Bolt™

Inspiration strikes

VC-310

COMPACT ON-CAMERA TTL FLASH

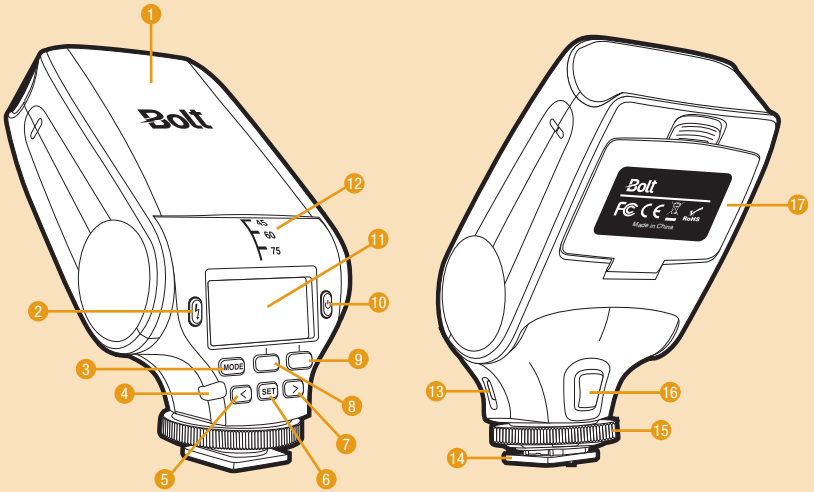
User's Manual

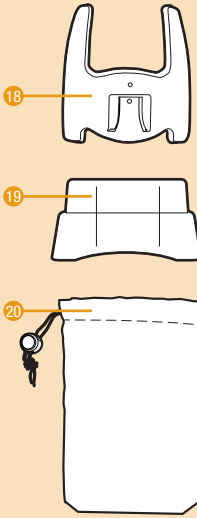
Introduction

Thank you for choosing Bolt. The VC-310 is a compact, full-featured shoe-mount flash for your Sony, Olympus/ Panasonic, or Fujifilm camera. This advanced digital flash puts creative control in your hands with a broad range of automatic and manual features. It can be used as both an on-camera flash and a wireless slave flash. Among the benefits you'll enjoy:

- Full compatibility with TTL metering system
- Eight manual flash levels: full to 1/128 power, plus fine-tuning by 1/3 increments
- Stroboscopic mode
- Tilt and swivel head: -7° down, 90° up, 90° right, and 60° left
- Backlit LCD
- Autofocus assist for low-light photography
- Snap-on diffuser
- Automatic power-saving function
- Overheating protection
- Upgradeable firmware

Contents


1
Bolt
12
85
60
75
11
2
10
3
MODE
9
4
SET
8
7
5
6
Bolt
FC CE
RoHS
Made in China
17
13
16
15
14



Overview

1. Flash head
2. Flash test button
3. Mode button
4. Flash ready indicator
5. Left arrow
6. Set button
7. Right arrow
8. F1 function button
9. F2 function button
10. Power button
11. LCD panel
12. Flash head position indicator (tilt)
13. Micro USB port
14. Mounting foot
15. Locking wheel
16. Optical sensor
17. Battery compartment with cover
18. Flash stand
19. Diffuser
20. Carrying pouch

Warnings

Before using your VC-310, please read the following safety notices thoroughly to ensure safe use and to help prevent damage to your flash or injury to yourself or others.

- Do not fire the flash at close range directly into the eyes of people or animals.
- To avoid overheating and damaging your flash unit, please wait for at least ten minutes after thirty continuous flashes at full power (page 13).
- Do not disassemble or attempt to repair this product yourself. There are high-voltage components inside that can produce a hazardous electric shock.
- Keep this product and its batteries out of the reach of children.
- Use only the power sources specified in this manual.
- Always switch the flash off before changing the batteries.
- Always install AA batteries of the same type, brand, and age. Do not combine different types or brands, or old and new batteries. Install the batteries in the proper orientation, according to the indicator in the battery chamber.
- Do not use or store the VC-310 in flammable conditions (such as environments containing flammable gases or liquid chemicals).

