequency (Hz)																		
	100	90	80	70	60	50	40	30	20	10	9	8	7	6	5	4	3	2	1
1/8	5	5	5	5	5	5	5	6	6	7	7	8	8	10	10	25	100*	100*	100*
1/16	8	8	9	9	9	9	10	10	10	15	20	30	60	75	100*	100*	100*	100*	100*
1/32	17	17	18	18	18	19	20	20	40	80	100*	100*	100*	100*	100*	100*	100*	100*	100*
1/64	32	33	35	36	40	45	55	95	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*
1/128	63	65	70	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*	100*

100* signifies more than 100.

- The maximum number of flashes varies with the type of battery and its condition.

Wireless flash mode (WL)

This flash unit enables the following wireless flash photography.

[A] Wireless flash photography (HVL-F43AM: off-camera flash)

The camera's built-in flash is the controller (the flash that emits control light) and the HVL-F43AM is the off-camera flash (the flash that is away from the camera).

[B] Wireless flash photography (HVL-F43AM: controller)

The HVL-F43AM is the controller and another flash is the off-camera flash.

[C] Multiple wireless flash photography with lighting ratio control

Using the HVL-F43AM as the controller, a camera that supports lighting ratio control can group a number of off-camera flashes and control the lighting ratio.



Normal flash



Wireless flash [A], [B]

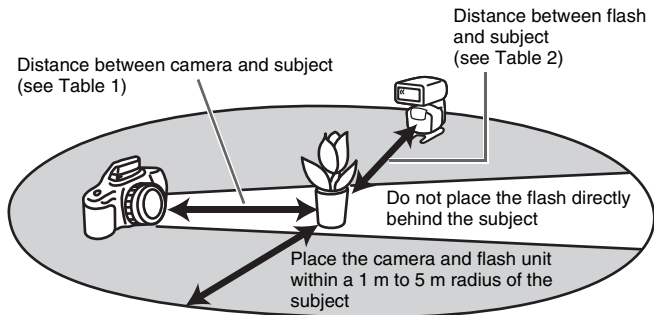


Wireless flash [C]
(Lighting ratio control mode)

Wireless Flash Range

The wireless flash uses a light signal from the flash as a trigger to operate the off-camera flash unit. Follow the points below when positioning the camera, flash, and subject.

- Photograph in dark locations indoors.
- Place the off-camera flash within the gray area in the following diagram.



Distance camera-HVL-F43AM-subject

	Distance camera-subject (Table 1)	Distance HVL-F43AM - subject (Table 2)				
		Other than HSS	HSS			
Shutter speed	All shutter speeds	Sync speed or slower	1/250 sec	1/500 sec	1/1000 sec	1/2000 sec
Aperture						
2.8	1.4 - 5	1 - 5	1 - 3	1 - 2.1	1 - 1.5	1 - 1.1
4	1 - 5	1 - 5	1 - 2.1	1 - 1.5	1 - 1.1	-
5.6	1 - 5	1 - 5	1 - 1.5	1 - 1.1	-	-

Units: m

- The distances in the above table assume the use of ISO 100. If ISO 400 is used the distances must be multiplied by a factor of two (assume a limit of 5 m).
- The flash range is not displayed on the LCD panel when using wireless flash.

Opening and closing the included mini-stand

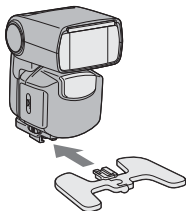
- The mini-stand is collapsible and must be open when used.



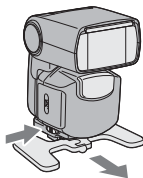
Attaching and removing the mini-stand

- Use the supplied mini-stand when the flash unit is separate from the camera.

Attachment

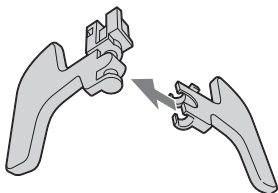


Removal



- You can attach the flash unit to a tripod using the tripod attachment hole under the mini-stand. Use the tripod equipped with the screw under 5.5 mm. Because the tripod equipped with the screw over 5.5 mm cannot hold the mini-stand firmly, mini-stand may be damaged.

- When mini-stand break into each part, fit the part of shaft into the other part.



[A] Wireless flash photography using the HVL-F43AM as the off-camera flash

Use only an off-camera flash unit, using the light from the built-in flash as a signal.



