IMPORTANT SAFEGUARDS

Please read and follow these essential safety procedures to prevent accidents, injury to yourself and others, as well as property damage. Read all these instructions carefully to insure the safe use of your Sunpak flash unit.

⚠ **WARNING** Failure to observe the instructions marked by this symbol while handling the product may result in loss of life or serious bodily injury. Make sure to observe the instructions.

⚠ **CAUTION** Failure to observe the instructions marked by this symbol while handling the product may result in serious bodily injury or damage to property. Make sure to observe the instructions.

⚠ **WARNING** Do not attempt to open, repair, or modify this unit. It contains a high-voltage circuit, which may cause a fire, electric shock, or serious injury.

Do not use accessories other than those specified by TOCAD ENERGY CO., LTD. . Doing so may cause a fire, electric shock, or other injury.

Do not touch any exposed internal component of the unit if the unit is dropped or damaged, or if foreign matter enters the unit.

Do not operate the unit near the eyes (especially those of infants).

Flashing the unit near someone's eyes may cause visual impairment. Make sure to allow a minimum distance of about 3 feet (1 meter) or more from the subject, especially when taking pictures of infants.

Make sure to install the batteries with correctly. When replacing batteries, replace all the old batteries with a set of new batteries of same type and from the same manufacturer. Using batteries of the wrong type or old batteries may result in leakage, heat buildup, rupture, shortened service life, or loose connections. Keep the unit away from beverages and other liquids, cosmetics or chemicals. Spills or splashes of liquid entering the unit may cause a fire, electric shock, or injury.

Do not operate the unit in extremely humid environments, such as a bathroom or near a humidifier. This may result in a fire, electric shock, or injury.

Do not operate the unit if there is any chance that a flammable or volatile gas is present.

⚠ **CAUTION** Do not expose the unit to splashes, sprays or water droplets.

Do not expose batteries to a very hot environment.

Do not attempt to charge disposable batteries.

Do not place the unit in direct sunlight or where it can be exposed to high humidity. This can result in excessive humidity inside the unit, which can cause damage to or failure of the unit.

Do not store the unit in a dusty place; otherwise, subsequent use of the unit may result in a fire or electric shock.

Do not place the unit in an unstable position, otherwise, the unit may fall or drop accidentally, causing damage to the unit or personal injury.

Other Precautions

Do not clean the unit with benzene or other solvents. This can result in discoloration or deformation of the unit.

Stains or dirt should be removed with a soft dry cloth.

CAUTION

●DO NOT EXPOSE TO SPLASHES OR DROPS OF WATER.

●BATTERIES SHOULD NOT BE EXPOSED TO EXCESSIVE HEAT SUCH AS INTENSE SUNLIGHT, FIRE, ETC.

●DISPOSABLE BATTERIES (SUCH AS CARBON-ZINC AND ALKALINE CELLS) SHOULD NEVER BE CHARGED.

English

Welcome to the worldwide family of Sunpak Owners. Your Sunpak PZ40X is specially designed for CANON EOS series cameras. The PZ40X can also work with cameras having a non-dedicated, single-contact hot shoe. Your new PZ40X has many unique features; please take a few minutes to read this owner's manual carefully.

Table of contents

Features and Function of the Sunpak PZ40X

* Multi-step Auto Power Zoom function automatically provides optical flash coverage matched to the focal length of the lens in use. (24-80mm)
* Super-compact size. This unit is 40% smaller and 2-1/2 oz. (70g) lighter than previous flash units with the same features and power output, making it far easier to handle on-camera, while taking up little space in your camera bag.
* You can use the PZ40X in the E-TTL Mode (When you use both camera and lens having this function) which employs a high accurate TTL flash control.
* A large, easy to read LCD panel displays all the information needed to monitor and control all flash settings. The panel can be illuminated for easy reading in dark conditions.
The data display remains on for 5 seconds after pressing the display button.
* The PZ40X has a built-in auto-focus assist light, which comes on automatically to aid auto-focusing at low light levels.
* The PZ40X provides five Manual flash output settings, from full power to 1/16.
* The PZ40X has a power-saving function that activates the units sleeping mode automatically if it hasn't been used for 5 minutes. This energy-saving feature reduces battery consumption.
* The PZ40X flash head can be tilted upward incrementally to a full 90 degrees (vertical), for convenient bounce flash capability.

