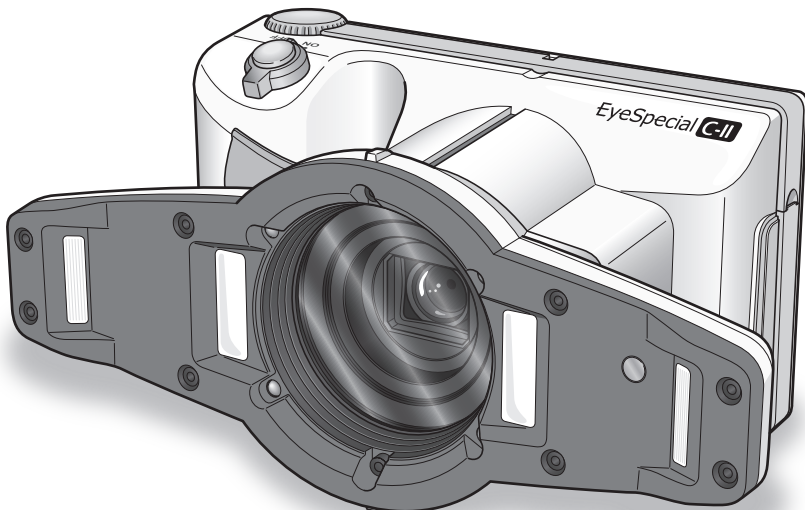




Read through the attached "Important Safety Instructions" before using this camera.



Smart digital camera designed exclusively for dentistry

EyeSpecial **C-II**

Advanced Manual

SHOFU INC.

Before using your camera

Thank you for purchasing our EyeSpecial C-II. The instructions mentioned below provide necessary information on successful operation, daily maintenance and safe use of this unit.

Please read this user's manual carefully before use to attain maximum benefits during function and ensure durability of this unit.

Kindly keep this manual for your future reference.

Intended use

To take intraoral photography for dental treatment planning and documentation

Important precautions

For your safety

- Read through the Important Safety Instructions carefully for safe and correct use.

Notice

- No part of this document may be copied or reproduced in any form by any means.
- Some information in this document might become inconsistent with the product due to product software updates.
- The information in this document is subject to change without prior notice.
- All relevant issues have been considered in the preparation of this document. However, should you notice an omission or any questionable item in this document, please feel free to notify SHOFU.
- In case of missing pages or disorder, please contact our local dealer for replacement.

Test shot

- Be sure to take some test shots before taking actual clinical photos to make sure that the camera is working properly.

Data backup

- SD Memory Card or Multi Media Card can be broken by dropping or strong static electricity and the data may be lost. Always back-up all important data in multiple locations, to your PC Hard Drive and DVD-ROM etc.

Copyright

- Any pictures that you take of existing images may be used for personal use only. Any unauthorized copying, hiring, lending, public performance might violate the copyright of rightful owner.
- Copyright law prohibits the use of pictures without the permissions of the rightful owner.

Privacy policy

- The information, which can identify the specific individual, might belong to the “Personal Information” stipulated in the “Act on the Protection of Personal Information”. Handle the images properly in accordance with the law.

Indemnity

- In no event shall SHOFU be liable for any infringement of privacy and damages, including, without limitation, direct, indirect, incidental, special, consequential, or punitive damages arising out of the use of the images taken with this camera.
- SHOFU will repair and replace main body and its system in case of trouble within the warranty period. However, we do not assume any responsibility for subsequent damages arising from the failure of the unit.

Disposal

- This symbol means: Do not dispose of this product together with your household waste!
Please refer to the information of your local community or contact our dealers regarding the proper handling of end-of-life electric and electronic equipments.
Recycling of this product will help to conserve natural resources and prevent potential negative consequences for the environment and human health caused by inappropriate waste handling.



For the latest information of EyeSpecial C-II, visit our website at <http://www.shofu.com>.
Select the region you purchased the camera.

CAUTION

EyeSpecial C-II conforms to the following standard for interference from radio frequencies:

- Class B of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI)
- Part 15 Class B of Federal Communications Commission (FCC).

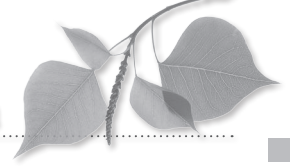
This product may cause radio interference during its use. In such cases, users may be required to take appropriate steps.

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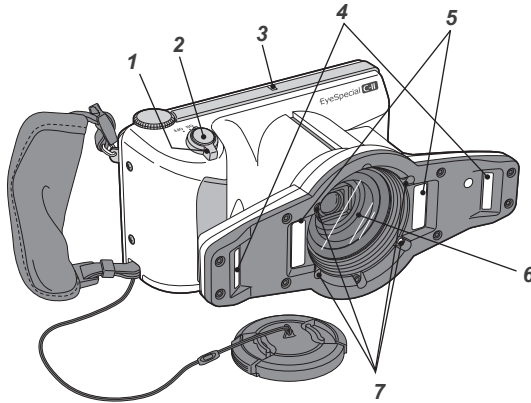
1 Getting to know your camera



Names of parts

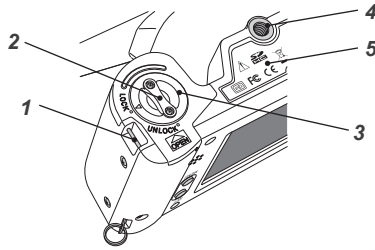
Main body

Front view



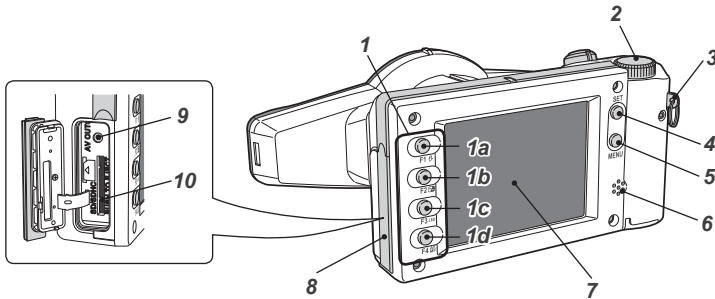
No	Part name	Explanations												
1	Power switch	To turn the camera on / off.												
2	Shutter button	When taking photographs, half press to auto-focus. Then, press down completely to capture the image.												
3	Pilot lamp	Indicates working state of the camera by the color and flash of the light. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Action of light</th> <th>Working state of the camera</th> </tr> </thead> <tbody> <tr> <td>Green light lit.</td> <td>The camera is working properly.</td> </tr> <tr> <td>Green light blinking.</td> <td>Power save mode activated.</td> </tr> <tr> <td>Orange light lit.</td> <td>The camera is connecting to SD memory card. During this time the SD Memory card or batteries should not be taken out of the camera in order to avoid losing the data.</td> </tr> <tr> <td>Orange light lit.</td> <td>Malfunction is detected during activation or operation.</td> </tr> <tr> <td>Red light lit.</td> <td>Lens error is detected.</td> </tr> </tbody> </table>	Action of light	Working state of the camera	Green light lit.	The camera is working properly.	Green light blinking.	Power save mode activated.	Orange light lit.	The camera is connecting to SD memory card. During this time the SD Memory card or batteries should not be taken out of the camera in order to avoid losing the data.	Orange light lit.	Malfunction is detected during activation or operation.	Red light lit.	Lens error is detected.
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Red light lit.	Lens error is detected.													
4	Outside flash	Flashes in Whitening, Tele-macro and Isolate shad modes. Can select to use right, left or both flashes by changing the flash mode.												
5	Inside flash	Flashes in Standard, Surgical and Face modes. Can select to use right, left or both flashes by changing the flash mode (both flashes work in Surgery and Face modes)												
6	Lens	-												
7	LED light	Improves focus capabilities in dark areas. Half press the Shutter button. The light remains on for 10 seconds after releasing the button. The flash will then automatically turn off immediately before taking a picture.												

Bottom view



No.	Part name	Explanations
1	Strap eyelet	Holds the hand strap
2	Lock lever	Locks the battery cover shut
3	Battery cover	Holds batteries in place. Batteries are placed in the battery cells.
4	Tripod socket	To affix to a tripod
5	Name plate	Lot number etc is described on it.