1 Attach the flash unit to the camera and turn the power of the flash unit and camera on.

2 Set the camera to wireless flash mode.

- The setting method differs depending on the camera used. For details, refer to the operating instructions of your camera.
- When the camera is set to wireless the flash is also set to wireless automatically, and WL is displayed on the LCD panel. The flash channel information is transmitted to the camera.
- The light level can be changed even for the wireless flash mode. For details, see page 68.

3 Remove the flash unit from the camera and raise the built-in flash.

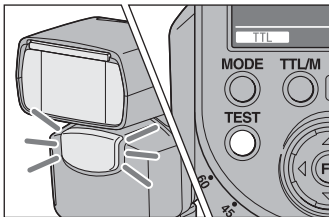
- Make sure that the wireless remote mode display on the LCD panel of the flash unit is [RMT] or [RMT2].

4 Set up the camera and flash unit.

- Set up the camera and flash unit in a dark location, such as indoors.
- See page 48 for details.

5 Make sure that the built-in flash and flash unit are fully charged.

- The built-in flash full-charge indication varies depending on the camera. For details, refer to the operating instructions of the camera.
- When the flash unit is fully charged in the wireless flash mode, the AF illuminator on the front blinks, and the TEST button is lit in amber.



6 Use test-flash to check the flash.

- During wireless flash photography, the test-flash method differs depending on the camera used. For details, refer to the operation instructions of your camera.
- If the test-flash does not work, change the position of the camera, flash, and subject, or point the wireless control-signal receiver towards the camera.

7 Check again that the built-in flash and the flash unit are fully charged, and press the shutter button to take the photo.

Setting wireless flash by flash only

Once you have performed the wireless flash setup in step [A], if you continue to use the same camera and flash combination without changing the wireless channel then you can also set the flash and camera separately to wireless.

Camera setting:

Set the camera to the wireless flash mode.

For details, refer to the operating instructions supplied with your camera.

Flash setting:

1 Press the TTL/M button to display **TTL** or **MANUAL**.

- When selecting **MANUAL**, the flash unit fires with the power level to be set.

2 Press the MODE button repeatedly to display [WL], and then press the Fn button.

3 Press the ◀ or ▶ button to make [RMT] or [RMT2] blink, and then press the Fn button.

- Make sure that the wireless channel of the off-camera flash is set to the same channel as the controller.
For details on setting the wireless channel, see “Custom settings” (page 63).

[B] Wireless flash photography using the HVL-F43AM as the controller

When using the DSLR-A900, DSLR-A850 or DSLR-A700, you can perform wireless flash photography by using more than 2 flash units, one as a controller and the other as an off-camera flash unit. Use the HVL-F43AM as the controller.

HVL-F43AM



Off-camera flash

If you use an HVL-F56AM or HVL-F36AM as an off-camera flash when using a DSLR-A900 or DSLR-A850 camera, set the wireless controller mode of the HVL-F43AM to [CTRL2] ([CTRL] on the LCD display). For details on setting, see “Custom settings” (C03) on page 66.

1 Set the camera, flash (controller), flash (off-camera flash) to wireless flash.

Camera Setting:

Set the camera to wireless flash.

For details, refer to the operating instructions supplied with your camera.

Controller Setting:

- 1 Press the **MODE** button repeatedly to display [WL], and then press the **Fn** button.
- 2 Press the **◀** or **▶** button to make [CTRL] blink, and then press the **Fn** button.
 - [CTRL+] or [CTRL] is displayed.

Off-camera flash setting:

Set the wireless flash while the flash unit is attached to the camera, and then remove it from the camera. For details, refer to the operating instructions supplied with the external flash. When the HVL-F43AM is used as the off-camera flash, see page 53, and set the remote mode to [RMT].

2 Attach the controller to the camera, and turn on the power of the camera, controller, off-camera flash.**3 Set up the camera with the controller and the off-camera flash.**

- See page 48 for details.

4 Make sure that the controller and the flash unit are fully charged.

- When the flash unit is fully charged in the wireless flash mode, the AF illuminator on the front blinks, and the TEST button is lit in amber.

5 Use test-flash to check the flash.

- The test-flash method differs depending on the camera used. For details, refer to the operating instructions of your camera.
- If the test-flash does not work, change the position of the camera, flash, and subject, or point the wireless control-signal receiver towards the camera. Moreover, make sure that wireless channel of the off-camera flash is set to the same channel as the controller.

