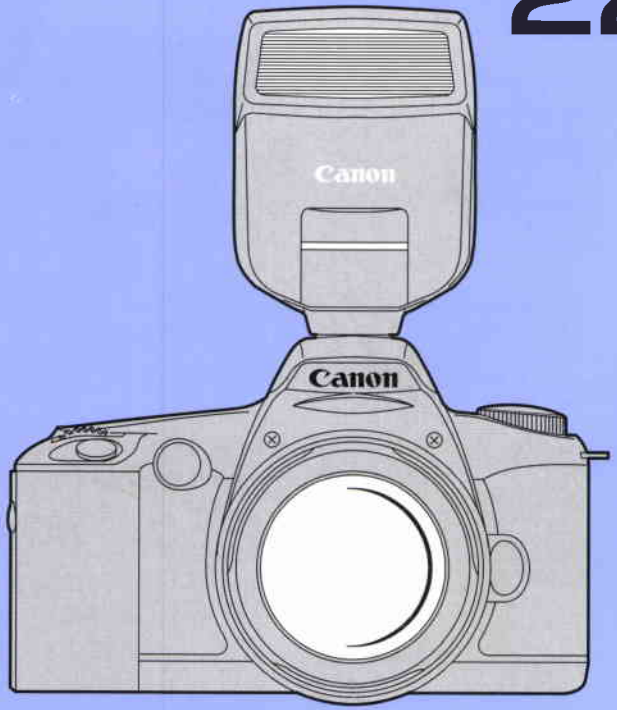
C3/21-697

Canon

SPEEDLITE 220EX



INSTRUCTIONS E

English Edition

Thank you for purchasing a Canon product.

The Canon Speedlite 220EX is a Canon EOS dedicated compact flash unit featuring the sophisticated E-TTL (Evaluative-Through-The-Lens) autoflash control system.
When the Speedlite 220EX is used with Type A cameras (see below), natural-looking photographs can be captured readily even under difficult lighting conditions by combining both flash and ambient light harmoniously for optimum flash exposure in each of the camera shooting modes. In addition, the Speedlite 220EX provides the following advanced flash techniques for amateur and professional flash applications: FP (Focal Plane) flash which enables the Speedlite 220EX to synchronize with all shutter speeds (high-speed sync), FE (Flash Exposure) lock which locks the flash exposure reading for the desired area, and multiple flash setup to obtain creative lighting effects.
When the Speedlite 220EX is used with Type B cameras (see below), the Speedlite 220EX operates as a TTL flash unit.

The features available with the Speedlite 220EX differ depending on the camera it is used with. Refer to the table below to check your camera type.

Type A Camera	E-TTL	EOS 50, EOS 50E, EOS ELAN II, EOS ELAN IIE, EOS REBEL G, EOS 500N, EOS IX
Type B Camera	TTL	EOS 650, EOS 620, EOS 750, EOS 850, EOS 630, EOS-1, EOS RT, EOS 10, EOS 10S, EOS 700, EOS 1000, EOS REBEL, EOS 100, EOS ELAN, EOS 1000N, EOS REBEL II, EOS 1000FN, EOS REBEL SII, EOS 5, EOS A2, EOS A2E, EOS 500, EOS REBEL X, EOS REBEL XS, EOS 5000, EOS 888, EOS-1N, EOS-1N RS

Available Features with EOS Cameras

○: Available ×: Not available

Speedlite 220EX Features	With Type A Cameras	With Type B Cameras
E-TTL auto flash control	○	×*
FP flash	○	×
FE lock	○	×
Fill flash	○	○
Slow-speed sync	○	○
TTL auto flash control/Multiple flash	○	○

* TTL auto flash operates instead.

Symbols used in this Instructions:

- Warning for preventing camera malfunction or damage.
- Additional information you should know when operating the Speedlite 220EX.
- Helpful tip for using the Speedlite 220EX and taking pictures.

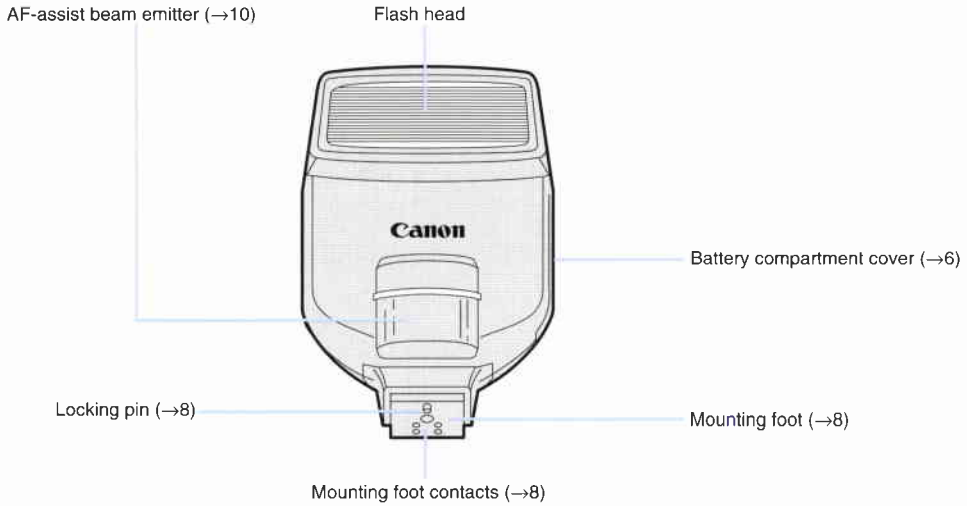
Contents

- If you have a Type A camera, read pages 2~24 and 34~43.
- If you have a Type B camera, read pages 2~10 and 25~43.

Nomenclature

• Front

* The number in parentheses indicates the reference page.



Flash coverage

- The Speedlite 220EX flash coverage is sufficient for a 28mm lens focal length for conventional 35mm format EOS cameras.
- The Speedlite 220EX flash coverage is sufficient for a 24mm lens focal length for the Advanced Photo System EOS IX camera.

• Rear

E-TTL indicator (red) (→15)

FP flash indicator (red) (→9)

FP flash button (→9)

Flash exposure confirmation lamp (→14, 28)

Power switch (→9)
O: Turns off the power.
I: Turns on the power.