Note:

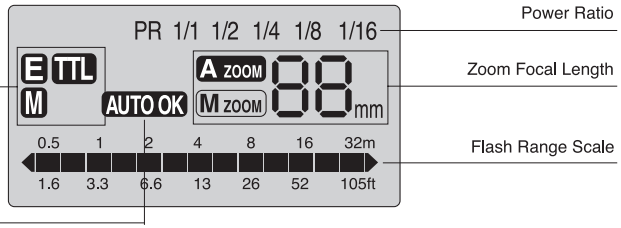
* When using the PZ40X on your camera, please hold your camera and not the flash. If you hold onto the PZ40X only, your camera may slip off the flash foot and be damaged, or the weight of the camera may damage the flash foot.
*If you use PZ40X with cameras other than CANON EOS series SLRs, you can only use it in Manual Mode. Please refer to Page 17.
*Depending on the type of lens used, the distance may not be indicated on the LCD Display.
*PZ40X can not be used the second curtain synchronization.

Important: Flash coverage limitations

When using a lens with a focal length less than 24mm, the PZ40X will not cover the entire field of view, and the edges and corners of the image will be dark. Also, the overall exposure may not be correct. Please use this unit with lenses of 24mm or greater focal length.

Description of Parts

LCD Display



∗When the focal length of a lens shifts to wider angle than 24mm, "F-mm" is displayed on the LCD panel. In this case, the circumference becomes dark and the right exposure is not obtained. Please use the focal length of 24mm or more.

English

Installing the batteries

1. Before installing the batteries, please check that the power switch is in the "OFF" position. To unlock the battery compartment, push lightly on the center of the cover.
2. To open the battery compartment slide the cover back (toward the rear of the unit) as shown.
3. Insert two AA size batteries into the battery compartment according to the polarity indications "＋－". The battery compartment is designed to prevent incorrect insertion. The PZ40X will not operate if the batteries are installed incorrectly.
4. Press the battery cover in and forward, until it snaps into place. When the unit is switched on, it will start charging with a slight humming sound and the "Ready Light" will come on when charging is completed.
5. To turn the power off slide the switch to the "OFF" position. The "Ready Light" will go off and the unit will not flash.

*Before mounting the flash unit onto the camera, please turn the flash unit off. If it is turned on, the flash unit may self-fire, or damage the flash unit may result.
We recommend that you use Sunpak rechargeable NiMH (nickel metal-hydride) batteries when possible. They provide shorter recycling times, an increased number of flashes per set, as well as energy-saving benefits.
* The flash is ready to fire as soon as the Ready Light is lit. However, full power will not be available for several seconds. We suggest that you wait a few seconds after the Ready Light activates to achieve maximum output.
* If it takes longer than 30 seconds for the "Ready Light" to come back on, when the flash is fired in Full Power Mode, replace the batteries with a fresh set.

Mounting the PZ40X to the camera

*When mounting or detaching the PZ40X from the camera, always make sure the ON/OFF Switch is to the "OFF" position, or damage may occur.
1. Slip the unit onto the camera's hot shoe. Turn the knurled lock ring to firmly affix the flash unit.
2. When the PZ40X is used with CANON EOS series cameras, the shutter speed is set automatically. When used with other cameras, please set the shutter speed to the appropriate flash sync speed (check your camera manual).

Automatic shut-down

In order to save battery life, the PZ40X automatically switches to the Power Saving Standby Mode after about 5 minutes. The LCD panel will go blank and the flash ready light will turn off.
To reactivate the flash, simply slide the switch to the "OFF" position and then back to the "ON" position, or lightly depress the camera's shutter release. The flash ready indicator will go on again after a brief delay.