6 Check again that the controller and the flash unit are fully charged, and press the shutter button to take the photo.

- Even if RATIO is set to [OFF], the controller flashes to transmit a signal.

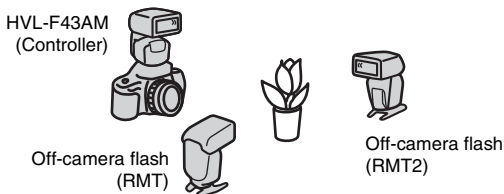
[C] Multiple wireless flash photography with lighting ratio control

When using the DSLR-A900, DSLR-A850 or DSLR-A700, you can perform wireless flash photography while controlling the lighting ratio between a maximum of 3 groups including the controller and two groups of off-camera flash units.

Controller: HVL-F43AM (this unit)

Off-camera flashes: HVL-F58AM, HVL-F43AM (this unit), HVL-F42AM

These flash units can be set in 2 groups (RMT and RMT2).



- Any combination of HVL-F58AM, HVL-F43AM and HVL-F42AM can be used in the [RMT] group. HVL-F58AM or HVL-F43AM set to [CTRL1] (CTRL+ on the LCD display) can be used in the [RMT2] group.
- HVL-F42AM being used as an off-camera flash is recognized as the [RMT] group. When using HVL-F42AM as an off-camera flash in 3-group wireless flash photography, use HVL-F58AM or HVL-F43AM as the other off-camera flash which can be set to [RMT2].
- When using a DSLR-A900 or DSLR-A850 camera, you can use an HVL-F56AM and/or HVL-F36AM as off-camera flashes. Set the controller mode of this unit to [CTRL2] ([CTRL] on the LCD display). In this mode, the HVL-F56AM and/or HVL-F36AM are in the [RMT] group, and you can control the lighting ratio of up to 2 groups using a HVL-F43AM or HVL-F58AM as a controller. For details on setting the controller mode, see [C03] in “Custom settings” (page 66).
- The whole power level ratio is displayed using the flash-range/multiple-flash frequency/flash-ratio display on the LCD panel for the wireless flash photography with the lighting ratio control.
e.g.)

When a display is [4:2:1], the flash of each group fires with power level of 4/7, 2/7 and 1/7 of the whole.

Continued on the next page



- 1 Set the camera, flash (controller), and flash (off-camera flash) to wireless flash.**

Camera Setting:

Set the camera to wireless flash.

For details, refer to the operating instructions supplied with your camera.

Controller Setting:


- 1 Press the MODE button repeatedly to display [WL], and then press the Fn button.**
- 2 Press the ◀ or ▶ button to make [CTRL] and [RATIO] blink, and then press the Fn button.**
- 3 Press the ▲ or ▼ button to select the lighting ratio.**
 - The lighting ratio may be set to the following.
1, 2, 4, 8, 16, --*
 - * The flash unit cannot flash when the lighting ratio is set to [--].
- 4 Press the ◀ or ▶ button to select the lighting ratio of the controller and off-camera flash units (RMT, RMT2), and then press the Fn button.**
 - Set the power level ratio to [--] on the flash unit when there is an off-camera flash (RMT/RMT2) you don't want to fire when you use the flash unit with the controller after setting the flash unit to [CTRL1].
- 5 Press the TTL/M button to display **TTL**.**
 - When **MANUAL** is selected, manual setting flash is used with the lighting ratio control.

Off-camera flash setting:

Set the wireless flash while the flash unit is attached to the camera, and then remove it from the camera. For details, refer to the operating instructions supplied with the external flash. When the HVL-F43AM is used as the off-camera flash, see page 53.