Back and side views



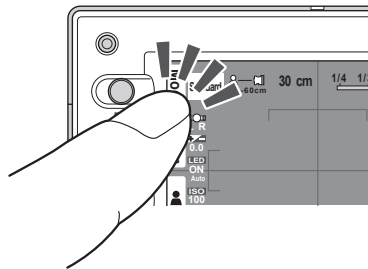
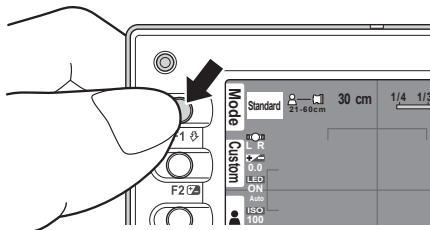
No.	Part name	Explanations
1	Function keys 1a:F1 1b:F2 1c:F3 1d:F4	Function changes depending on the mode you select. Function is displayed on the LCD screen.
2	Dial key	Changes magnification ratio, forward or rewind the image taken and scrolls through items in Menu mode.
3	Strap eyelet	Holds the hand strap.

No.	Part name	Explanations	
4	SET Key	Camera Mode	Function
		Shooting mode	Brief press : Change magnification ratio of instant playback. Long press : On and off the picture information.
		Playback Mode (original size)	Brief press : Display patient information. Long press : Picture information turns on and off.
		Playback Mode (Thumbnail image)	Brief press : Select image Long press : -
		Menu	Brief press : Confirm the selected item Long press : -
5	Menu Key	To display Menus.	
6	Speaker	For key sounds and shutter sound.	
7	Liquid crystal display monitor (with touch panel function)	To display images and menu. You can operate the camera by directly touching the keys on the screen.	
8	SD Memory Card/DC in jack	SD card slot and AV out connector are inside.	
9	AV out connector	Images taken by EyeSpecial C-II can be displayed on the TV screen or liquid crystal projector using a composite connector. Incompatible with the devices with digital connector only.	
10	SD card slot	To insert SD/SDHC Memory card.	

Function keys

F1 – F4 keys are function keys which will change depending on the mode you select. They are displayed on the upper left of the display. You can either press the key or directly touch the screen to operate these functions.

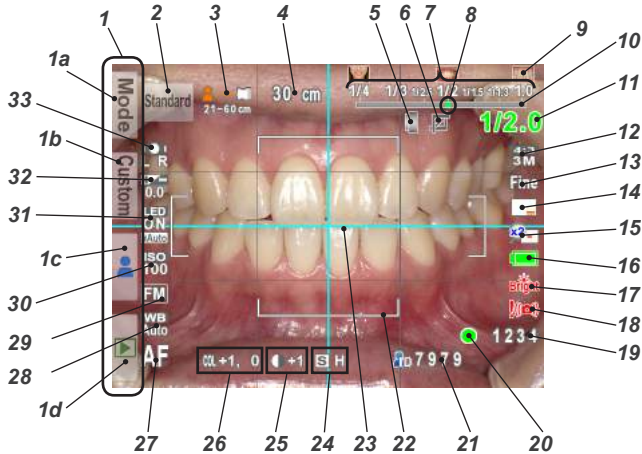
For example, the description, “Press **Mode** (F1)”, means you can either press F1 key or the corresponding **Mode** key on the LCD screen.









LCD screen indicator

Information described on the LCD screen for Shooting Mode and Playback Mode, respectively, is as follows;

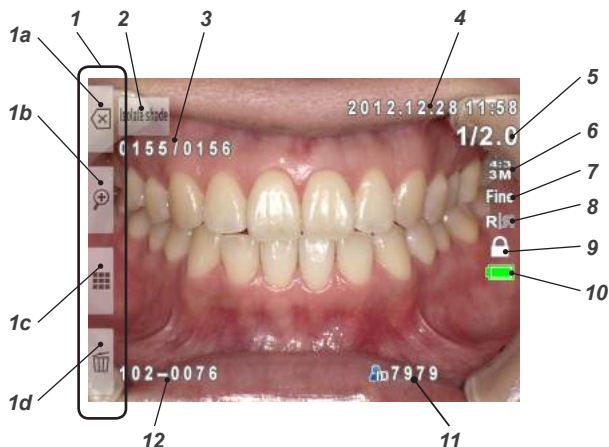
Shooting Mode





No.	Items	Explanations	Reference
1	Function keys	Function changes depending on the mode you select. The functions available are displayed on the LCD monitor.	
	1a: Preinstalled modes	Preinstalled modes are displayed.	P.20
	1b: Custom modes	Custom modes are displayed.	P.22
	1c: Edit patient ID information	Menus to edit patient information are displayed.	P.17
1d: Playback mode	To change to Playback mode.	P.52	
2	Active shooting mode	Current mode you select is displayed.	P.20
3	Estimated distance	Estimated distance from target at current magnification rate.	P.26
4	[before AF] Optimal focus range	[before AF] Optimal focus distance at the current magnification rate is indicated.	P.26
	[after AF] Actual focus distance	[after AF] Actual distance from target after focusing in green or red. Green : Within permissible range Red : Outside permissible range	P.28
5	Close-up lens mark	Appears when the close-up lens is required.	P.32
6	Auto-cropping	Appears when auto-cropping is available. The number is in green or red.	P.28
		Green : Auto-cropping in range Red : Auto-cropping out of range	
7	Magnification range	Indicates selectable magnification range.	P.26

No.	Items	Explanations	Reference
8	Current magnification range	Magnification rate currently selected is indicated.	P.25
9	Illustration	Illustrations of the subject at certain magnification rates.	P.25
10	Indicator	To select magnification rate	P.25
11	Actual magnification rate (indicated after auto-focus)	Actual magnification rate is indicated. The number is in green or red. Green : Magnification in range Red : Magnification out of range	P.28
12	Image size	Horizontal to vertical ratio of the image is indicated.	P.74
13	Image quality	Selected image quality is indicated.	P.74
14	Photo information	Indicated only when it's set "ON".	P.75
15	Preview image enlarged	Appears when the preview image is magnified.  : Displayed when the center of the image is magnified twice.  : Displayed when the center of the image is magnified four times.	P.35
16	Remaining battery power	Remaining battery power is indicated.	
17	Brightness warning sign	Appears when the brightness of the object is inappropriate.  : The object is too bright. (Whitening Mode only)  : The object is too dark. (Face and Tele-macro modes only)	
18	Image instability	Appears when the image is unstable. Hold the camera firmly and stably.	
19	Storage capability	Remaining storage capacity is indicated when current image size and quality are continued to use. When "0000" appears, the memory card is full.	P.12
20	Focus	Indicate the focus is appropriate or inappropriate when auto-focused.  (Green) : Focused properly  (Red) : Not focused properly	P.28
21	Patient ID	Patient ID is indicated when it's registered.	P.17 to 19
22	AF frame	Auto-focus range.	P.29
23	Focusing screen	Grid to focus properly.	P.64
24	Sharpness	Sharpness of the image to be taken is indicated. * In default setting, sharpness is not indicated on the screen.	P.67
25	Contrast	Contrast of the image to be taken is indicated. * In default setting, contrast is not indicated on the screen.	P.67
26	Hue	Hue of the image to be taken is indicated. * In default setting, hue is not indicated on the screen.	P.67
27	Focus mode	Indicates the focus mode.	P.62
28	White balance	Indicates the current white balance.	P.66
29	AE Mode	Indicates the current Auto-Exposure mode.	P.65
30	ISO sensitivity	Indicates the current ISO sensitivity.	P.65
31	LED light	Indicates that the LED light is on or off as well as its light intensity.	P.61
32	Brightness compensation	Indicates current state of brightness compensation.	P.61
33	Flash mode	Indicates the current flash mode.	P.61

Playback Mode



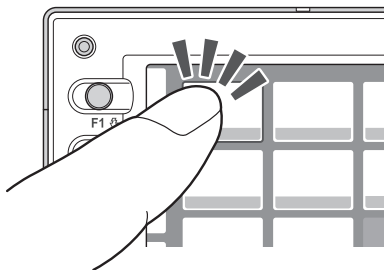
No.	Items	Explanations	Reference
1	Function keys	Function changes depending on the mode you select. The functions available are displayed on the LCD monitor.	
	1a : Shooting mode	To change to Shooting mode.	P.28
	1b : Enlarge image	Image taken is enlarged.	P.53
	1c : Thumbnail index	Thumbnail index is displayed.	P.53
1d : Erase image	To select images you wish to erase.	P.54	
2	Selected Shooting Mode	Shooting mode used to take the photo is indicated.	P.21
3	Picture No./Total number of pictures taken	The No. of image currently displayed and the total number of the images taken are indicated.	
4	Date & time of the picture	The date and time of the picture are displayed.	
5	Selected magnification rate	Selected magnification rate is indicated.	P.25
6	Image size	Horizontal to vertical ratio of the image is indicated.	P.74
7	Image quality	Selected image quality is indicated.	P.74
8	Flip indicator	Shows if the image taken is flipped or not.  : Original image before flip  : Flipped image * In order to store both images before and after flip, set "Store original image before flip" in the Setup Menu.	
9	Protect	The image(s) having this icon is (are) locked to avoid accidental erasing or editing.	P.57
10	Battery indicator	Remaining battery level is displayed.	
11	Patient ID	Patient ID is indicated when entered prior to taking photo.	P.17 - 19
12	Folder No. - File No.	Folder No., in which captured image is stored, and the File No. of the image captured are indicated.	P.80

Operation methods

There are two ways to operate this camera.