- Do not clean the VC-310 with agents containing corrosive or flammable substances such as paint thinner, benzene, or nail polish remover.
- This product is not water resistant. Keep it away from rain, snow, humidity, and general moisture.
- Should the VC-310 sustain physical damage, do not touch any exposed interior metal parts. If touched, they may generate an electric shock or cause a malfunction. Promptly remove the batteries and take the product to an authorized service center for repair.
- If you detect excessive heat, smoke, or a burning smell coming from the flash, immediately stop operation and remove the batteries to prevent the product from igniting or melting. Take the product to an authorized service center for repair.
- Do not drop or otherwise cause a strong physical impact to the VC-310.
- For long-term storage, remove the batteries from the VC-310.
- Do not store or use this product at temperatures above 104°F (40°C).
- Keep the metal contacts in the battery compartment clean and free of corrosion and dirt. Contacts may be cleaned with isopropyl alcohol on a cotton swab.
- Dispose of used batteries properly.

Installing Batteries

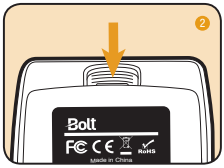
The VC-310 can be powered by two AA batteries of several types:

- Lithium (1.5 V)
- Nickel-metal hydride (NiMH) (1.2 V)
- Alkaline (1.5 V)

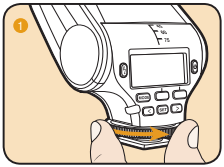
1. Turn the flash upside down.
2. Press the button on the battery compartment cover so the cover flips open.
3. Insert two AA batteries (not included) according to the diagrams inside the battery compartment.
4. Close the battery compartment cover until it clicks.

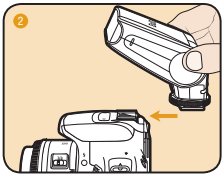
When the battery power is low, the battery indicator [▭] will flash on the LCD.

Important! Replace both batteries at the same time. Do not mix battery types or brands, or use old and new batteries together.



Mounting the Flash





To mount the flash on your camera, make sure the VC-310 is turned off and follow these steps:

1. Rotate the locking wheel counterclockwise to loosen it.
2. Slide the mounting foot all the way into your camera's hot shoe.
3. Rotate the locking wheel clockwise until secure.

To dismount the flash from your camera, make sure the VC-310 is turned off and follow these steps:

1. Rotate the locking wheel counterclockwise to release the flash.
2. Slide the mounting foot out of your camera's hot shoe.

Mounting the VC-310 on the included stand adapter:

You can mount the VC-310 on the included stand adapter in the same way you would mount it on your camera. This allows you to set the flash up on a flat surface or attach it to a tripod head, light stand, or clamp that has a compatible 1/4″-20 screw mount.

Turning On the Flash and Firing a Test Shot

To turn the flash on, press and hold the power button until the LCD illuminates. To turn the flash off, hold the power button for approximately two seconds.

Flash ready indicator: The flash ready indicator lets you know when the flash is ready to fire again. The indicator will blink red when charging and remain lit when the flash is ready to fire.

To fire a test flash, press the Test button.

Depending on your camera model, a flash icon may also appear in the viewfinder when the VC-310 is mounted on your camera.

Sleep mode: After approximately two minutes of inactivity, the flash will automatically enter sleep mode to conserve the battery life by turning off the LCD and flash ready light. To reactivate the VC-310, press the Set button on the flash unit or press your camera's shutter-release button halfway. During long periods of inactivity, use the power switch to turn the flash off completely.

LCD illumination: When you turn the flash on the LCD illuminates for approximately ten seconds before turning off to save battery life. Press any button on the flash to light up the display when you need to view the LCD in a low light environment.

Overheating protection mode: If the operating temperature of the VC-310 is too high after several full-power flashes, the flash will enter the overheating protection mode. The thermal warning indicator [TP-HI] will appear on the LCD, and you should let the flash cool down for a period of 2–5 minutes.

LED preview and focusing: There are three LEDs built into the flash head that can be used as a preview light, to illuminate the subject for reference, or as an autofocus assist light, to help the camera focus when the scene is too dim.

Using the LEDs as a preview light:

VC-310SMI and VC-310OP: Press the power button while the flash is on. To turn the preview light off, press the power button again.

VC-310F: Press the F2 function button to turn the preview light on and off.

The LEDs will function as an autofocus assist light whenever you press the camera's shutter release halfway.

Modeling flash: The modeling flash fires a burst of several flashes to show you where unwanted shadows occur in your setup. Press and hold the Test button for more than two seconds.

Default setting: You can restore the flash to its original settings.