Pilot lamp (red)/Test firing button (→10)

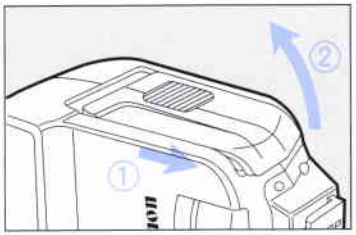
Hot shoe lock release (→8)

Installing the Batteries

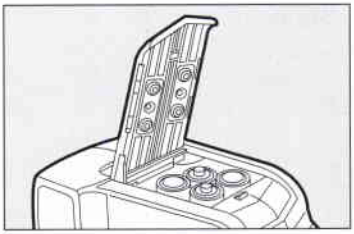
Install one of the following types of batteries:

(1) Four size-AA alkaline batteries (LR6 or AM-3)

(2) Four size-AA NiCd batteries (KR15 or KR51)



1 Slide the battery compartment cover as shown by the arrow and flip it up.



2 Insert the batteries with the contacts oriented as shown in the battery compartment.

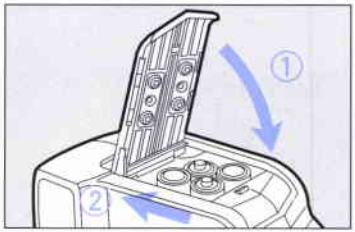
Use four new batteries of the same type.

To prevent faulty connections, make sure the battery contacts are clean.

Battery Life and Recycling Time

Battery Type	Recycling Time	No. of Flashes
Size-AA alkaline batteries (LR6 or AM-3)	0.1 to 4.5 sec.	250 to 1700
Size-AA NiCd batteries (KR15 or KR51)	0.1 to 2.5 sec.	100 to 700

The above figures are based on Canon's Standard Test Method with a new set of batteries.

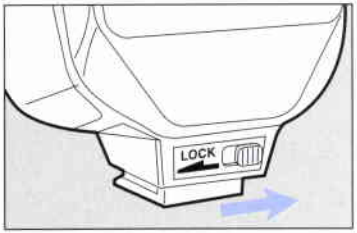


3 Close the battery compartment cover as shown in the figure.

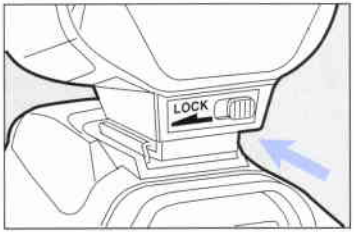
Battery Cautions

- When replacing batteries, replace all four batteries at one time.
- Although ordinary, non-alkaline batteries (R6 or UM3) may be used, the number of flashes will be less.
- The contacts of NiCd batteries are not standardized. If you want to use NiCd batteries, make sure that the battery contacts touch the battery compartment's contacts securely.
- When you will not use the Speedlite 220EX for an extended period, remove the batteries.
- In low temperatures, take two sets of fully-charged NiCd batteries and keep one set warm in your pocket, etc., and use the batteries alternately.
- If the battery contacts are dirty, the Speedlite 220EX may not operate properly. Wipe the battery contacts with a cloth and make sure that the battery contacts are clean before installing.
- Size-AA lithium batteries may be used with the Speedlite 220EX.

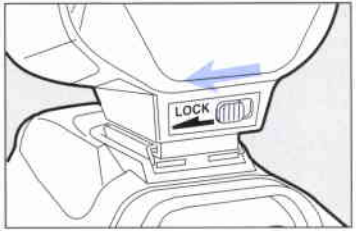
Mounting the Speedlite



1 Slide the hot shoe lock release to the right as shown by the arrow.



2 Slip the Speedlite 220EX mounting foot onto the camera hot shoe until it stops.

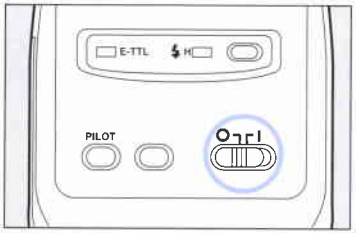


3 Slide the hot shoe lock release to the left as shown by the arrow to mount the Speedlite 220EX securely (the locking pin will engage to secure the Speedlite 220EX).

To detach the Speedlite 220EX, slide the hot shoe release to the right (the locking pin will release) and remove from the camera hot shoe.

Although the hot shoe on the EOS 650, EOS 620, EOS 750, and EOS 850 does not have a locking pin hole, the Speedlite 220EX can still be mounted on these cameras.

Power Switch

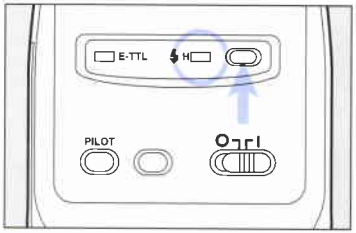


Set the power switch as follows:

O : To turn off the power.

I : To turn on the power. If the Speedlite 220EX is left unused for about 90 sec., it turns off automatically to save battery power. To turn on the Speedlite 220EX again, press the shutter button or press the test firing button.

FP Flash Button

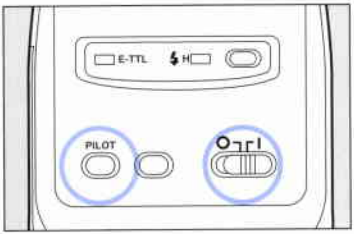


Press the FP flash button to set to high-speed sync which enables the Speedlite 220EX to synchronize with all shutter speeds. The FP flash indicator will light.

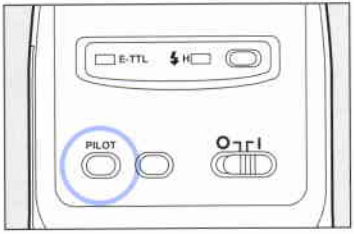
To cancel FP flash, press the FP flash button again.

- When the Speedlite 220EX is used with Type A cameras and the FP flash button is set to high-speed sync, using a shutter speed faster than the camera maximum sync speed sets the high-speed sync mode. Likewise, using a shutter speed equal to or slower than the camera maximum sync speed sets to the normal sync mode.
- When the Speedlite 220EX is used with Type B cameras, the normal sync mode is set regardless of the FP flash button setting.

Pilot Lamp and Test Firing



1 Set the power switch to I.
The Speedlite 220EX starts to recharge. When recharging is completed, the pilot lamp lights.



2 After the pilot lamp lights, press the test firing button to test fire the flash. (The pilot lamp functions as a test firing button also.)

The flash cannot be test fired while the shutter button is pressed halfway, or while the viewfinder displays the exposure setting and remains active for a few seconds after the shutter button is pressed halfway.

As a general rule, the descriptions for the remaining sections of the Instructions assume that the power switch is set to I and that the power of the Speedlite 220EX is turned on.

AF-Assist Beam

The Speedlite 220EX AF-assist beam is emitted automatically to enable precise autofocus under dim light and low contrast conditions. The AF-assist beam is effective from 1 to 5 meters (3.3 to 16.4 feet).

AF-Assist Beam Emission Preconditions

Refer to page 39 for more details on AF-assist beam emission preconditions.