* When using CANON EOS series cameras, lightly depress the camera's shutter release, or simply slide the switch to the "OFF" position and then back to the "ON" position.
* When using cameras other than CANON EOS series, push the ready button or simply slide the switch to the "OFF" position and then back to the "ON" position.
* To get out of "Auto Power Save" mode, slide the power switch to the "OFF" position. Then slide the switch to "ON" while holding the Zoom Button.

Mode Select Button

Note; this chart shows how to select the functions and set the PZ40X using the Mode Select Button and the Zoom button.

Chart 1

Press the Mode Select Button

Press the Zoom button

E-TTL (E-TTL II) Mode

This mode can be used only with cameras having E-TTL II and E-TTL mode.

*When using cameras with E-TTL II, E-TTL II mode is available.

TTL Mode

This mode can be used with cameras that do not include E-TTL II and E-TTL mode.

*"TTL" is not shown when using camera without TTL mode.

Manual Mode

PR 1/1 1/2 1/4 1/8 1/16

A ZOOM 00

Repeated pressing of the mode button will cycle the flash display from E-TTL Mode to TTL and through the manual power ratio settings, returning to the E-TTL Mode. (Other cameras without E-TTL mode will return to the TTL Mode.)

A ZOOM 35 mm

M ZOOM 80 mm

M ZOOM 24 mm

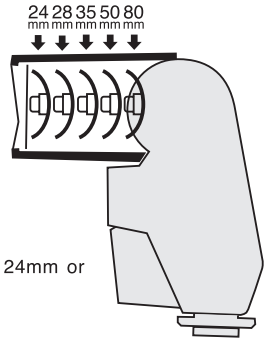
M ZOOM 50 mm

M ZOOM 28 mm

M ZOOM 35 mm

English

Power Zoom Head



The PZ40X is equipped with a motorized zoom head. It is controlled by the camera and is set automatically to provide optimal flash coverage for the focal length of the lens in use. It can even select intermediate settings within the 24-80mm focal length range. Or, it can be manually set select to 24, 28, 35, 50, and 80mm by using the Manual Zoom Mode.

* Auto Power Zoom works only with lenses of 24mm or greater focal length.

* When using only CANON EOS cameras with their exclusive lens, the Auto Power Zoom function can be used. With other lenses, use the manual (M-Zoom) Mode.

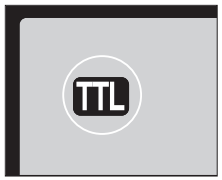
E-TTL (E-TTL II) Mode

You can use E-TTL or E-TTL II Mode when you use CANON EOS cameras having E-TTL or E-TTL II Mode function (Please refer to Instruction Manual of camera.). When using the PZ40X, camera with E-TTL mode switches to "E-TTL" when an input button is pushed and "E-TTL" is displayed as shown in the figure at right. (The initial setup TTL Mode will be displayed if a switch is turned on.) In response to a signal from the camera, the flash unit calculates the correct flash exposure based on the film speed, sets the aperture instantly, and displays the effective TTL flash range on the PZ40X LCD panel. The flash unit determines the optimum amount of light required for a proper exposure with films from ISO6 to 6400. The available range will be displayed when you partly depress the camera's shutter release, or when the Ready Light is on.
The flash range is from 1.5 ft to 105 ft (0.5 to 32m) and is indicated by means of a bar graph. An asterisk indicates distances greater than 105 ft (32m).

TTL Mode Setting

E-TTL II Mode.... This is a more advanced system than the previous E-TTL mode, and provides flash control with high accuracy and good stability.
E-TTL Mode .... The most advanced flash control system to have the optimal flash. The pre-flash result and distance information from the EF type lens controls the amount of flash volume. This function is available only when CANON EOS cameras are equipped with EF type lens.
TTL Mode (All of CANON cameras with TTL measuring function).... This gives the optimal aperture to an object all the time. The brightness of the background is not, so that the object sometimes becomes too bright.