To reset the VC-310SMI to its original settings, follow these steps:

1. Make sure the flash is off.
2. Press and hold the Test and Power buttons for 3 seconds, then release.

To reset the VC-310OP to its original settings, follow these steps:

1. Make sure the flash is off.
2. Press and hold the Test and Power buttons until the flash turns on, then release.

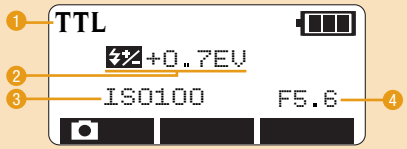
To reset the VC-310F to its original settings, follow these steps:

1. Make sure the flash is on.
2. Press and hold the Mode and Right buttons for 3 seconds, then release.

Extended Interface

Micro-B USB: This flash supports firmware upgrades through the micro USB port on the side of the flash. In order to ensure compatibility with future cameras, the VC-310's firmware may be updated. This can be done to ensure proper communication with new cameras or to add new features. Visit www.boltflashes.com/firmware to check if a new firmware version has been released. Follow the online instructions to upgrade.

Automatic TTL Flash Mode



Overview

1. TTL flash mode
2. Flash exposure compensation
3. ISO value
4. Aperture value

When the VC-310 is mounted on a compatible TTL camera, it can set the appropriate flash level automatically, in conjunction with the camera's through-the-lens (TTL) metering system.

To use the automatic TTL flash mode, mount the flash on the camera and follow these steps:

1. Turn the flash on and press the Mode button repeatedly to cycle through the flash modes until the TTL mode indicator appears on the LCD.
2. Make sure your camera is set to a programmed or automatic mode, or on a priority mode such as aperture priority.

3. Press the shutter release button on your camera halfway to ensure that the camera is communicating with the flash. The camera's aperture settings will appear on the flash LCD, and a flash icon will appear in the camera's viewfinder.
4. Press your camera's shutter release button to take the picture.

Using Flash Exposure Compensation

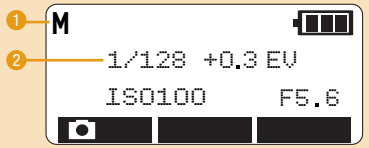
Flash exposure compensation allows you to adjust and optimize your flash's automated setting by increasing or decreasing its light output without affecting the exposure as a whole.

In automatic TTL mode, you can use flash exposure compensation to incrementally alter the VC-310's flash output, just as you would change exposure with the exposure compensation function on your camera.

To apply flash exposure compensation, follow these steps:

1. **VC-310F and VC-310OP:** Press the Set button so that the flash exposure compensation value is highlighted and appears on the LCD.
   VC-310SMI: Press the Set button so that the flash exposure compensation value blinks.
2. Use the left or right arrows to adjust the exposure compensation from -3 to +3 stops, in increments of one-third.
3. Press the Set button to confirm the value.

Manual Flash Mode



Overview

1. Manual flash mode
2. Manual flash output power

You can set the VC-310's flash output level manually, for greater creative control over your images. The 1/1 setting is the full-power flash, and each successive setting halves the light output, all the way down to 1/128. You can also fine-tune the flash output in 1/3 increments.

To use the manual mode, turn the flash and camera on and follow these steps:

1. Press the Mode button repeatedly to cycle through the flash modes until the manual mode icon [M] and the flash output level appear on the LCD.
2. Set the exposure settings you want to use on your camera.
3. **VC-310F and VC-310OP:** Press the Set button to highlight the flash output level.
   VC-310SMI: Press the Set button so that the flash output level blinks.

4. Press the right or left arrows to increase or decrease to the desired flash output level.
5. Press the Set button to confirm.
6. Press your camera's shutter release button to take the picture.
7. Adjust your camera's exposure settings and the flash's light output level as needed.

When adjusting exposure settings on your camera, the highest shutter speed available will be your camera's flash sync speed.

Tip: For best results when shooting in manual flash mode, use a handheld light meter.

Diffusing the Flash

Use the included diffuser to soften the light from the flash.

To attach the diffuser, fit the diffuser onto the flash head and make sure it is secure.

Bouncing Your Flash

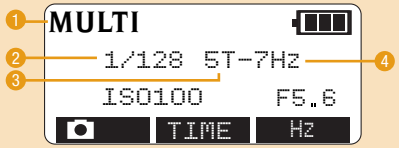
The VC-310 flash head can tilt down to -7° and up at 45°, 60°, 75°, and 90° angles to the lens. It can also swivel horizontally 90° to the right and 60° to the left.

Using flash to directly illuminate a subject often creates harsh, unnatural, and unattractive shadows. The flash can be tilted or swiveled, allowing you to aim your flash at a large white or neutral-colored surface, such as a ceiling, wall, or reflector. The light will bounce off the larger surface before striking your subject to provide softer, more natural illumination. In addition, the flash can tilt down by seven degrees in order to fully illuminate your subject when shooting close-up photography.

When bouncing your flash, you may need to adjust your exposure settings, since there will be less light falling on your subject. The farther away the bounce surface and your subject are, the less illumination there will be.