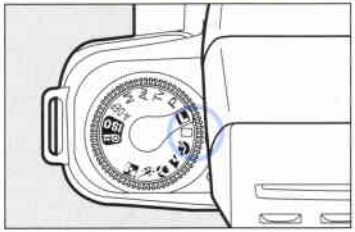
Speedlite 220EX with Type A Cameras

When the Speedlite 220EX is used with Type A cameras, the sophisticated E-TTL (Evaluative-Through-The-Lens) autoflash control system can be used. The E-TTL autoflash control system utilizes the camera evaluative metering sensor which is linked to the focusing point to meter accurate flash exposures. Thus, flash exposure control is more precise, resulting in a balanced exposure for both subject and background in fill flash or low light conditions. By combining automatic exposure control and flash exposure control, natural-looking photographs can be captured readily even under difficult lighting conditions for optimum flash exposure. In addition, the Speedlite 220EX provides the following advanced flash techniques for amateur and professional flash applications: FP (Focal Plane) flash which enables synchronization with all shutter speeds (high-speed sync), and FE (Flash Exposure) lock which locks the flash exposure reading for the desired area to provide greater creative control.

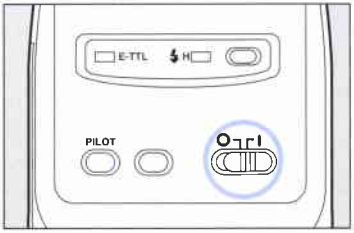
This section contains descriptions of the Speedlite 220EX together with the EOS REBEL G, EOS 500N camera.

Fully-Automatic Flash Operation

For fully-automatic flash operations, use the Speedlite 220EX with Type A cameras and set the camera to Full Auto ( ). The E-TTL auto flash control system sets the camera sync speed and aperture automatically for simple and automatic flash photography in fill flash and low light conditions—all you do is press the shutter button and the camera together with the Speedlite 220EX will do the rest.

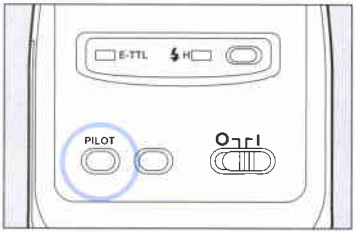


1 Set the camera to Full Auto ( ).



2 Turn on the power of the Speedlite 220EX.

The camera is set to fully-automatic flash operation when one of the Programmed Image Control modes (excluding the Night Scene mode where a slower shutter speed will be set for background exposure) is selected.



3 Make sure that the pilot lamp is lit.

4 Aim the active focusing point on the subject and press the shutter button halfway.

- Focus is achieved and the shutter speed and aperture settings are displayed in the viewfinder and on the LCD panel.
- The E-TTL indicator on the rear of the Speedlite 220EX lights.
- The sync speed is set to 1/90 sec. automatically and the aperture is set automatically at the same time.

5 Check that the ϟ , shutter speed, and aperture settings are displayed in the viewfinder. Then, press the shutter button completely to take the picture.

The Speedlite 220EX fires a test preflash immediately before the shutter is released. After obtaining an initial flash exposure reading with the preflash, the Speedlite 220EX fires the main flash to provide optimum flash exposure.

The test preflash is fired to obtain an initial flash exposure reading which is used to compute the output of the main flash for optimum flash exposures.
The main flash is fired when the shutter is released to provide optimum flash exposure.

Fill Flash

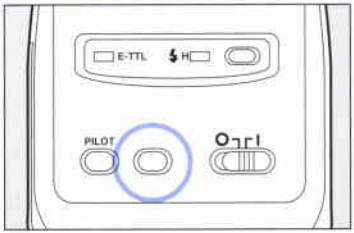
Even in daylight, you can use the flash as fill light to reduce harsh shadows or dark, backlit portrait subjects by filling the shadows with the flash.

Taken with fill flash.

Taken without fill flash.

When the Speedlite 220EX is used with a camera that is set to fully-automatic flash operation, the fill flash output may be reduced automatically to balance the exposure between the subject and the background. This is called autoflash output reduction.

Flash Exposure Confirmation



The flash exposure confirmation lamp lights for 2 sec. after the flash fires if optimum flash exposure has been obtained. If the flash exposure confirmation lamp fails to light after the flash fires, the picture may have been underexposed. Move closer to the subject and try again.

Flash with Other Modes

The E-TTL autoflash control system can be used with Type A cameras set to the **P** (Program AE), **Av** (Aperture-priority AE), **Tv** (Shutter speed-priority AE), or **M** (Manual) mode.

■ When you press the shutter button halfway, the shutter speed and aperture settings are displayed in the viewfinder as in any AE mode.

Shutter Speed and Aperture Settings According to Mode

Mode	Shutter Speed	Flash Aperture
P	Automatically set(1/60sec to 1/X sec.)*	Automatically set
Av	Automatically set(30sec to 1/X sec.)	Manually set
Tv	Manually set(30sec to 1/X sec.)	Automatically set
M	Manually set(buLb to 1/X sec.)	Manually set

- Manually set refers to the setting by the user. Automatically set refers to the setting computed by the Speedlite 220EX and camera.
- 1/X sec. refers to the camera maximum sync speed (see page 40).

* 1/90 sec. only for the EOS REBEL G, and EOS 500N cameras.

■ The Speedlite 220EX fires a test preflash immediately before the shutter is released. After obtaining an initial flash exposure reading with the preflash, the Speedlite 220EX fires the main flash to provide optimum flash exposure.

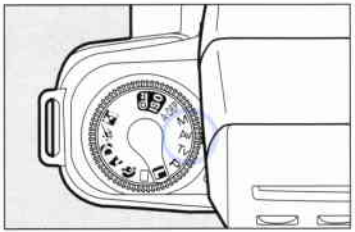
■ The exposure for the background is determined with the shutter speed and aperture settings.

■ The E-TTL indicator on the rear of the Speedlite 220EX lights automatically when the power is turned on and the shutter button is pressed halfway.

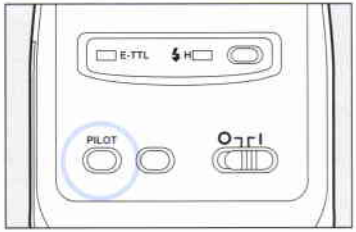
- The shutter speed and aperture are set automatically when the camera is set to the **P** mode as in fully-automatic flash operations.
- If the flash is used in the **DEP** (Depth-of-field AE) mode or the Programmed Image Control modes, it will be similar to using flash in the P mode.

1) Flash with Aperture-Priority AE

When you want to control the depth of field or when you want the background to be correctly exposed, use aperture-priority AE. Set the desired aperture and the camera sets the shutter speed automatically to suit the background light level. The E-TTL autoflash control system regulates the flash output according to the aperture you set for optimum flash exposure.



1 Set the camera to Av (Aperture-priority AE) and set the desired aperture.



2 Make sure that the pilot lamp is lit.

3 Press the shutter button halfway to focus on the subject.

4 Check that ϟ is displayed in the viewfinder and make sure that the shutter speed is not blinking in the viewfinder. Then, press the shutter button completely to take the picture.

The shutter speed blinks in the viewfinder to alert you of a possible over-exposed or underexposed background. If the maximum sync speed blinks, the background will be overexposed. If the 30" sync speed blinks, the background will be underexposed. Change the aperture setting until the sync speed stops blinking and remains displayed.