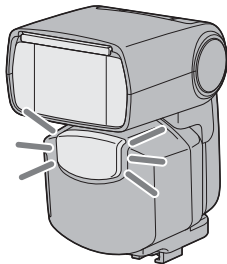
- 2 Attach the controller to the camera, and turn on the power of the camera, controller, and off-camera flash.**
- 3 Set up the camera with the controller and the off-camera flash.**
 - See page 48 for details.
- 4 Make sure that the controller and the flash unit are fully charged.**
 - When the flash unit is fully charged in the wireless flash mode, the AF illuminator on the front blinks, and the TEST button is lit in amber.
- 5 Use test-flash to check the flash.**
 - The test-flash method differs depending on the camera used. For details, refer the operating instructions of your camera.
 - If the test-flash does not work, change the position of the camera, flash and subject, or point the wireless control-signal receiver towards the camera. Moreover, make sure that the wireless channel of the off-camera flash is set to the same channel as the controller.
- 6 Check again that the controller and the flash unit are fully charged, and press the shutter button to take the photo.**

Notes on wireless flash

- You cannot use a flash meter or color meter in wireless flash mode because the pre-flash goes off.
- Test flash for the wireless flash is in the currently selected test flash mode. One flash occurs with [TEST1] and three flashes with [TEST3]. Flashes continue for four seconds with [TESTM]. For details of test flash, See “Custom settings” (page 63).
- The zoom position for the HVL-F43AM is automatically set to 24 mm. A zoom position other than 24 mm is not recommended.
- In wireless flash mode, ADI metering is canceled and P-TTL flash metering is used automatically (page 26).
- Multiple flash cannot be used.
- If another wireless flash is being used nearby, you can change the channel in the custom settings to prevent interference (page 63).
- When photographing with the wireless flash, the flash unit may in rare cases go off by mistake due to ambient static electricity or electromagnetic noise. When the flash is not in use, select [] using the MODE button.
- The flash unit may in rare cases provide incorrect luminescence because the signal light does not reach the subject, etc., due to the position in which the wireless flash was installed. In this case you can prevent incorrect luminescence by changing the installation position of the wireless flash or changing the wireless channel setting in the custom settings (page 63).
- You can use several off-camera flashes at the same time.
- The off-camera flash fires with the power level set in each flash when the off-camera flash is in the MANUAL mode.

AF illuminator

In low-light or when subject contrast is low, when the shutter button is pressed halfway down for Auto Focus, the red lamp on the front of the flash unit will light. This is the AF illuminator used as an aid in Auto Focus.

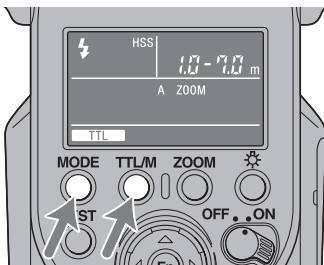


- The AF illuminator operates even when [⚡] is displayed on the LCD panel.
- The camera AF illuminator does not operate while the flash AF illuminator is operating.
- The AF illuminator does not operate while Continuous AF is used in focusing mode (when continually focusing on a moving subject).
- The AF illuminator may not operate if the focal length of the lens is greater than 300 mm. The flash unit will not operate when removed from the camera.

Reset to the default settings

Press the **MODE** and **TTL/M** buttons together for more than **three seconds**.

Most flash functions return to their default settings.



Item	Default settings	Page
Flash on/off	On (⚡ or ⚡ Auto)	19
Flash coverage (zoom)	Auto zoom (105 mm)	28
Flash mode (TTL/M/MULTI)	TTL	37, 42
Wireless flash (WL)	RMT	47
Lighting ratio	1:1:1	57
Power level in TTL/M (LEVEL)	1/1	37, 42
Power level in multiple flash (LEVEL)	1/32	42
Frequency in multiple flash (Hz)	5	42
Repetition in multiple flash (TIMES)	10	42

Custom settings (page 63) is not reset.

Custom settings

The various flash settings may be changed as necessary.

The following 9 items may be changed. (*Default settings are underlined.)

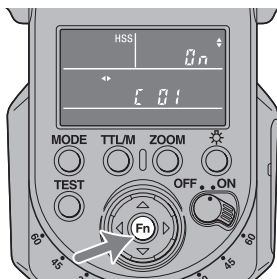
- C01 HSS setting (on/off)
- C02 Wireless channel setting (channels 1 to 4)
- C03 Wireless controller mode setting (1/2)
- C04 Recording mode in which manual flash or multiple-flash may be set (M mode only/all modes)
- C05 Test-flash setting (once/3 times/4 seconds)
- C06 Time to power save (30 seconds/3 minutes/30 minutes/none)
- C07 Time to power save when using wireless flash (60 minutes/none)
- C08 Flash range units (meters/feet)
- C09 Switch power level interval (0.3/0.5)

Performing the custom settings

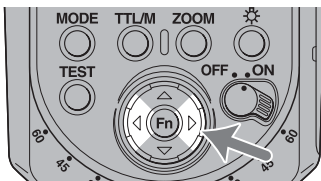
The custom settings are changed as follows.