Tip: Bouncing your flash off colored surfaces can create a color cast in your images. Bouncing off a white or neutral-colored surface will not alter the color of the light, while bouncing off a gold-toned surface can give portraits a warmer look. Other colors, while usually not desirable, can be used for creative effects.

Stroboscopic Mode (VC-310SMI and VC-310OP models only)



Overview

1. Stroboscopic flash indicator
2. Stroboscopic output power
3. Time (number of flashes)
4. Flash frequency

The stroboscopic mode fires the flash multiple times in quick succession during a single exposure. Stroboscopic lighting is often used to illustrate motion—this can create a unique effect in which moving objects appear multiple times in the frame. It is also useful when capturing fast-moving objects due to the flash pulsating faster than the shutter can open and close.

Important! For the **VC-310SMI** model, this mode is labeled as Multi. For the **VC-310OP** model, this mode is labeled as RPT.

To enable the stroboscopic mode, turn on the flash and camera and follow these steps:

1. Press the Mode button repeatedly until the stroboscopic mode appears on the LCD.

2. Press the Set button to highlight the flash output power level, and adjust with the right and left arrows.
3. Press the Set button to confirm.
4. Press the F1 function button to change the Time. This will set the number of flashes that fire per exposure. Use the right and left arrows to adjust the amount.
5. Press the Set button to confirm.
6. Press the F2 function button [Hz] to change the frequency, or the number of flashes per second. Use the right and left arrows to adjust.
7. To confirm your settings, press the Set button.
8. Set your camera's shutter speed to one second or slower.
9. Press the shutter button to fire a test shot. The flash will fire several bursts of light.

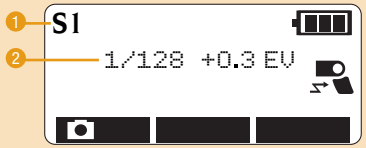
Tip: To calculate the appropriate shutter speed, divide the number of flashes per frame by the frequency.

For example, if the number of flashes per frame is 10, and the frequency of the flash is 5 Hz, then the shutter speed should be 2 seconds or slower.

$$\frac{\textbf{10 flashes per frame}}{\textbf{5 Hz}} = 2$$

Note: See *Stroboscopic Reference* chart on (page 26) for the maximum number of flashes at various power/frequency combinations.

Manual Optical Slave Modes S1/S2



Overview

1. S1/S2 indicator
2. Power output
3. Slave mode

Using the manual optical slave feature, the VC-310 can be set to fire whenever it detects a light signal from any flash. This works optically—when the VC-310 “sees” another flash firing, it will instantaneously fire along with it. In order to ensure that the VC-310 fires at the correct time, there are two different slave modes available: S1 and S2.

In S1 Mode, the slave will fire on the first or any burst of light. Use this mode when the master is set to manual.

In S2 mode, the slave will ignore any pre-flash and will fire on the second burst of light.

Note: Pre-flash is used to help the camera meter or focus.

To set the VC-310 to manual optical slave mode S1/S2, follow these steps:

1. Press the Mode button repeatedly until the S1 or S2 indicator appears on the LCD.
2. **VC-310F** and **VC-3100P:** Press the Set button to highlight the output level.
   VC-310SMI: Press the Set button so that the output level blinks.
3. Use the left and right arrows to adjust the output level from 1/1 to 1/128.
4. Press the Set button to confirm your settings.

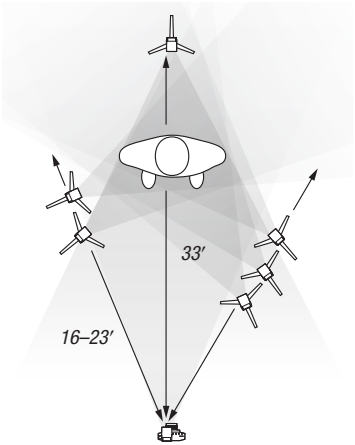
Warning: Some cameras, when set to red-eye reduction, will emit a series of quick flashes lasting a second or more. This may not work properly with any slave mode. We suggest you avoid using red-eye reduction when the VC-310 acts as a slave.

Positioning the Slave and Remote Flash Units

You can create various professional lighting setups by positioning slave units individually or in groups to function as main, fill, accent, and other lights. Metering your scene with a handheld light meter and setting your light ratios to achieve specific looks will give you a professional level of creative control.

When positioning wireless slaves to light a subject, keep in mind the following:

- The effective communication range between master and slave flash units is approximately 33 feet (10 m) for outdoor use, and up to 49 feet (15 m) when using the flash indoors. These ranges may vary, depending on the ambient light for the optical communication.
- The flash head should not be aimed directly into the camera lens.