Automatic Slow-Speed Sync

Slow-speed sync is a slow shutter speed setting you use with the flash for portrait photography in dimly lit indoors or night outdoors. By using a slower shutter speed, you can expose the background correctly while the flash exposes the subject correctly.
Automatic slow-speed sync is set automatically when Type A cameras are set to the Av (Aperture-priority AE) mode where applicable.
When using slow-speed sync, be sure to use a tripod to avoid camera shake as a result of the slower shutter speed.

When a picture is taken under fluorescent light using a daylight-balanced film without a color correction filter, the result may appear with a green tint. When a picture is taken under tungsten light using a daylight-balanced film without a color correction filter, the result may appear with an orange tint.

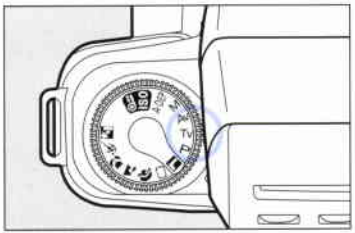
Taken with a slow sync speed.

Taken with a normal sync speed.

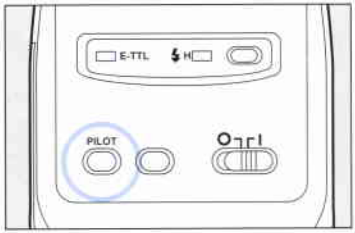
- To cancel automatic slow-speed sync operations, set the camera to the M (Manual) mode and set the desired shutter speed and aperture settings (see page 19).
  The E-TTL autoflash control system will regulate the flash output according to the shutter speed and aperture settings you set for optimum flash exposure.
- For handheld flash photography with an EF 135mm f/2.8 soft focus lens, follow the procedure below to obtain optimum flash exposure.
  1. Manually set to the maximum lens aperture (i.e., smaller aperture value) to emphasize the soft focus effect.
  2. Manually set to the slowest shutter speed possible without risk of camera shake.
  3. Make sure that the pilot lamp is lit and proceed to normal flash operation procedures.

2) Flash with Shutter Speed-Priority AE

When you want to control the shutter speed to create a special effect, use shutter speed-priority AE. Set the desired sync speed anywhere from 30 sec. up to the camera maximum sync speed. The camera sets the aperture automatically to suit the background light level. The E-TTL autoflash control system regulates the flash output according to the shutter speed you set for optimum flash exposure.



1 Set the camera to Tv (Shutter speed-priority AE) and set the desired sync speed anywhere from 30 sec. up to the camera maximum sync speed.



2 Make sure that the pilot lamp is lit.

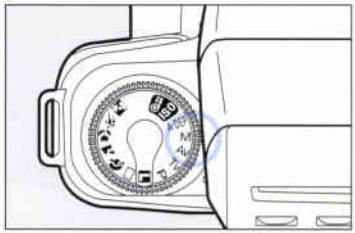
3 Press the shutter button halfway to focus on the subject.

4 Check that ϟ is displayed in the viewfinder and make sure that the aperture value is not blinking in the viewfinder. Then, press the shutter button completely to take the picture.

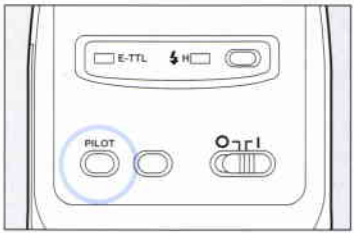
The aperture value blinks in the viewfinder to alert you of a possible overexposed or underexposed background. Change the sync speed until the aperture value stops blinking and remains displayed.

3) Automatic Flash with Manual Exposure

When you want to control both the sync speed and the aperture, use manual exposure. Set the desired aperture and shutter speed. The E-TTL autoflash control system regulates the flash output according to the aperture you set for optimum flash exposure.



1 **Set the camera to M (Manual) and set the desired aperture and sync speed anywhere from 30 sec. up to the camera maximum sync speed.**



2 **Make sure that the pilot lamp is lit.**

3 **Press the shutter button halfway to focus on the subject.**

4 **Check that ϟ is displayed in the viewfinder. Then, press the shutter button completely to take the picture.**

Use of the buLb setting for the sync speed is applicable for flash photography with manual exposure.

FP Flash

When used with Type A cameras, FP (Focal Plane) flash, or high-speed sync, enables the Speedlite 220EX to synchronize with a shutter speed that is faster than the camera maximum sync speed when the FP flash indicator is lit. When a sync speed faster than the camera maximum sync speed is set, the Speedlite 220EX is set to the high-speed sync mode automatically and $\frac{1}{H}$ is displayed in the viewfinder.

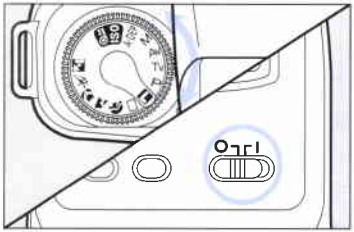
- FP flash can be used in the **P**, **Tv**, **Av**, **M**, and **DEP** modes.
- FP flash is effective when you want to use fill flash for an outdoor portrait while blurring the background with a large aperture setting. It can also be used to produce a catchlight in the subject's eyes, or to simply eliminate harsh shadows. The result is most pleasing when a fast (large aperture) lens is used.

Taken with FP flash at 1/2000 sec., f/2.0 (EF 100mm f/2.0 lens).

Taken with normal flash at 1/125 sec., f/9.5 (EF 100mm f/2.0 lens).

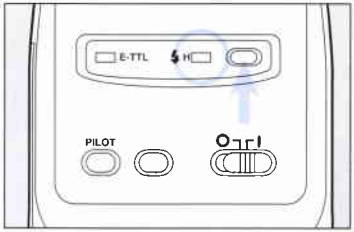
- Use of FP flash is not applicable for flash photography with fully-automatic flash operations.
- Set the camera to **Av** or **M** mode when taking pictures with a large aperture setting.
- FP flash is canceled automatically when the camera is set to the fully-automatic flash operation, or when the power of the Speedlite 220EX is turned off.

When using fill flash in the **Av** mode, it is recommended that the FP flash be used so that there is no limitation in using a faster shutter speed than the camera maximum sync speed.



1 Set the camera to the desired shooting mode.

2 Turn on the power of the Speedlite 220EX.



3 Press the FP flash button so that the FP flash indicator lights.

Make sure that the pilot lamp is lit.

4 Press the shutter button halfway to focus on the subject.

5 Check that ⚡H is displayed in the viewfinder. Then, press the shutter button completely to take the picture.

- When high-speed sync is set, ⚡H is displayed in the viewfinder.
- ⚡ is displayed in the viewfinder under normal flash operations.