Direct touch screen

Touch one function tab you want to select.



Tips

- **Touch panel function of EyeSpecial C-II**

Screen keys can be operated with or without gloves on, or a tip of the pen. However, securely pressing with finger is recommended. Please kindly note that the screen does not respond to multi-touch or swipe motions.

Press keys

Press ▲ F2 or ▼ F3 key or rotate the  dial key to select the function you would like to perform. Then, press  SET key to determine.

For the details of the function keys (F1-F4), refer to page 3.

Getting Started

Perform the following preparation before you start taking pictures.

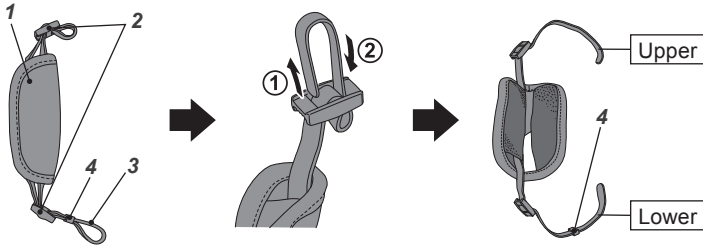
Attaching the hand strap

Attach one end of the strap to the strap mount on the lateral side of the camera and another to the eyelet on the bottom of the camera.

CAUTION

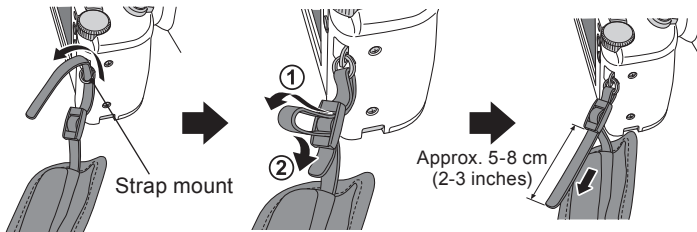
- Always use the strap to avoid accidental dropping of the camera. This might cause injuries.

1 Open the flap and pull the belt out of the 2 adjusters.

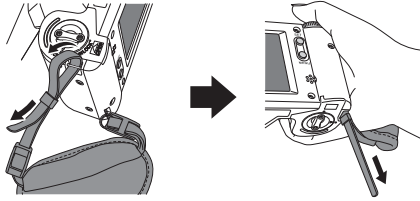


No.	Name	No.	Name
1	Flap	3	Belt
2	Slide adjuster	4	Retainer clip

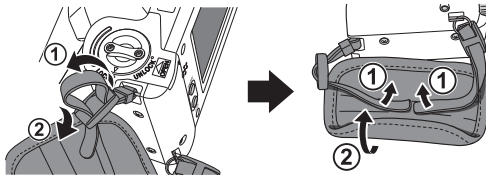
2 Attach one end of the strap to the strap mount on the upper lateral side of the camera and adjust the belt length.



- 3** Put another end of the strap through the strap eyelet. Adjust the strap while holding the camera until the optimal fit is obtained.

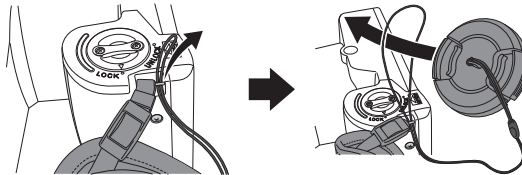


- 4** Feed the strap end through the slide adjuster to fix.
 · Insert the strap into the buckle as pictured below.



Attaching the lens cap strap (optional)

- 1** Loop the lens string to the strap mount. Take the lens cap itself and push it through the loop that is sticking out.

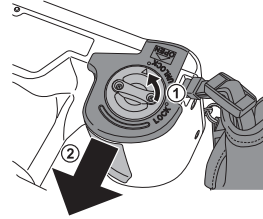


If you do not need the lens strap, cut it out with scissors etc.

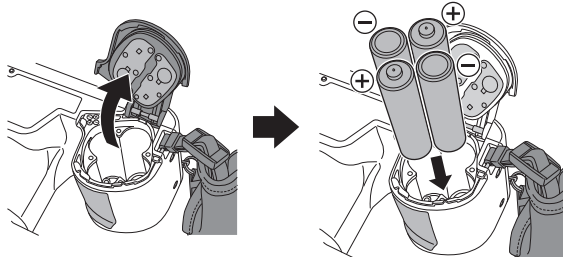
Installing batteries

The battery slot is on the bottom side of the camera. Gently turn the camera upside down to install the batteries.

- 1 Turn the Lock lever to the position of “UN-LOCK”. Then, slide the Battery cover to the front side of the camera.



- 2 Flip up the Lock lever and insert 4 rechargeable AA nickel-hydrde batteries or alkaline batteries.

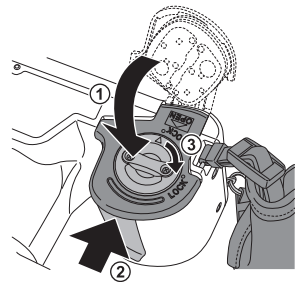


- 3 Close the Lock lever, slide back the Battery cover to the original position and rotate the lever to the “LOCK” position.



Note

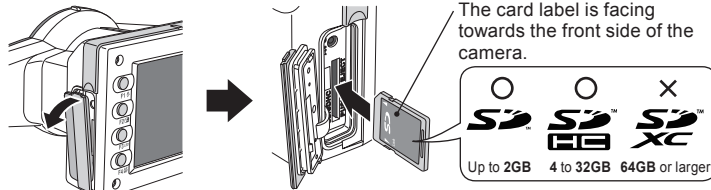
- Make sure to rotate the Lock lever to the “LOCK” position to avoid dropping the batteries.
- Use only nickel-hydrde batteries or alkaline batteries. Never use manganese batteries or nickel cadmium batteries.
- Never use batteries of different types or different manufactures together or mix old and new batteries.



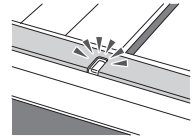
- Rechargeable nickel hydrde batteries may be inert and consequently it might not supply power immediately after it is purchased or left unused for a long period of time. Recharge & discharge the battery fully about 2-3 times to restore the full function of the batteries.
- Performance time of alkaline batteries might become shorter if they have been left unused for a long period of time since their manufacturing date.
- Avoid using batteries in extremely cold environment as low temperatures dramatically reduce the number of pictures you can take.

Inserting SD Memory Card

- 1 Open the SD card slot/AV out connector cover and insert the SD Memory card.



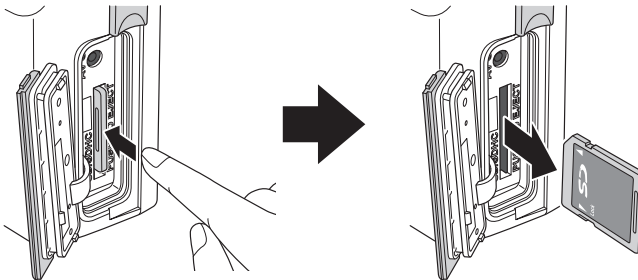
- Note**
- This camera is compatible with SD Memory Card and SDHC Memory Card but not with SDXC Memory Card.
 - Make sure the card is facing the right direction. Forcing the card may damage the camera or card.
 - Do not insert or remove the memory card when the pilot lamp is blinking in orange. Doing so may damage your pictures, card or camera.



- 2 Close the cover securely.

Removing SD Memory Card

- 1 Open the card cover. Press lightly on the edge of the memory card until you hear a click sound and it will eject.



Tips

● Storage capacities (number of pictures)

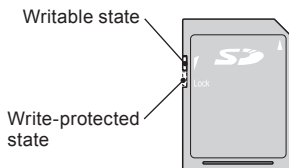
Approximately 350 shots can be taken on a fully charged rechargeable nickel hydride cell (cell capacity 1,900mAh).