- The wireless optical TTL sensor is located on the front of the VC-310. Make sure that the sensor is facing the master flash and that there are no obstructions between the two units.
- When photographing outdoors or in bright ambient light, the optical sensors may be overwhelmed by ambient light, which will lower their sensitivity.
- To avoid creating interference between flash units, using more than three in a single group is not recommended.

Stroboscopic Reference

This chart shows the maximum number of flashes possible for any given frequency/flash output combination.

Flash Output/Hz	1/4	1/8	1/16	1/32	1/64	1/128
1	3	14	30	60	90	90
2	3	14	30	60	90	90
3	3	12	30	60	90	90
4	3	10	20	50	80	80
5	3	8	20	40	70	70
6	3	6	20	32	56	56
7	3	6	20	28	44	44
8	3	5	10	24	36	36
9	3	5	10	22	32	32
10	2	4	8	20	28	28
20–100	2	4	8	12	24	24

Specifications

Type	On-camera and wireless TTL automatic and manual flash
Compatible cameras	**VC-310F:** Fujifilm models with support for Fujifilm TTL flash systems **VC-310OP:** Panasonic and Olympus models with support for Panasonic and Olympus TTL flash systems **VC-310SMI:** Sony models with support for P-TTL flash systems
Guide number (at 50 mm focal length, ISO 100)	GN 32
Flash recycle time	Approx. 5 seconds (AA NiMH)
Manual mode power output	1/1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64, 1/128, fine-tuning in increments of 1/3
Wireless transmission range	Optical up to 33′ (10 m) outdoor and 49′ (15 m) indoor.
Power source	2 AA lithium, NiMH, or alkaline batteries
Tilt positions	-7°, 0°, 45°, 60°, 75°, and 90°
Swivel range	Right 0°–90°, Left 0°–60°
Dimensions (H × W × D)	4.47″ × 2.53″ × 1.38″ (11.4 × 6.4 × 3.5 cm)
Weight	5.29 oz. (150 g) without batteries

Troubleshooting

Problem	Solution
The flash is stuck in the camera hot shoe.	Make sure that the locking wheel is released (page 11).
The flash is turned on but won't fire.	• Make sure that fresh batteries are installed and in the proper orientation (page 10). • Make sure the flash is securely attached to the camera (page 11). • Make sure that the electrical contacts on the foot of the flash are not dirty. Clean them and try again. • The flash has entered overheating protection mode. Turn the unit off for 2–5 minutes to let it cool down (page 13).
There's a whining sound coming from the flash.	This is normal and does not indicate a malfunction. When the flash heats up from continuous use, vibrations inside the unit may cause this sound. It will dissipate as the unit cools.

Problem	Solution
The flash is set up as a wireless slave, but the light is not noticeable in the picture.	• Make sure that the master flash is within the transmission range, and that the wireless sensor on the slave is pointing toward the master flash. Remove any obstructions in the line of sight between the two (page 24). • The ambient light may be too high (page 24).
The edges of the images look dark.	Make sure that the flash output power setting corresponds to the focal length of your lens.
The bottoms of the images look dark.	Your camera's shutter speed is higher than the flash's maximum sync speed in manual mode.

FCC Compliance

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.
2. This device must accept any interference received, including interference that may cause undesired operation.

One-Year Limited Warranty

This BOLT product is warranted to the original purchaser to be free from defects in materials and workmanship under normal consumer use for a period of one (1) year from the original purchase date or thirty (30) days after replacement, whichever occurs later. The warranty provider's responsibility with respect to this limited warranty shall be limited solely to repair or replacement, at the provider's discretion, of any product that fails during normal use of this product in its intended manner and in its intended environment. Inoperability of the product or part(s) shall be determined by the warranty provider. If the product has been discontinued, the warranty provider reserves the right to replace it with a model of equivalent quality and function.

This warranty does not cover damage or defect caused by misuse, neglect, accident, alteration, abuse, improper installation or maintenance. EXCEPT AS PROVIDED HEREIN, THE WARRANTY PROVIDER MAKES NEITHER ANY EXPRESS WARRANTIES NOR ANY IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. This warranty provides you with specific legal rights, and you may also have additional rights that vary from state to state.

To obtain warranty coverage, contact the BOLT Customer Service Department to obtain a return merchandise authorization ("RMA") number, and return the defective product to BOLT along with the RMA number and proof of purchase. Shipment of the defective product is at the purchaser's own risk and expense.

For more information or to arrange service, visit **www.boltflashes.com** or call Customer Service at 212-594-2353.

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