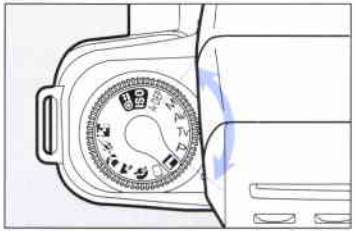
High-Speed Sync Guide Number Table

Shutter Speed	Guide Number (m/ft)		
	ISO 100	ISO 200	ISO 400
1/125	13.3/43.6	18.8/61.7	26.6/87.2
1/180	12/39.4	17/55.8	24/78.7
1/250	10.7/35.1	15.1/49.5	21.4/70.2
1/350	9.1/30	12.9/42.3	18.2/59.7
1/500	7.7/25.3	10.9/35.8	15.4/50.5
1/750	6.5/21.3	9.2/30.2	13/42.6
1/1000	5.4/17.7	7.6/24.9	10.8/35.4
1/1500	4.6/15.1	6.5/21.3	9.2/30.2
1/2000	3.8/12.5	5.4/17.7	7.6/24.9
1/3000	3.2/10.5	4.5/14.8	6.4/21
1/4000	2.7/8.9	4/13.1	5.4/17.7

- The Speedlite 220EX Guide Number changes according to the high-speed sync operations. The flash range decreases as the shutter speed increases with FP flash.
- The limit of the flash range can be calculated with the following formula: Guide Number ÷ the distance calculated from the aperture setting.

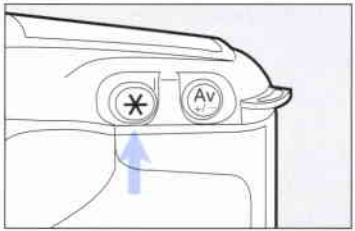
FE Lock

When used with Type A cameras, the Speedlite 220EX enables FE (Flash Exposure) lock which locks the flash exposure reading for the desired area. The camera AE lock button functions as an FE lock button as soon as the Speedlite 220EX is recharged. Use FE lock to obtain and lock the correct flash exposure reading for the desired area of the picture. You can simply recompose the shot while retaining the flash exposure reading for optimum flash exposure.



1 Set the camera to the desired Creative Zone mode (P, Tv, Av, M, or DEP).

2 Press the shutter button halfway to focus on the subject. Keep pressing the shutter button halfway even after focus is achieved.



3 Aim the focusing point where you want to obtain correct flash exposure reading, then press the FE lock button.

- The preflash is fired to obtain an initial flash exposure reading which is used to compute the output of the main flash for optimum flash exposures.

- The FE lock symbol (FEL) is displayed in the viewfinder for about 0.5 sec. and the correctflash exposure reading is locked.
- The correct flash exposure reading that is obtained is locked for 16 sec. after the FE lock button is released.

- Use of FE lock may not provide the desired results when locking the flash exposure reading of a relatively small subject.
- Use of FE lock is not applicable for flash photography with fully-automatic flash operations.

4 Compose the picture.

5 Check that ⚡ is displayed in the viewfinder. Then, press the shutter button completely to take the picture.

- Each time the FE lock button is pressed, a preflash is fired to obtain the correct flash exposure reading which is then locked for 16 sec.
- FE lock is canceled 16 sec. after the FE lock symbol (FEL) is displayed, or when the Command Dial is turned.

FE lock effect

The flash exposure reading for the subject's face was locked and the picture was composed as shown above. Optimum flash exposure of the subject is obtained without the unnecessary reflection from the background.

If the subject is too far away for FE lock to be set successfully, ⚡ blinks. Move closer to the subject and repeat steps 3 and 4.

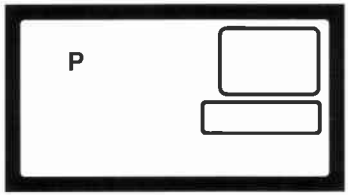
Speedlite 220EX with Type B Cameras

When the Speedlite 220EX is used with Type B cameras, the TTL (Through-The-Lens) autoflash control system can be used. The TTL autoflash control system sets the camera sync speed and aperture automatically for simple and automatic flash photography in fill flash and low light conditions for optimum flash exposures. The Speedlite 220EX also provides multiple flash setup capability to obtain creative lighting effects for amateur and professional flash applications.

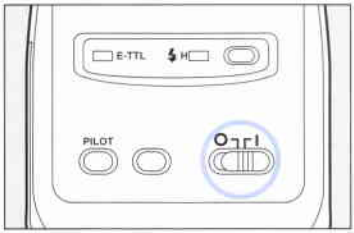
The E-TTL indicator on the rear of the Speedlite 220EX will not light since the Speedlite 220EX operates as a TTL flash unit when used with Type B cameras. This section contains descriptions of the Speedlite 220EX together with the EOS-1N camera.

Fully-Automatic Flash Operation

For fully-automatic flash operations, use the Speedlite 220EX with Type B cameras and set the camera to Full Auto ( ) or Program AE (P). The TTL autoflash control system sets the camera sync speed and aperture automatically for simple and automatic flash photography in fill flash and low light conditions—all you do is press the shutter button and the camera together with the Speedlite 220EX will do the rest.

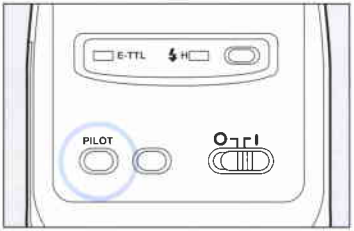


1 Set the camera to Full Auto ( ) or Program AE (P).



2 Turn on the power of the Speedlite 220EX.

The camera is set to fully-automatic flash operation when one of the Programmed Image Control modes is selected.



3 Make sure that the pilot lamp is lit.

4 Aim the active focusing point on the subject and press the shutter button halfway.

- Focus is achieved and the shutter speed and aperture settings are displayed in the viewfinder and on the LCD panel.
- The sync speed is set automatically anywhere from 1/60 sec. up to the camera maximum sync speed and the aperture is set automatically at the same time. The camera maximum sync speed will vary depending on the camera model. (See page 40.)

5 Check that the ⚡, shutter speed, and aperture settings are displayed in the viewfinder. Then, press the shutter button completely to take the picture.

Fill Flash

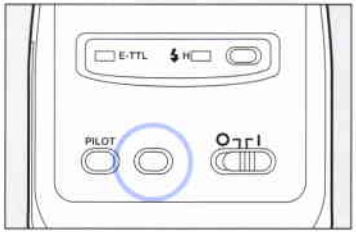
Even in daylight, you can use the flash as fill light to reduce harsh shadows or dark, backlit portrait subjects by filling the shadows with the flash.

Taken with fill flash.

Taken without fill flash.

When the Speedlite 220EX is used with a camera that is set to fully-automatic flash operation, the fill flash output may be reduced automatically to balance the exposure between the subject and the background. This is called autoflash output reduction.

Flash Exposure Confirmation



The flash exposure confirmation lamp lights for 2 sec. after the flash fires if optimum flash exposure has been obtained. If the flash exposure confirmation lamp fails to light after the flash fires, the picture may have been underexposed. Move closer to the subject and try again.