Approximately 250 shots can be performed when using new alkaline batteries (based on the in-house test results).

The number above are just rough estimates and your results may vary. Extensive operation of the camera setting or reviewing photographs may cause the number of shots to be reduced.

● Write-protected tab

The SD Memory card has write-protected tab. Slide down the tab to prevent valuable data from being accidentally erased from the memory card. To save, edit or erase data on an SD memory card, unlock the card.



● Storage capacity of memory card

The number of pictures you can take with one memory card varies depending on the image size and quality you selected. The numbers of photos you can store in the provided 4GB SDHC Memory card with a variety of conditions are shown below for your reference.

 The figures are just rough estimates.

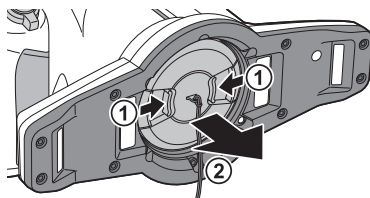
Image size \ Image quality	12M (4:3)	10M (3:2)	8M (4:3)	7M (3:2)	5M (4:3)	4M (3:2)	3M (4:3)	3M (3:2)	2M (4:3)	VGA (4:3)
Extra-fine	470	530	710	800	1160	1300	1760	1970	2970	9999**
Fine	660	750	1000	1120	1620	1820	2460	2760	4150	9999**
Standard	1110	1250	1670	1870	2710	3030	4090	4580	6890	9999**

* Default setting

** Can take 9,999 shots or more.

Removing the lens cap

1 Pinch the notches on the lens cap and pull it off.

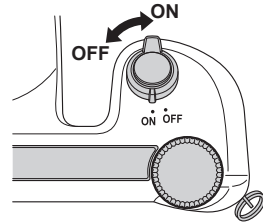


- Reattach the lens cap by pinching the notches.
- Always attach the cap when the camera is not in use.

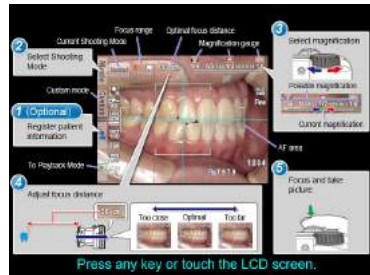
Turning the camera on

1 Rotate the Power switch to turn the camera on.

- To turn the camera off, rotate the Power switch with the dial notch to the OFF position.
- This camera has power-saving function and auto-power off function. When the camera is left unused for a certain period of time, the camera automatically shifts into the power save mode. When the camera is left unused further, it will shut off automatically to conserve battery power.



2 When a message “Press any key or touch the LCD screen” appears on the start screen, you can start taking pictures. Follow the messages appearing on the screen.



Initial activation and setup

When you first turn the camera on, you may need to set the language, date, time and unit.

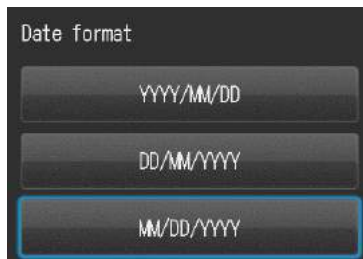
1 Language selection

Select one language from Japanese, English, Germany and French.





2 Choosing the date display style

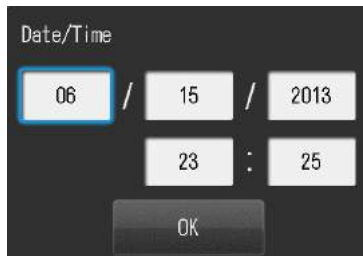
Select one date format.



3 Setting the date and time

Rotate the  Dial key or touch the screen to move to the next item field.

Press  F2 key or  F3 key to increase or decrease the value for each option.



4 Selecting unit display

You can choose from metric and imperial unit display.



These items can be changed later in the Setup Mode.



Tips

• What's power save mode?

If no key operation is performed for the set period of time (the initial setting is 1 minute), the display on the LCD screen will turn off. The pilot lamp blinks when the Power save mode is on.

Press any button or touch the LCD screen to turn the display back on.

Stand-by time for the Power save mode can be changed in the Set-up menu.




 P.32

• What's Auto-power off?


This camera automatically turns off if no operation is performed for 30 minutes after the power save mode starts working. To continue using the camera after auto-power off, turn off the camera and reactivate it by turning the power on.

• How do you confirm the battery level?

When the camera is turned on, the battery level indicator will appear on the display.

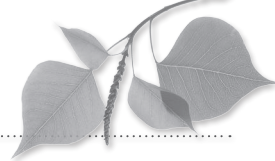
Indicator	Remaining battery level
 (Green) (appears only for 5 sec)	There is ample battery charge.
 (Orange)	The battery is almost half charged.
 (Red)	The battery will soon run out. Have new or charged batteries ready.
Battery exhausted (error message)	The batteries are depleted. The display will go blank shortly after this message appears and the camera will stop working. Replace or recharge the batteries.

• Slow response of the camera

EyeSpecial C-II sometimes does not respond to your command immediately when other operations are in progress; for example, immediately after you rotate the  Dial to change the magnification rate and then press the Shutter half-way to focus or just after you take a picture etc.

For optimum performance wait until ongoing processes have concluded before operating.

2 Basic operation

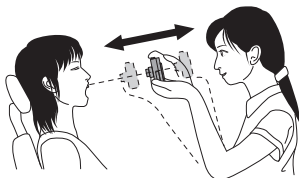


- Follow the safety information indicated in the attached “Important Safety Instructions”.

Before you start taking pictures

EyeSpecial C-II is designed exclusively for dentistry, which is different from general digital cameras that allow pictures at any distance from the object. In order to take intraoral photos under optimal conditions, the distance from the object has to be within a certain range.

- General digital camera



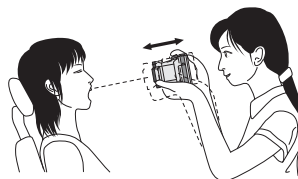
[Advantages]

- Can take photos at any distance
- * Cannot take clear pictures from close distances.

[Disadvantages]

- The subject doesn't always come in the same size in the photos.
- Light distribution is uneven.

- EyeSpecial C-II



[Advantages]

- Subjects are always the same size in the photos.
- Light distribution is even.

[Disadvantages]

- Distance has to be within the limited range.

Procedure

STEP1 Input Patient ID or photograph patient record (optional)

- Enter number [Reference P.17](#)
- Scan QR code [Reference P.18](#)
- Photograph patient record [Reference P.19](#)



STEP2 Select shooting mode

- Preinstalled modes [Reference P.20, 21](#)
- Custom modes [Reference P.22](#)



STEP3 Select magnification rate

[Reference P.25](#)



STEP4 Adjust focus

[Reference P.26, 27](#)



STEP5 Take photography

[Reference P.28](#)

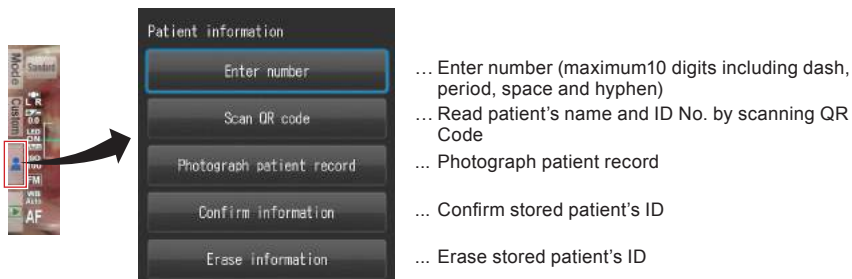
Input Patient ID or photograph patient record (optional)

You can choose one image management method from the following 2 methods;

- Give patient ID No. to each image.
- Photograph patient record.

This procedure is optional and can be skipped.

Press **F3** key in the shooting mode, the following message appears on the screen. You can input a new patient number or edit and erase stored information.



Enter number	... Enter number (maximum 10 digits including dash, period, space and hyphen)
Scan QR code	... Read patient's name and ID No. by scanning QR Code
Photograph patient record	... Photograph patient record
Confirm information	... Confirm stored patient's ID
Erase information	... Erase stored patient's ID

Enter number

When you select “Enter number”, number keys appear on the display. You can enter maximum of 10 digits number (including space, period, slash and dash when used).



Erase last one letter

Finish the input

Scanning QR Code (Feature not yet available outside of Japan)

Patient's name and ID number can be stored by scanning a QR Code exclusive to this camera. When you select "Scan QR Code", the following display appears on the screen. Hold this camera over the code in such a way that the white square on the screen is centered over the QR code. Half press the Shutter button to start scanning.