1 Press the Fn button for more than three seconds while the power switch is set to ON.

- The first item (C01 HSS setting) is displayed.



- 2** Select the setting item to be changed by pressing ◀ or ▶.

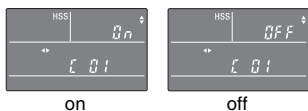


- 3** Change the setting by pressing Δ or ▽, and then press the Fn button.

- Custom setting is finished and the LCD display returns to recording mode.
- When a setting other than the default setting is selected in C03, C04, C06 or C07, **C** remains on the LCD panel.
- The selected settings are maintained even if the flash unit is switched off or the battery is removed.

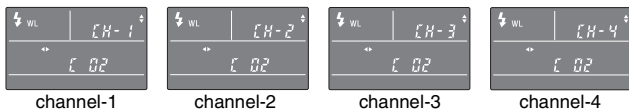
Changing the custom settings

C01 To set the high-speed sync



- This flash unit is set to high-speed sync automatically when the shutter speed is set faster than flash sync speed. Flash sync speed may differ depending on the camera. For further details of flash sync speed, refer to operating instructions supplied with your camera.
- Taking photos in bright locations is recommended.
- High-speed sync cannot be used with bounce flash.
- Using a flash meter or color meter with high-speed sync is not recommended because it interferes with achieving the proper exposure and color.
- The flash range becomes shorter than that of normal flash photography when the high speed sync is used. Make sure that the subject is in the flash range.
- You can also use the high speed sync with when using wireless flash photography.
- If you select [OFF], high-speed sync is cancelled. When high-speed sync is cancelled, the shutter speed cannot be set faster than the sync speed.

C02 To change the channel setting of the wireless flash



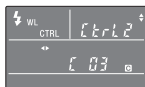
- Attach the flash unit to the camera and press the shutter button halfway down after changing the channel.

Continued on the next page

C03 To select wireless control mode



control 1



control 2

When using the HVL-F43AM as the controller in wireless flash photography, select [CTRL1] or [CTRL2] depending on the models of the off-camera flashes. Depending on the models of the off-camera flashes, the following appears on the LCD display.

- [CTRL1] mode: [CTRL+]
When using only the HVL-F58AM, HVL-F43AM or HVL-F42AM as an off-camera flash, select this mode.
- [CTRL2] mode: [CTRL]
When also using the HVL-F56AM or HVL-F36AM as an off-camera flash, select this mode.

C04 To change the recording mode that can use the manual flash mode (M) and multiple flash mode



M mode only



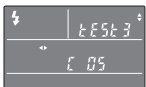
All modes

- When [PASM] is selected, manual flash photography and multiple flash photography may be used in all recording modes of your camera. The proper exposure may not be obtained with photography in modes other than the M mode of your camera, therefore we recommend the M mode of your camera.
- When [PASM] is selected, this unit remains in manual flash mode even if the recording mode of the camera is changed to A (automatic mode).

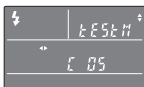
C05 To change the test-flash mode



once



3 times



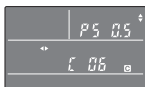
4 seconds

[TEST1] : flashes once depending on the power level that is set.

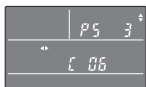
[TEST3] : flashes three times at a specific rate.

[TESTM] : flashes for four seconds at a specific rate.

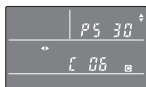
C06 To change the time until power save mode



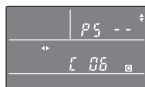
30 seconds



3 minutes



30 minutes



none

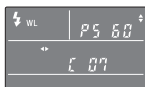
[PS 0.5] : changes to power save mode after 30 seconds.

[PS 3] : changes to power save mode after 3 minutes.

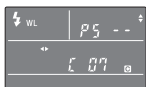
[PS 30] : changes to power save mode after 30 minutes.

[PS --] : disables power save mode.

C07 To change the time until power save mode when using a wireless flash



60 minutes

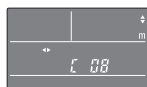


none

[PS 60] : changes to power save mode after 60 minutes.

[PS --] : disables power save mode.