TTL Mode



Mount the PZ40X on the camera and push the mode-selector button until the LCD panel displays TTL. (The LCD panel shows the previous mode when you first turn the power switch on.) The PZ40X now calculates exposure based on the camera's selected aperture and film speed and displays the effective TTL distance range. The display of the effective distance range does not appear until you partly depress the camera's shutter release or the Ready Light comes on. A bar graph shows the flash range display from 1.5 ft to 105 ft (0.5m to 32m). An asterisk will appear if this distance is exceeded.

TTL Mode with CANON EOS cameras, Aperture Setting and Shutter Speed (Table 2)

CANON EOS series SLR cameras					
Camera Mode Setting		"P" mode, Illust mode (Program AE)	"AV" mode (Aperture Preference AE)	"TV" mode (Shutter Preference AE)	"M" mode (Manual)
Aperture Setting		Automatically set by ambient light	Manual set (F/STOP)	Automatically set by ambient light	Manual set (F/STOP)
All mode	Shutter Speed *1	Automatically set by ambient light	Automatically set by ambient light	Manual set	Manual set
	Finder Indication	ϟ is displayed			

●When using camera at full auto mode (simbol mark), the mode of PZ40X is fixed to "TTL".

●When using some EOS cameras without E-TTL II and E-TTL mode, "TTL" mode only is displayed on the LCD panel.

● Flash mode groups refer to the mode of a flash. (E-TTL, TTL, M)

*1 Shutter speed is set to the X-sync speed or a slower shutter speed. Since X-sync speeds vary with different camera models, please refer to your camera's instruction manual.

Manual Mode

There are five power-output settings available with the PZ40X in manual mode, from full power to 1/16 power. First, push the Mode Selector button continually until “M” is displayed. The flash will then be in the Manual mode. Please refer to the Chart 1 on page 15 for details on setup. Once the battery switch is turned to "OFF", the setting "Manual Mode" is cancelled.

Here are some situations when manual mode is desirable or useful:

1. Daylight synchronization (Flash is used outdoors to lighten shadows or when the subject is photographed against a strong backlight)
2. When certain focal-length length lenses will be used, such as fisheye type.
3. When a motor drive or an auto-winder will be used.
4. When a number of flashes are used together.

Note: An arrow in the LCD display indicates that the maximum flash range of 105 ft. (32m) has been exceeded.

Aperture Setting, Shutter Speed, Range Calculation for Manual Mode (Table 3)

CANON EOS series SLR cameras		
Mode	Camera	AV, M mode
	Flash	PR (Power Ratio) 1/1～1/16
Aperture	Camera	M, AV-manual set
Range		the LCD panel
Finder Indication		ϟ is displayed

$$\text{Range} = \text{Zoom Guide number(p.19)} \times \sqrt{\frac{\text{film speed}}{\text{ISO 100}}} \div \text{F Stop}$$

English

Auto OK

When the subject is within the Auto Effective Range and there is enough light, the "Auto OK" symbol in the LCD display will blink for about 2 seconds after the flash has been fired.

If the symbol goes out, then there was not enough light for an exposure. In that case, either move closer to the object or select a larger aperture.

Even if the subject is within the Auto Effective Range, the "Auto OK" symbol may not blink due to the color of an object (dark color with low reflectivity).

If the flash is fired immediately after the Ready Light comes ON, the effective range may be reduced. (Please wait 5 to 10 seconds after the Ready Light is ON to achieve maximum power.)

Test Flash

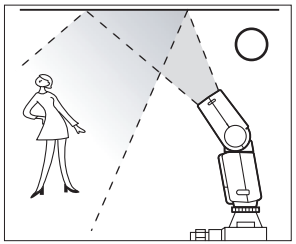
If the Test Button is pressed after the Ready Light is on, it fires the flash. The Auto OK cannot be used for TTL test flash.