Flash with Other Modes

The TTL autoflash control system can be used with Type B cameras set to the P (Program AE), **Av** (Aperture-priority AE), **Tv** (Shutter speed-priority AE), or **M** (Manual) mode.

■ When you press the shutter button halfway, the shutter speed and aperture settings are displayed in the viewfinder as in any AE mode.

Shutter Speed and Aperture Settings According to Mode

Mode	Shutter Speed	Flash Aperture
P	Automatically set (1/60 sec. to 1/X sec.)*	Automatically set
Av	Automatically set (30 sec. to 1/X sec.)	Manually set
Tv	Manually set (30 sec. to 1/X sec.)	Automatically set
M	Manually set (buLb to 1/X sec.)	Manually set

- Manually set refers to the setting by the user. Automatically set refers to the setting computed by the Speedlite 220EX and camera.
- 1/X sec. refers to the camera maximum sync speed (see page 40).

* 1/90 sec. only for the EOS 500, EOS REBEL X, and EOS REBEL XS cameras.

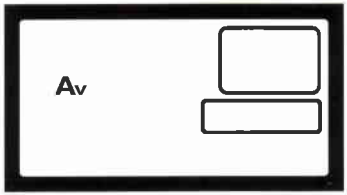
■ The Speedlite 220EX fires when the shutter button is pressed completely. The flash output is regulated by the TTL autoflash control system according to the aperture setting for optimum flash exposure. The flash output is metered off-the-film and cut off automatically when the correct flash exposure is obtained. Since only the light which actually reaches the film is measured, light loss caused by lens attachments such as teleconverters or filters is automatically taken into consideration. Even zoom lenses that change their effective aperture when zoomed to different focal lengths (variable aperture zooms) do not present a problem with TTL flash measurement.

■ The exposure for the background is determined with the shutter speed and aperture settings.

- Use of the FP flash button is not applicable for flash photography with Type B cameras.
- If the flash is used in the **DEP** (Depth-of-field AE) mode or the Programmed Image Control modes, it will be similar to using flash in the **P** mode.

1) Flash with Aperture-Priority AE

When you want to control the depth of field or when you want the background to be correctly exposed, use aperture-priority AE. Set the desired aperture and the camera sets the shutter speed automatically to suit the background light level. The TTL autoflash control system regulates the flash output according to the aperture you set for optimum flash exposure.



1 Set the camera to Av (Aperture-priority AE) and set the desired aperture.

2 Press the shutter button halfway to focus on the subject.

3 Check that ϟ is displayed in the viewfinder and make sure that the shutter speed is not blinking in the viewfinder. Then, press the shutter button completely to take the picture.

The shutter speed blinks in the viewfinder to alert you of a possible overexposed or underexposed background. If the maximum sync speed blinks, the background will be overexposed. If the 30" sync speed blinks, the background will be underexposed. Change the aperture setting until the sync speed stops blinking and remains displayed.

Automatic Slow-Speed Sync

Slow-speed sync is a slow shutter speed setting you use with the flash for portrait photography in dimly lit indoors or night outdoors. By using a slower shutter speed, you can expose the background correctly while the flash exposes the subject correctly.

Automatic slow-speed sync is set automatically when Type B cameras are set to the Av (Aperture-priority AE) mode where applicable.

When using slow-speed sync, be sure to use a tripod to avoid camera shake as a result of the slower shutter speed.

When a picture is taken under fluorescent light using a daylight-balanced film without a color correction filter, the result may appear with a green tint. When a picture is taken under tungsten light using a daylight-balanced film without a color correction filter, the result may appear with an orange tint.

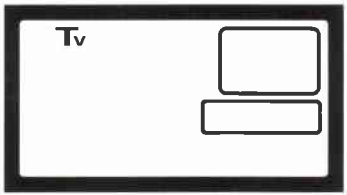
Taken with a slow sync speed.

Taken with a normal sync speed.

- To cancel automatic slow-speed sync operations, set the camera to the M (Manual) mode and set the desired shutter speed and aperture-settings (see page 33).
  The TTL autoflash control system will regulate the flash output according to the shutter speed and aperture settings you set for optimum flash exposure.
- For handheld flash photography with an EF 135mm f/2.8 soft focus lens, follow the procedure below to obtain optimum flash exposure.
  1. Manually set to the maximum lens aperture (i.e., smaller aperture value) to emphasize the soft focus effect.
  2. Manually set to the slowest shutter speed possible without risk of camera shake.
  3. Make sure that the pilot lamp is lit and proceed to normal flash operation procedures.

2) Flash with Shutter Speed-Priority AE

When you want to control the shutter speed to create a special effect, use shutter speed-priority AE. Set the desired sync speed anywhere from 30 sec. up to the camera maximum sync speed. The camera sets the aperture automatically to suit the background light level. The TTL autoflash control system regulates the flash output according to the shutter speed you set for optimum flash exposure.



1 Set the camera to Tv (Shutter speed-priority AE) and set the desired sync speed anywhere from 30 sec. up to the camera maximum sync speed.

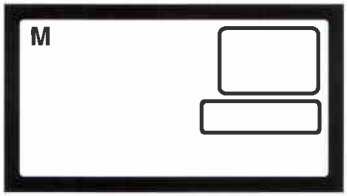
2 Press the shutter button halfway to focus on the subject.

3 Check that ϟ is displayed in the viewfinder and make sure that the aperture value is not blinking in the viewfinder. Then, press the shutter button completely to take the picture.

The aperture value blinks in the viewfinder to alert you of a possible overexposed or underexposed background. Change the sync speed until the aperture value stops blinking and remains displayed.

3) Automatic Flash with Manual Exposure

When you want to control both the sync speed and the aperture, use manual exposure. Set the desired aperture and shutter speed. The TTL autoflash control system regulates the flash output according to the aperture you set for optimum flash exposure.



1 **Set the camera to M (Manual) and set the desired aperture and sync speed anywhere from 30 sec. up to the camera maximum sync speed.**

2 **Press the shutter button halfway to focus on the subject.**

3 **Check that ϟ is displayed in the viewfinder. Then, press the shutter button completely to take the picture.**

Use of the buLb setting for the sync speed is applicable for flash photography with manual exposure

Speedlite 220EX Accessories

Accessories for the Speedlite 220EX are available when operating E-TTL autoflash control system for off-camera flash photography applications, or when operating TTL autoflash control system for multiple flash photography applications to obtain optimum flash exposure.

By using multiple Speedlite flash units, you can obtain various creative lighting effects by giving the subject more definition and a more natural appearance. The TTL autoflash control system allows simple and automatic flash output for optimum flash exposure–without troublesome multiple flash exposure calculations. You can connect up to four of the desired Speedlite flash units: Speedlite 220EX, Speedlite 380EX, Speedlite 480EG, EZ-series Speedlite, or the Macro Ring Lite ML-3.