When scanned successfully, the message pictured in the right photo will appear on the screen. Press OK to store the information.



Tips

Patient ID number will be displayed on the screen and stored as follows;

1. In the Shooting Mode

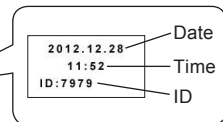
Patient ID number is displayed on the lower right of the screen and recorded on the image taken.

2. In Playback Mode

Patient ID number is displayed on the lower right of the screen.

3. ID information image

When a patient ID is recorded, an image shown below is created.



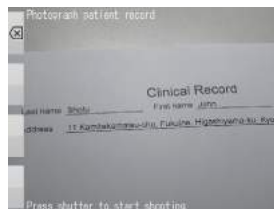
Photograph patient record

Patient's name can be recorded by taking a picture of his (her) medical record.

When you select "Photograph patient record", the right display appears on the screen. Position the camera to photograph the patient name properly and press the Shutter button halfway to focus.



- Camera setting is automatically changed to photograph written or electric patient record.
- Patient ID and name in the photo are not recognized digitally to display on the photo.

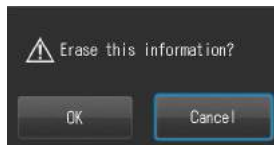


Review & erase patient information

To display the patient name together with the ID number, return to "Patient information" and select "Confirm information".



When you select "Erase information", the message pictured in the right photo appears. Press OK to erase the data.

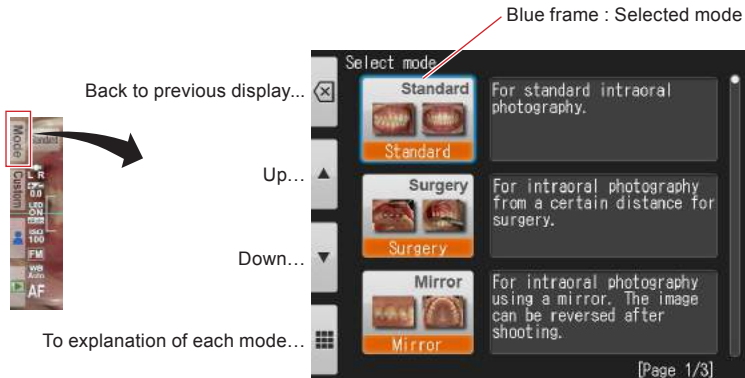


Patient information can also be erased when the camera is turned off.

Select shooting mode

Preinstalled modes

Press **Mode** (F1 key) to display all the modes preinstalled. Eight different modes are preinstalled. Select one optimal mode for each purpose.



● Shooting Modes

Mode	Intended use	Explanations
Standard Mode	For standard intraoral photography	Basic mode for dentistry
Surgery Mode	For intraoral photography from a distance	You can take photos from a farther place than standard mode. This mode is optimal for surgery, when you do not wish to put the camera close to the subject.
Mirror Mode	For intraoral photography using a mirror	The image taken can be reversed.
Face Mode	For shooting facial views or half-body portrait	Hold the camera vertically as indicated by "▲ UP" mark. (*Auto-cropping is not available in this mode.)
Low-glare Mode	For taking details of anterior teeth, working models and indirect restorations	The outside flash illuminates obliquely to reduce the glare on the teeth. With intense flash lights, inner shade of the teeth can be emphasized.
Whitening Mode	Optimal for shade comparison between before and after whitening	Similar conditions with Low-glare mode but with lower light intensity, which reduces glare and emphasizes the surface texture and shade of the teeth.
Tele-macro Mode	For taking anterior teeth, indirect restorations and working models	The outside flash enables photography with a higher magnification rate. Close-up lens must be placed.
Isolate shade Mode	Optimal for shade taking	Two images are automatically created in this mode; an image taken in low-glare mode + another image in which the tooth color is natural while deemphasizing the background, in order to minimize the deception of visual shade evaluation.





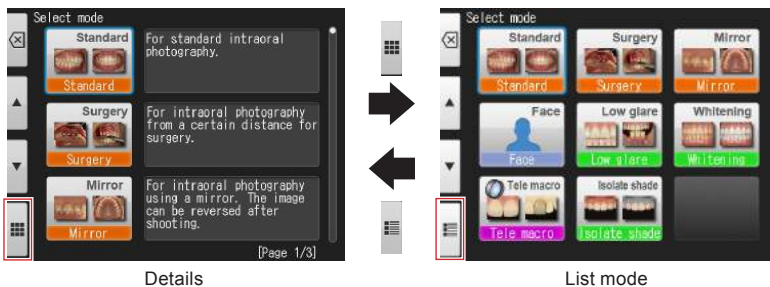
Note Isolate shade mode

The camera might fail to differentiate between the teeth and surrounding structure in the cases where the teeth or gingiva are severely stained or discolored.

Tips

• Change mode display

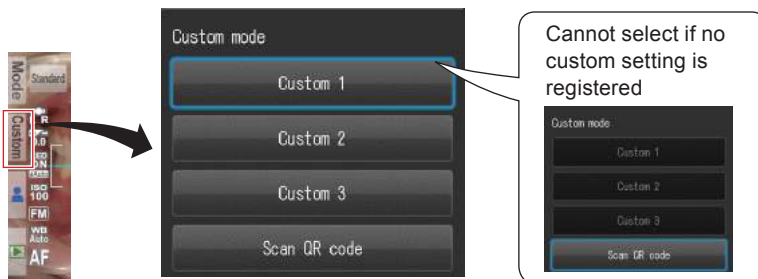
There are two methods of mode display; mode list and mode details. Press F4 key ( / ) to alternate between detail mode and list mode.



Custom mode

Preinstalled camera settings can be changed and registered as custom modes for future use.

When pressing **Custom** (F2 Key) in the shooting mode, 3 custom settings appear on the screen.



Note When the camera is turned off, the camera setting returns to preinstalled mode. To return to your custom settings, press F2 key.

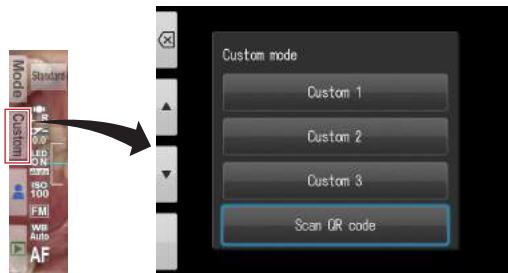


To register custom setting, refer to •Save settings. (→P.69)

Scan QR Code

Camera settings can be changed in one step by simply scanning a QR code (exclusive for this camera).

- 1 When pressing **Custom** (F2 Key) in the shooting mode, 3 custom settings appear on the screen.
Select the bottom key “Scan QR code”.



- 2 When the photo below appears on the screen, align the QR code within the white frame.








- 3 Select from Custom 1 to Custom 3 to register the setting.



When taking photos using the registered custom mode, follow the procedure of “Custom mode” in page 22 of this Advanced Manual.

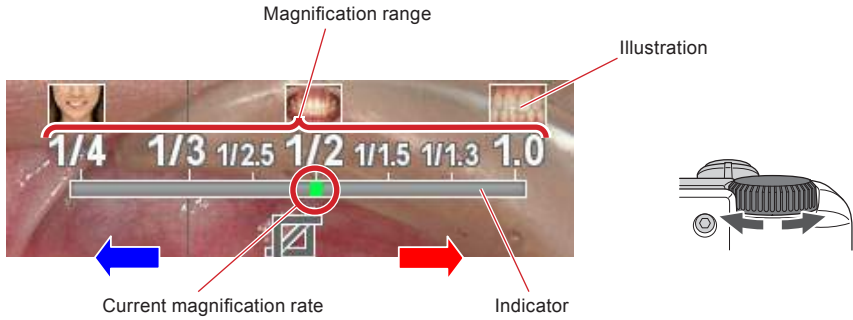
● **QR codes for custom presets**

Following is the QR codes for custom settings. Select the appropriate setting for the desired purpose.

QR code	Mode	Intended use	Explanations
	Stone model (large)	For photographing large stone models such as study model	Compensation is -0.7Ev with other settings based on standard mode.
	Stone model (small)	For photographing small stone models such as abutment model	Compensation is -0.7Ev with other settings based on low-glare mode.
	Surgery mode using a mirror	When using a mirror in Surgery mode	Compensation is +0.7Ev with other settings based on surgery mode. The photo taken can be flipped.
	X-ray capture	When photographing X-ray photo on the X-ray film illuminator.	Basic settings are the same as Face Mode but focus mode is set manually and flash and LED light are turned off.
	Default	To return to default setting	All settings are cleared to default.