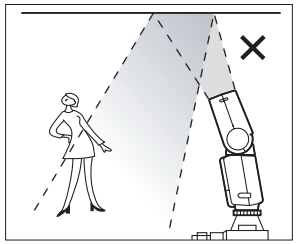
Autofocus Infrared Assist Light

When used in the dark or in low-light conditions, the PZ40X emits an infrared auxiliary light when the camera's shutter release button is lightly pressed. The camera's Autofocus system uses this light to achieve better autofocus performance.

Adjustable Bounce Flash Head

The SUNPAK PZ40X includes a flash head that allows you to position the light in a number of vertical positions, in all exposure modes, even in TTL. For more pleasing and creative lighting effects, such as softening shadows on a subject, the Bounce Flash Head of the PZ40X is adjustable vertically up to 90 degrees.





1. Do not attempt to force the Head beyond the settings available, or damage to the flash unit will occur.
2. Press the shutter release button of the camera partway in to check whether the correct aperture and shutter speed are selected.

*Important. Note that the effectiveness of the bounce flash feature is dependent upon the distance to, and the condition of the reflecting surface used.

The angle of the flash must also be set properly to achieve the best possible lighting effects. Aim the flash head at a point on the bounce surface, halfway between the flash and the subject. Normally, when the flash is bounced off a surface, it will usually lose 25 % power or more, even when the surface is white.
Therefore, when a bounce flash photo is taken in TTL mode, it is recommended that you select a larger aperture than for a direct flash photograph.

*Bounce your flash off a white surface whenever possible to achieve the best overall illumination level. Please note that in color photography, when a colored surface is used for bounce lighting, it will reflect its color on the subject.

Continuous Use

Do not use the flash continuously for more than the number of times stipulated in the table below, in order to prevent damage to the unit. Once the maximum number of flashes has been reached, allow the flash to rest for at least 10 minutes before using it again.

Mode	Maximum Use
E-TTL, TTL, M(1/1～1/2)	15
M (1/4～1/16)	20

Technical Specifications of PZ40X

Guide Number : ISO 100 (m/ft)

Zoom setting		24mm (0.9in)	28mm (1.1in)	35mm (1.4in)	50mm (2.0in)	80mm (3.1in)
Manual flash	1/1	24/78	26/85	28/92	34/111	40/131
	1/2	17/56	18/59	20/66	24/78	28/92
	1/4	12/40	13/43	14/46	17/56	20/66
	1/8	8/26	9/30	10/33	12/40	14/46
	1/16	6/20	6/20	7/23	8/26	10/33

Working Range (m/ft)

Zoom position	24mm(0.9in)	28mm(1.1in)	35mm(1.4in)	50mm(2.0in)	80mm(3.1in)
F/2	12/40	13/43	14/46	17/56	20/66
F/4	6/20	6.5/22	7/23	8.5/28	10/33
F/8	3/10	3.3/10	3.5/11	4.3/13	5/16
F/16	1.5/5	1.7/5.5	1.8/6	2.2/7	2.5/8

Numbers of flashes and Recycling time

	Number of flashes	Recycling time
AA alkaline batteries	Approx 100	Approx 10 sec
AA Ni-MH Batteries	Approx 140	Approx 8 sec

* Numbers of flashes: Measured with new batteries that are within 3 months from their date of production, flashed every 30 seconds continuously and recycled to the point at which the Ready Light takes 30 seconds to come on after the last flash.
Recycling time: The time to activate the Ready Light under the above conditions.

Power Zoom	Automatic setting / Signal from camera
	Manual setting / Pressing the Zoom Button
AF illuminator Range	1-5m (22 – 16in) (Lens F2/50mm)
Operating temperature	0˚C–40˚C(32˚F –104˚F)
Dimensions	93(H)X63(W)X90(L)mm (3.6 x 2.4 x 3.5 in)
Weight	200g (7.0 oz)

Note. The design and specifications of this product are subject to change without prior notice.

English