Off-Camera Shoe Cord 2

This cord enables you to use the Speedlite flash unit up to 60 cm/1.98 ft. away from the camera. All of the camera automatic functions are applicable for use.

Multiple Flash Accessories

TTL Hot Shoe Adapter 3

Equipped with a hot shoe and a Connecting Cord socket, this adapter is mounted on the camera hot shoe. A Speedlite flash unit may be mounted on the TTL Hot Shoe Adapter 3 and a Connecting Cord may be connected to the socket. By connecting the other end of the Connecting Cord to an Off-Camera Shoe Adapter or a TTL Distributor, you can connect more Speedlite flash units to the camera.

Off-Camera Shoe Adapter

This adapter has a hot shoe, a Connecting Cord socket, and a tripod socket. Mount a Speedlite flash unit on the hot shoe, connect a Connecting Cord to the Connecting Cord socket, and mount the adapter on a tripod. The other end of the Connecting Cord can be connected to a TTL Hot Shoe Adapter 3 or TTL Distributor.

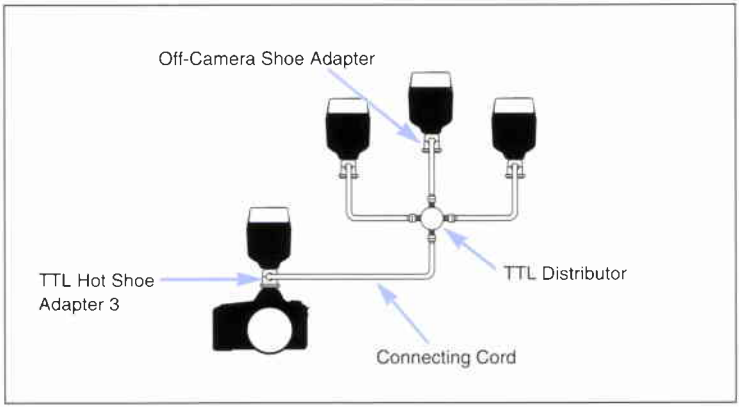
TTL Distributor

With four Connecting Cord sockets, the TTL Distributor relays exposure information from the TTL Hot Shoe Adapter 3 to up to three Speedlite flash units via the Connecting Cords.

Connecting Cord 60 and Connecting Cord 300

Available in two lengths (60 cm and 3 meters), the Connecting Cords are used to connect Speedlite flash units for multiple flash setup.

Sample Multiple Flash Connections



Use of E-TTL autoflash control system is not applicable for flash photography when multiple flash accessories are attached to the Speedlite 220EX. The Speedlite will operate as a TTL flash unit.

Troubleshooting Guide

No.	Problem	Probable Cause	Solution	Page No.
1	The Speedlite 220EX cannot be detached from the camera.	The hot shoe lock release has not been slid to the right to release the locking pin.	Slide the hot shoe release to the right to release the locking pin.	8
2	The Speedlite 220EX does not fire even when the shutter button is pressed completely.	The Speedlite 220EX has not been mounted properly on the hot shoe.	Mount the Speedlite 220EX properly and securely on the camera.	8
		The hot shoe contacts are dirty. The Speedlite 220EX mounting foot contacts are dirty.	If the contacts are dirty, use a clean cloth to wipe them clean-ly.	8
3	After turning on the Speedlite 220EX, the pilot lamp turns off after a while.	If the Speedlite 220EX is not used for 90 sec., the power turns off auto-matically to save battery power.	Press the shutter button halfway, or press the test firing button.	9
4	When high-speed sync is used with Type A cameras, the picture is underexposed.	With high-speed sync, the Guide Number changes depending on the sync speed. A faster sync speed reduces the flash range. If the sub-ject is beyond the flash range, underexposure results.	Set the shutter speed so that the desired flash range is obtained.	22
5	The subject looks blurred in the picture.	If the flash is used with the aperture-priority AE mode in low light condi-tions, a slow sync speed is set auto-matically. A blurred picture may be taken if the camera is handheld at a slow shutter speed.	Use of a tripod is recommended at slow shutter speeds.	17, 31

Specifications

Type	Direct-sync, shoe-mount flash with E-TTL autoflash control (E-TTL test preflash, AF-assist beam)
Compatible Cameras	Type A cameras (with E-TTL autoflash control) Type B cameras (with TTL autoflash control) See page 2.
Flash Coverage and Guide Number	22m/72.2 ft (ISO 100), 31m/101.7 ft (ISO 200), 44m/144.3 ft (ISO 400) (See page 38 for details on the high-speed sync guide number.)
Battery Life and Recycling Time	See page 38.
Flash Duration	1.4 ms or less (Normal flash)
Flash Coverage	EOS REBEL G, EOS 500N: covers 28mm lens EOS IX: covers 24mm lens
Flash Modes	(1) Normal sync (2) High-speed sync (FP flash) with Type A cameras (3) Test firing (with test firing button)
Exposure Control Modes	(1) E-TTL autoflash control with Type A cameras (2) FE lock with Type A cameras (3) TTL autoflash control with Type B cameras and with Type A cameras when multiple flash acces sories are attached
Flash Metering System	(1) E-TTL autoflash metering with test preflash with Type A cameras (2) FE lock autoflash partial metering with test preflash with Type A cameras (3) TTL off-the-film autoflash metering with Type B cameras
Flash Exposure Confirmation	The flash exposure confirmation lamp lights after the flash fires if optimum flash exposure has been obtained.
Flash Exposure Compensation	(1) Automatic flash output reduction for fill flash (2) Applicable for cameras with the flash exposure compensation capability
Flash Range (with 50mm f/1.4 lens at ISO 100)	(1) 0.7 - 15.7 meters/2.3 - 51.5 ft for normal sync (2) 0.7 - 8.6 meters/2.3 - 28.2 ft (at 1/180 sec.) for high- speed sync
Sync Speed	See page 40.
Flash-Ready Indication	Red pilot lamp
AF-Assist Beam Linkage and Range	Linked to center focusing point, effective from 0.7 - 5 meters/2.3 - 16.4 ft (in total darkness)
Auto Power Off	The power turns off automatically after 90 sec. of non-use
Power Source	(1) Four size-AA alkaline batteries (LR6 or AM-3) (2) Four size-AA NiCd batteries (KR15 or KR51)
Dimensions	65 (W) × 92 (H) × 61.3 (D) mm/25.6 (W) × 36.2 (H) × 24.1 (D) inches
Weight	160 g (excluding batteries)/5.64 oz

High-Speed Sync Guide Number Table

Shutter Speed	Guide Number (m/ft)		
	ISO 100	ISO 200	ISO 400
1/125	13.3/43.6	18.8/61.7	26.6/87.2
1/180	12/39.4	17/55.8	24/78.7
1/250	10.7/35.1	15.1/49.5	21.4/70.2
1/350	9.1/30	12.9/42.3	18.2/59.7
1/500	7.7/25.3	10.9/35.8	15.4/50.5
1/750	6.5/21.3	9.2/30.2	13/42.6
1/1000	5.4/17.7	7.6/24.9	10.8/35.4
1/1500	4.6/15.1	6.5/21.3	9.2/30.2
1/2000	3.8/12.5	5.4/17.7	7.6/24.9
1/3000	3.2/10.5	4.5/14.8	6.4/21
1/4000	2.7/8.9	4/13.1	5.4/17.7

Battery Life and Recycling Time

Battery Type	Recycling Time	No. of Flashes
Size-AA alkaline batteries (LR6 or AM-3)	0.1 to 4.5 sec.	250 to 1700
Size-AA NiCd batteries (KR15 or KR51)	0.1 to 2.5 sec.	100 to 700

The above figures are based on Canon's Standard Test Method with a new set of batteries.