Select magnification

Determine the magnification by rotating the  Dial key while confirming the indicator on the upper right of the screen.






• Selection of optimal magnification rate

1) Standard/Surgery

Front view	Lateral view	Smile line	Stone model (large)
			
1/1.5 to 1/2	1/2 to 1/2.5	1/3 to 1/4	1/2 to 1/25





2) Mirror Mode

Occlusal view	Upper jaw palatal view	Anterior lingual view
		
1/2 to 1/2.5	1/1.3 to 1/1.5	1.0 to 1/1.3




3) Face Mode

Mouth	Face	Half-body
		
		

4) Low-glare/Whitening/Isolate shade

Shade taking	Anterior close-up	Prosthesis	Stone model
			
1/1.3 to 1/1.5	1.4 to 1.0	1.4 to 1/1.3	1.4 to 1/2

5) Tele-macro mode

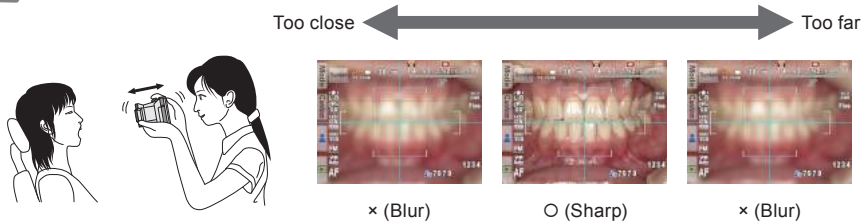
Anterior close-up	Prosthesis	Stone model
		
2.0 to 1.2	2.0 to 1.2	2.0 to 1.2


Set focus distance

I Based on the optimal focus distance displayed on the upper area of the screen, set the distance between the camera and the subject.



2 Change the camera position until the subject appears on the screen sharply.



 **Note** Do not press the Shutter button until the distance is determined.

Tips


● Focus distance

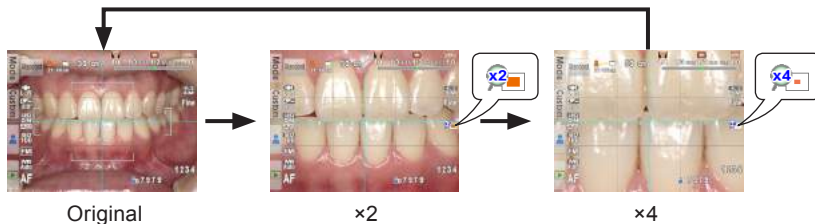
Even if the actual focus distance becomes outside the optimal focus distance, you can take a picture as long as it's within the focus distance range.



Possible distance range

● Magnification of the taken image

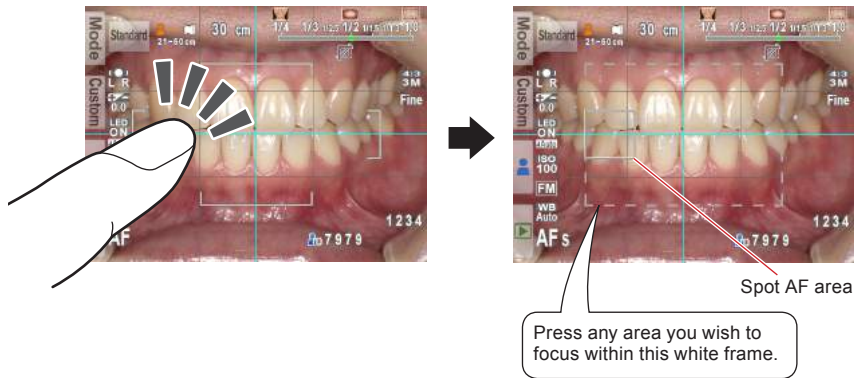
When you press the  SET key, it will magnify ×2 and when you push it again, it will magnify ×4. When pressing it again, it will return to normal. Using this zoom function, you can easily ensure the image taken is properly focused.



Tips

• SPOT Auto-focus

When touching the center of the LCD screen in the shooting mode, the focus mode can be changed to SPOT AF mode with the touched area being the center of the focus. For returning to standard AF mode, keep pressing the spot focused area for a few seconds.



For more details about changing the focus mode, refer to the information below.

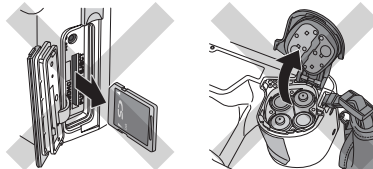
- Focus mode : P62

2 After focusing, press the Shutter Button completely down to take the picture.

- After you take a picture, the image will automatically display on the LCD screen for around 5 seconds, letting you instantly preview the photo. (instant preview function)
- When you wish to cancel instant preview and move onto further photo taking, half-press the Shutter button or press SET key. The taken image is saved.



Note When image data is being written on the SD Memory card, the pilot lamp will blink orange. During this time the SD Memory card or batteries should not be removed from the camera in order to avoid losing the data. Doing so may damage your pictures, card or camera.



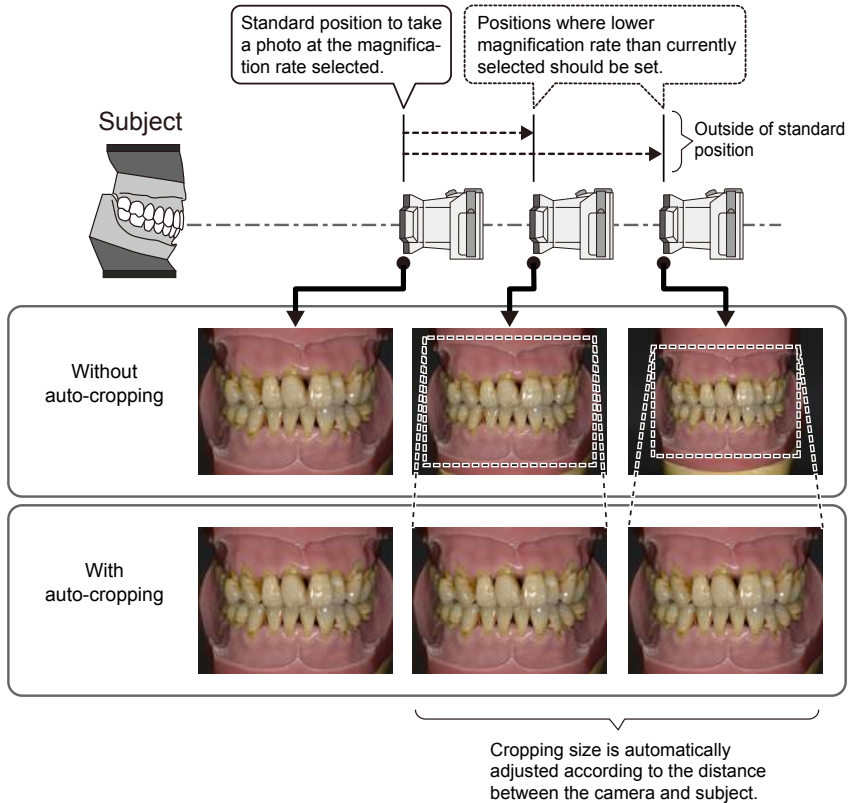


Tips

• Auto-cropping

Auto-cropping function crops the image automatically based on the selected magnification rate. Even if the subject is out of the optimal focus range, the picture can still be taken at the magnification rate you selected due to this function.

* This function is not available for Face Mode and Tele-macro Mode.



Even if the subject is within the focus range, auto-cropping might not work if the camera is positioned too far from the subject. Pay attention to the distance and auto-cropping signs.

For optimal photo quality and the image size you desire, it is always recommended to maintain the optimal distance indicated.

Special functions of shooting modes

● Mirror Mode

When taking a picture in Mirror Mode, you can flip the image as shown in the message display pictured right.



- This message does not appear when you set the flip direction in advance in the Setup Menu to always flip the image to the same direction.
- You can also flip the image in Surgery Mode and Tele-macro Mode.

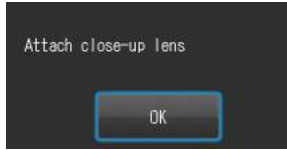
● Face Mode

When the “▲UP” icon appears on the screen, hold the camera as indicated by the ▲ icon.