C08 To change the flash range unit

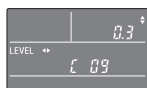


meters

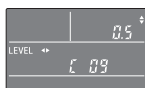


feet

C09 To Change the power level interval



0.3



0.5

[0.3]: changes the power level by 0.3 EV

[0.5]: changes the power level by 0.5 EV

Power level indication

According to the power level interval you set, the power level changes as follows.

When set to [0.3]

∇ button

$1/1 \rightarrow 1/1(-0.3) \rightarrow 1/1(-0.7) \rightarrow 1/2 \rightarrow 1/2(-0.3) \dots 1/64(-0.3) \rightarrow 1/64(-0.7)$
 $\rightarrow 1/128$

Δ button

$1/1 \leftarrow 1/2(+0.7) \leftarrow 1/2(+0.3) \leftarrow 1/2 \leftarrow 1/4(+0.7) \dots 1/128(+0.7) \leftarrow 1/128(+0.3)$
 $\leftarrow 1/128$

When set to [0.5]

∇ button

$1/1 \rightarrow 1/1(-0.5) \rightarrow 1/2 \rightarrow 1/2(-0.5) \dots 1/64 \rightarrow 1/64(-0.5) \rightarrow 1/128$

Δ button

$1/1 \leftarrow 1/2(+0.5) \leftarrow 1/2 \leftarrow 1/4(+0.5) \dots 1/64 \leftarrow 1/128(+0.5) \leftarrow 1/128$

Sometimes the power level indication differs depending on whether the Δ button or ∇ button is used, even if the power level is the same.

Example:

$1/1(-0.7)$ is the same as $1/2(+0.3)$.

$1/1(-0.5)$ is the same as $1/2(+0.5)$.

Notes on use

While shooting

- This flash unit generates strong light, so it should not be used directly in front of the eyes.
- Do not use the flash 20 times in a row or in quick succession in order to prevent heating and degradation of the camera and flash unit. (when the power level is 1/32, 40 times in a row.)
Stop using the flash unit and cool it for 10 minutes or more, if the flash is triggered up to the limit for the number of times in quick succession.
- Do not use the flash near people when rotating the flashtube during bounce photography. The flash light may damage the eyes, or the hot flashtube may cause a burn.
- When rotating the flashtube, be careful not to catch your fingers in the rotating part. You may be injured.
- This flash unit is not waterproof. Be careful not to bring it into contact with water or sand when using it at the seashore, for example. Contact with water, sand, dust, or salt may result in a malfunction.
- When closing the battery chamber door, press it firmly in while sliding it fully across. Be careful not to injure yourself by catching your finger in the battery chamber door when closing it.

Batteries

- The battery level displayed on the LCD panel may be lower than the actual battery capacity, due to temperature and storage conditions. The displayed battery level is restored to the correct value after the flash has been used a few times.
- Nickel-metal hydride batteries can lose power suddenly. If the low-battery indicator starts blinking or the flash can no longer be used while taking pictures, change or recharge the batteries.
- The flash frequency and number of flashes provided by new batteries may vary from the values shown in the table, depending on the time elapsed since manufacture of the batteries.

- Remove the batteries only after turning the power off and waiting several minutes, when changing the batteries. The batteries may be hot, depending on the battery type. Remove them carefully.
- Remove and store the batteries when you do not intend to use the camera for a long time.

Temperature

- The flash unit may be used over a temperature range of 0 °C to 40 °C.
- Do not expose the flash unit to extremely high temperatures (e.g. in direct sunlight inside a vehicle) or high humidity.
- To prevent condensation forming on the flash, place it in a sealed plastic bag when bringing it from a cold environment into a warm environment. Allow it to reach room temperature before removing it from the bag.
- Battery capacity decreases at colder temperatures. Keep your camera and spare batteries in a warm inside pocket when shooting in cold weather. The low-battery indicator may blink even when there is some power left in the batteries in cold weather. Batteries will regain some of their capacity when warmed to normal operating temperature.

Maintenance

Remove this unit from the camera. Clean the flash with a dry soft cloth. If the flash has been in contact with sand, wiping will damage the surface, and it should therefore be cleaned gently using a blower. In the event of stubborn stains, use a cloth lightly dampened with a mild detergent solution, and then wipe the unit clean with a dry soft cloth. Never use strong solvents, such as thinner or benzine, as these damage the surface finish.