AF-Assist Beam Emission Preconditions

Speedlite 220EX/Camera Combination		Speedlite 220EX AF-assist Beam Emitted	Camera AF-assist Beam Emitted
EOS REBEL G, EOS 500N,EOS IX, EOS 50, EOS 50 E, EOS ELAN II EOS ELAN IIE	With the center focusing point selected	○	–
	With the left or right focusing point selected	–	○
EOS 500, EOS REBEL X, EOS REBEL XS, EOS 5000, EOS 888, EOS 5, EOS A2, EOS A2E, EOS 10		–	○
EOS-1N, EOS-1N RS, EOS 1000N, EOS REBEL II, EOS 1000 FN, EOS REBEL SII, EOS REBEL, EOS 1000, EOS 100, EOS ELAN, EOS 700, EOS RT, EOS-1, EOS 630, EOS 850, EOS 750, EOS 620, EOS 650		○	–

* With the EOS-1N and EOS-1N RS, the camera AF-assist beam is emitted instead of the Speedlite 220EX AF-assist beam when a focusing point other than the center is selected.

Camera Flash-Related Exposure Warnings

Exposure Mode	Warning Indicator	Description	Remarks
Aperture-Priority AE	Max. sync speed blinks.	The background will be overexposed.	Only flash exposure setting for the subject is correct. Changing the aperture may stop the shutter speed from blinking.
Shutter Speed Priority AE	Minimum aperture setting blinks.	The background will be overexposed.	Only the flash exposure setting for the subject is correct.
	Maximum aperture setting blinks.	The background will be underexposed.	
Program AE	Minimum aperture setting blinks.	The subject is too bright.	Attach a neutral-density filter to the lens to reduce the amount of light metered by the camera.

Speedlite 220EX Feature Availability

●: Available Blank: Not available ×: Not available □: Full Auto P: Program AE

Camera	Camera Max. Sync Speed				3-Zone Auto Flash Metering	Autoflash Control		Flash Exposure Compensation with Camera	Second-Curtain Sync	Camera Mode for Fully-Automatic Flash	buLb Exposure
	1/90	1/125	1/200	1/250		E-TTL	TTL				
EOS 650		●			×	×	●	×	×	□/P	●
EOS 620				●	×	×	●	×	×	□/P	×
EOS 750		●			×	×	●	×	×	PROGRAM	×
EOS 850		●			×	×	●	×	×	PROGRAM	●
EOS 630		●			×	×	●	×	×	□/P	●
EOS-1				●	×	×	●	×	×	P	●
EOS RT		●			×	×	●	×	×	P	●
EOS 10/10S		●			●	×	●	×	×	□/P	●
EOS 700		●			×	×	●	×	×	P	●
EOS 1000/REBEL	●				×	×	●	×	×	□/P	●
EOS 100/ELAN		●			×	×	●	×	×	□/P	●
EOS1000N/ REBEL II	●				×	×	●	×	×	□/P	●
EOS 1000 FN/REBEL SII	●				×	×	●	×	×	□/P	●

Camera	Camera Max. Sync Speed				3-Zone Auto Flash Metering	Autoflash Control		Flash Exposure Compensation with Camera	Second-Curtain Sync	Camera Mode for Fully-Automatic Flash	buLb Exposure
	1/90	1/125	1/200	1/250		E-TTL	TTL				
EOS 5/A2/A2E			●		●	×	●	●	×	□/P	●
EOS 500/ REBEL X	●				●	×	●	×	×	□/P	●
EOS 5000/ EOS 888	●				●	×	●	×	×	□	●
EOS1N/ 1NRS				●	●	×	●	●	×	P	●
EOS 50/50E/ ELAN II/ ELAN IIE		●			●	●	×	●	●	□/P	●
EOS REBEL G EOS 500N	●				●	●	×	×	×	□/P	●
EOS IX			●		●	●	×	●	×	□/P	●

• Flash Exposure Compensation

If you have an EOS-1N, EOS-1N RS, EOS 50, EOS 50E, EOS ELAN II, EOS ELAN IIE, EOS A2/A2E, or EOS IX, you can set flash exposure compensation for the Speedlite 220EX. Refer to the Instructions of your camera to set the flash exposure compensation.

Second-Curtain Synchronization with EOS ELAN IIE and Speedlite 220EX

The EOS ELAN IIE features a Custom Function to set second-curtain synchronization with the Speedlite 220EX. You can fire the flash right before the exposure ends (when the second shutter curtain closes).* Normally, first-curtain synchronization is set so that the flash is fired at the start of the exposure (when the first shutter curtain opens). With second-curtain synchronization and a slow shutter speed, you can capture a moving subject sharply and leave a blurred streak behind the subject. This is more natural than when first-curtain synchronization is used.

*To set the camera Custom Function, refer to the Instructions of your camera.

Taken with second-curtain synchronization.

Taken with first-curtain synchronization.

- Second-curtain synchronization is not applicable when the camera is set to Full Auto ( ) mode or a Programmed Image Control mode.
- Set the camera to **Tv**, **Av**, or **M** mode and use a slow shutter speed to obtain interesting second-curtain synchronization effects.
- Second-curtain synchronization is easier when the sync speed is set to buLb.
- Second-curtain synchronization is applicable only with EOS ELAN IIE and the Speedlite 220EX.

• Using the Speedlite 220EX with other Cameras

When the Speedlite 220EX is used with cameras other than the EOS or T90 camera (cameras without the TTL autoflash control system), full flash output in the manual setting only is applicable.

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

Do not make any changes or modifications to the equipment unless otherwise specified in the instructions. If such changes or modifications should be made, you could be required to stop operation of the equipment.

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Consult the dealer or an experienced radio/TV technician for help.

This digital apparatus dose not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interferncecausing equipment standard entitled "Digital Apparatus", ICES-003 of the industry Canada.

CE The CE Mark is a Directive conformity mark of the European Community (EC)

Canon

CANON INC. **30-2, Shimomaruko 3-chome, Ohta-ku, Tokyo 146, Japan**

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