● Tele-macro Mode

When selecting Tele-macro Mode, “Attach the close-up lens” appears on the LCD screen.

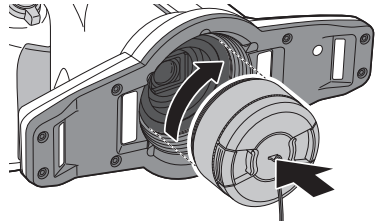


Remove the lens cap first. Then, the close-up lens should be screwed onto the front of the lens.

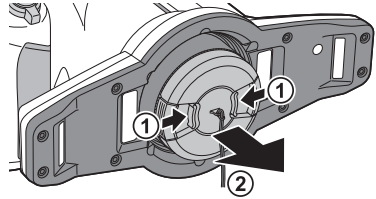
- 1 Mount the close-up lens onto the camera lens and rotate it clockwise until it is attached securely.**



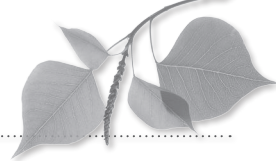
Place the lens cap before mounting the close-up lens.



- 2 Pinch the notches as directed by arrows ① and pull off the cap as idrected by arrow ②.**
 - Reattach the cap when not in use.
 - When removing the close-up lens, always remove it with the cap in place.



3 Advanced technique



- Follow the safety information indicated in the attached “Important Safety Instructions”.

In this section, advanced techniques for taking more sophisticated photos are introduced.

Take pictures without auto-cropping function

Basic procedures are described in Chapter 2 “Basic technique”. Magnification rate changes when the camera is positioned farther from the optimal focus distance.


- **Advantage and Disadvantage when using Auto-cropping function.**

Advantage	The size of the subject (magnification rate) is always the same even if the camera is positioned outside of the optimal focus distance.
Disadvantage	Image quality can be degraded when the camera is positioned outside of the optimal focus distance. Magnification rate should be within certain range.

- **Advantage and Disadvantage when not using Auto-cropping function**

Advantage	Image quality can be maintained even if the image is cropped. Magnification rate does not have to be within the limited range.
Disadvantage	The camera must be positioned at the optimal distance to take a photo at the selected magnification rate.

- **How to release Auto-cropping function**

Shooting Mode →  (Menu key) → Tab 2 → Auto-cropping → Select “Off”



Refer to “Auto-cropping” in P.30.




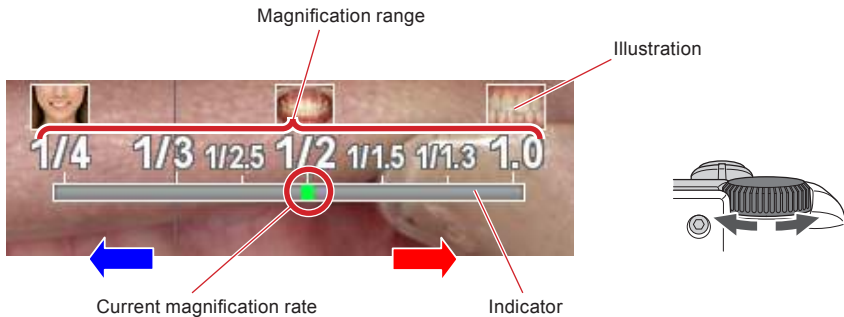
When you do not wish to use “Auto-cropping” all the time, rewrite the setting of the shooting mode.

- Save settings : Refer to “Auto-cropping” in P.63.

How to take photos without auto-cropping function

Select magnification

Determine the magnification rate by rotating the  Dial key while confirming the indicator on the upper right of the screen.

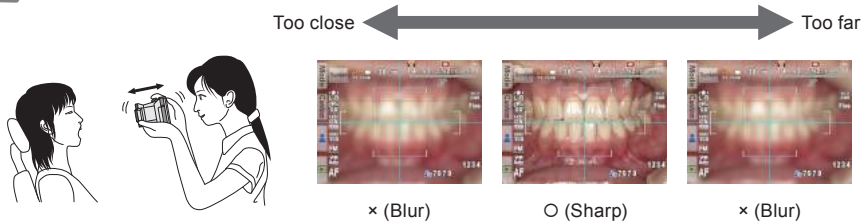


Set focus distance

- 1 Based on the optimal focus distance displayed on the upper area of the screen, set the distance between the camera and the subject.



2 Change the camera position until the subject appears on the screen sharply.

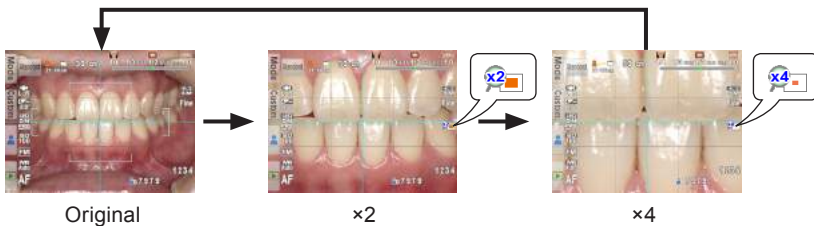


 **Note** Do not press the Shutter button until the distance is determined.



Tips

When you press the ^{SET} key, it will magnify ×2 and when you push it again, it will magnify ×4. When pressing it again, it will return to normal. Using this zoom function, you can easily ensure the image taken is properly focused.



Taking photos with manual focus

You can select manual focus to optimize the conditions of your photo. Method to take photos is the same with conventional dental digital cameras based on the single-lens reflex camera.

Advantage and disadvantage of photographing with manual focus


Advantage	Basic handling is the same with conventional single-lens reflex camera. No waiting time to auto-focus
Disadvantage	Move the camera to focus properly. Need to get used to it

How to set manual focus

With Dial key (shortcut)

Selected shooting mode →  +  (Dial key) → select "MF"

With Menu key

Selected shooting mode →  (Menu key) → Tab 1 → Focus mode → select "MF"




· "Focus mode" : Refer to "● Focus mode" on P.62.

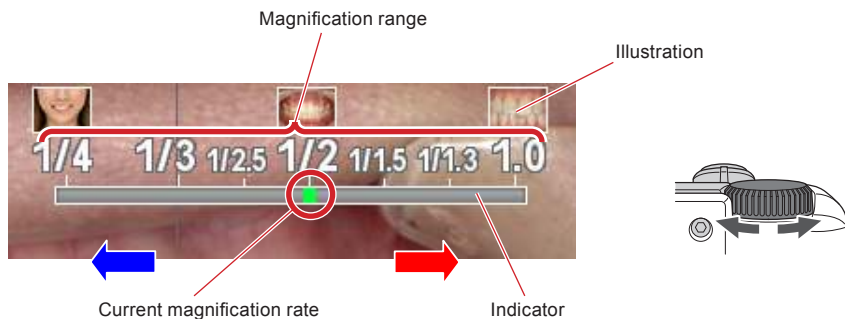


When using "manual focus", rewrite the setting of the shooting mode.
· For more details about save settings, refer to "● Register" in P.69.

How to take photos with manual focus

Select magnification

Determine the magnification rate by rotating the  Dial key while confirming the indicator on the upper right of the screen.

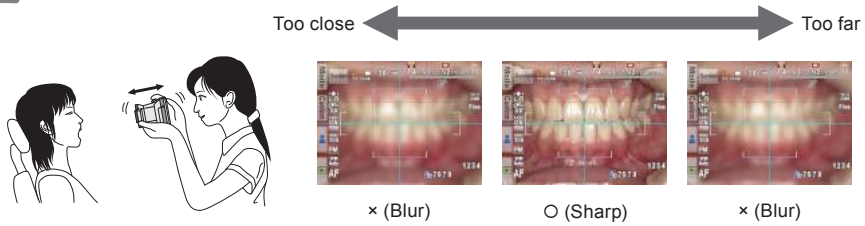


Set focus distance

- 1 Based on the optimal focus distance displayed on the upper area of the screen, set the distance between the camera and the subject.




2 Change the camera position until the subject appears on the screen sharply.



 **Note** Do not press the Shutter button until the distance is determined.



When you press the  SET key, it will magnify $\times 2$ and when you push it again, it will magnify $\times 4$. When pressing it again, it will return to normal.



· Refer to Tips in P.35.

Taking pictures

1 Press the Shutter Button completely down to take the picture.

- In cases where the focus distance needs to be adjusted, release the Shutter button and reposition the camera.


Taking photos by adjusting focus distance manually like a general digital cameras

You can change the focus distance by changing the dial function to “Change focus distance”. Magnification rate can be disregarded when using this function.