Specifications

Guide number

Normal flash (ISO100)

Manual flash/35mm-format

Power level	Flash coverage setting (mm)						
	15*	24	28	35	50	70	105
1/1	13	23	24	25	30	35	43
1/2	9.2	16.3	17.0	17.7	21.2	24.7	30.4
1/4	6.5	11.5	12.0	12.5	15.0	17.5	21.5
1/8	4.6	8.1	8.5	8.8	10.6	12.4	15.2
1/16	3.3	5.8	6.0	6.3	7.5	8.8	10.8
1/32	2.3	4.1	4.2	4.4	5.3	6.2	7.6
1/64	1.6	2.9	3.0	3.1	3.8	4.4	5.4
1/128	1.1	2.0	2.1	2.2	2.7	3.1	3.8

*When the wide panel is attached.

APS-C format

Power level	Flash coverage setting (mm)						
	15*	24	28	35	50	70	105
1/1	13	24	25	30	35	41	43
1/2	9.2	17.0	17.7	21.2	24.7	29.0	30.4
1/4	6.5	12.0	12.5	15.0	17.5	20.5	21.5
1/8	4.6	8.5	8.8	10.6	12.4	14.5	15.2
1/16	3.3	6.0	6.3	7.5	8.8	10.3	10.8
1/32	2.3	4.2	4.4	5.3	6.2	7.2	7.6
1/64	1.6	3.0	3.1	3.8	4.4	5.1	5.4
1/128	1.1	2.1	2.2	2.7	3.1	3.6	3.8

*When the wide panel is attached.

HSS flat flash (ISO100)

Manual flash/35mm-format

Shutter speed	Flash coverage setting (mm)						
	15*	24	28	35	50	70	105
1/250	5.0	8.4	9.1	9.9	10.8	14.0	16.7
1/500	3.5	5.9	6.4	7.0	7.7	9.9	11.8
1/1000	2.5	4.2	4.6	5.0	5.4	7.0	8.4
1/2000	1.8	3.0	3.2	3.5	3.8	5.0	5.9
1/4000	1.2	2.1	2.3	2.5	2.7	3.5	4.2
1/8000	0.9	1.5	1.6	1.8	1.9	2.5	3.0
1/12000	0.6	1.0	1.1	1.2	1.4	1.8	2.1

*When the wide panel is attached.

APS-C format

Shutter speed	Flash coverage setting (mm)						
	15*	24	28	35	50	70	105
1/250	5.0	9.1	9.9	10.8	14.0	15.3	16.7
1/500	3.5	6.4	7.0	7.7	9.9	10.8	11.8
1/1000	2.5	4.6	5.0	5.4	7.0	7.7	8.4
1/2000	1.8	3.2	3.5	3.8	5.0	5.4	5.9
1/4000	1.2	2.3	2.5	2.7	3.5	3.8	4.2
1/8000	0.9	1.6	1.8	1.9	2.5	2.7	3.0
1/12000	0.6	1.1	1.2	1.4	1.8	1.9	2.1

*When the wide panel is attached.

Frequency/Repetition

	Alkaline	Nickel hydride (2100 mAh)
Frequency (sec)	Approx. 0.1 - 2.9	Approx. 0.1 - 2.2
Repetition (times)	Approx. 200 or more	Approx. 250 or more

- Repetition is the approximate number of times that are possible before a new battery is completely dead.

Continuous flash performance	40 flashes at 10 flashes per second (Normal flash, light level 1/32, 105 mm, nickel-metal hydride battery)
AF illuminator	Autoflash at low contrast and low brightness Operating range (with a 50 mm lens attached to DSLR-A700) Central area: 0.5 m to 6 m Peripheral areas : 0.5 m to 3 m
Flash control	Flash control using pre-flash, TTL direct metering
Dimension (Approx.)	75 mm × 129 mm × 87 mm (3 in. × 5 1/8 in. × 3 1/2 in.) (w/h/d)
Mass (Approx.)	340 g (12 oz) (excluding the batteries)
Power requirements	DC 6 V
Recommended batteries	Four LR6 (AA-size) alkaline batteries Four AA-size rechargeable nickel-metal hydride batteries
Included items	Flash unit (1), Mini-stand (1), Case (1), Set of printed documentation

Functions in these operating instructions depend on testing conditions at our firm. Design and specifications are subject to change without notice.

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