• Advantage & Disadvantage of setting the focus distance manually

Advantage	Can take pictures without regard to magnification rate.
Disadvantage	The images taken aren't standardized.

• How to change the Dial key function

Selected Shooting mode →  (Menu key) → Tab 2 → Rotate Dial key → Select “Change focus distance”.
+
→ Tab 1 → Reset focus position → Select “OFF”



- Dial function : Refer to “Dial function” on P.63.
- Reset focus position : Refer to “Reset focus position” on P.62.



Note When determining the focus distance manually, manual focus cannot be selected.



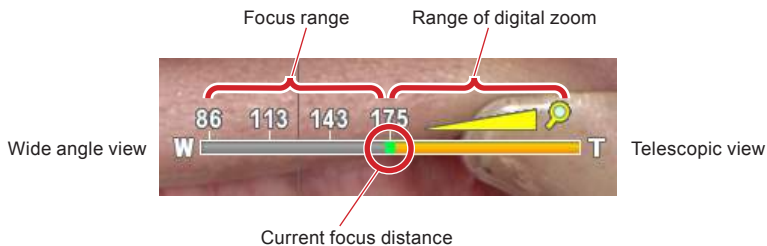
- When using “manual focus”, rewrite the setting of the shooting mode.
- For more details about save settings, refer to “• Register” in P.69.

How to take photos with focus distance set manually

Set focus distance

Determine the focus distance by rotating the  Dial key while confirming the indicator on the upper right of the screen.

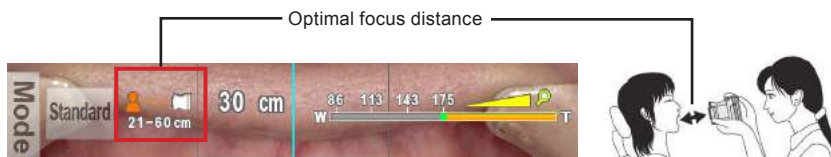
The mark indicates  the digital zoom range. Rotate the dial to right to zoom in the image.



The image above is an example of Standard Mode. Range of focus distance is different by each mode.

Set focus distance

Position the camera within the optimal distance range of between the camera and the subject.



Taking pictures

• Focus and take pictures

1 Half-press the Shutter to focus
Set the focus within the Auto Focus (AF) frame.



2 After focusing, press the Shutter Button completely down to take the picture.

4 Tips for taking photos



- Follow the safety information indicated in the attached “Important Safety Instructions”.

In this chapter, further advanced techniques and useful information to help you take more sophisticated intraoral images are introduced.

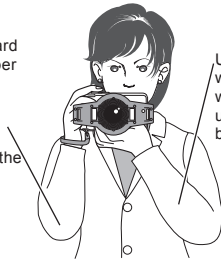


Note Information given is just for your reference and does not guarantee optimal images will be achieved by changing the settings. It also does not guarantee that you can take optimal photos by using the techniques in this chapter.

Tips to hold the camera

To hold the camera securely

- Take one step forward to stabilize your upper body.
- Lean on the wall or other thing that doesn't move.
- Put your elbows on the desk etc.



For taking horizontal photos

Uphold the camera with your left hand while keeping the upper arms to your body.

Uphold the camera with your right hand while keeping your upper arms to your body.

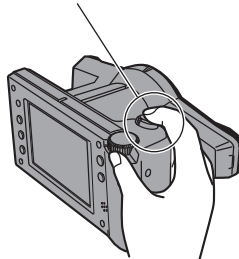


For taking vertical photos

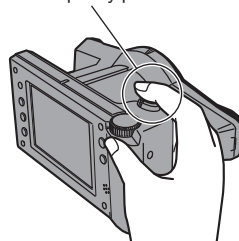
Hold the camera body with your left hand securely.

Tips for pressing Shutter button

Pressing with your fingertip may cause images to blur.



Pressing with the ball of your finger may yield better quality photos.

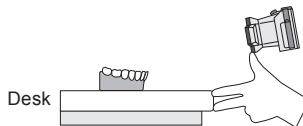


As indicated above, when pressing the Shutter button with your fingertip, the camera might be shaken, causing image blurring. When pressing the Shutter button with the ball of your finger, the camera can be hardly shaken, minimizing image blurring.

Tips to avoid image blurring



For intraoral photography



For photographing models

When taking magnified image of natural teeth with Low-glare mode or Tele-macro mode, even slight agitation of the camera affects the composition of the image. Use your left hand to fix the camera and subject as illustrated above.

Tips for operations

Cause of inappropriate focus and countermeasures

- **Cause 1 Contrast is insufficient for the area to be focused.**

Countermeasure⇒Focus on the area with high contrast.

Explanation

Auto-focus of EyeSpecial C-II is based on the contrast of the subject. Thus, when the subject is in a single color completely, has low contrast, or it's placed in very dark place, it might not focus properly.

When taking intraoral photography, high contrast area such as interdental area or cervical area should be included in the AF area.

- **Cause 2 Camera was moved after focusing.**

Countermeasure⇒Hold the camera firmly.

Explanation

The camera or the subject was moved after focusing. Hold the camera firmly while stabilizing the upper half of the body.

Focusing the area outside of the AF frame.

Specific area can be focused by using Spot AF.

- 1 Hold the camera toward the subject and touch the area you wish to focus.

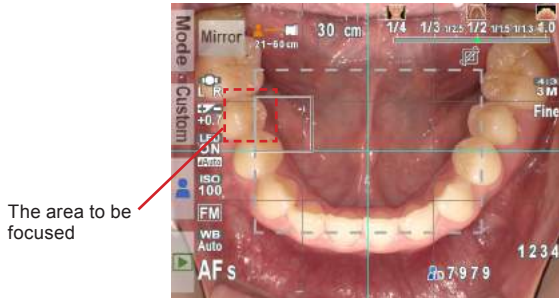


Spot AF area
You can move the focus
area within the Spot AF
area.

- 2 Half-press the Shutter to focus. Then, after focusing press the Shutter button completely to take a picture.

Take pictures with Focus lock

When focusing on the area outside of Spot AF area, you can select “Focus lock” as indicated with the red frame in the photo.



- 1 Move the camera in such a way that the red frame is overlapped by the Spot AF area. Press the Shutter button half way to focus.



- 2 Move the camera back to the original position while pressing the Shutter button. Use caution to avoid changing the distance between the subject and the camera.



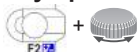
3 Press the Shutter Button completely down to take the picture.

Fine-tuning brightness

When photographing with a mirror in Mirror mode, the image might be too bright or too dark due to the reflection rate of the mirror. When photographing something that scatters light intensely such as stone model, the image might be too bright. In cases such as these, brightness needs to be fine-tuned.

• How to adjust brightness

Key operation (shortcut)



Rotate the Dial key while pressing F2 key.



· For more details about brightness compensation, refer to “• Brightness compensation” in P.61.

· For more details about key operations, refer to the “Key operation” in P.71.



You can create custom mode for photographing stone models by scanning a QR code exclusive for this camera. (Reference ⇒ P.24)

Taking pictures with turning one side of the flash light on

Stone models are basically monochromatic, which often reduces the three dimensional appearance when photographed with turning both flashes on.

This can be resolved by turning one side of the flash off.



(a) Both flashes on



(b) Right flash on



(c) Left flash on



· Flash mode can be selected in Standard mode, Mirror mode, Low-glare mode, Whitening mode, Tele-macro mode and Isolate shade mode.

· Light amount is automatically adjusted even with one flash, allowing you to take photos with the correct exposure.

• How to select flash mode

Key operation



+



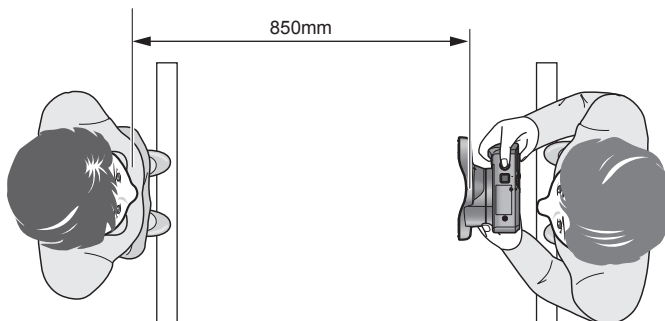
Rotate the Dial key while pressing F1 key.



- For more details about flash modes, refer to “Flash mode” in P.61.
- For more details about key operations, refer to the “Key operation” in P.71.

Focus distance in Face mode

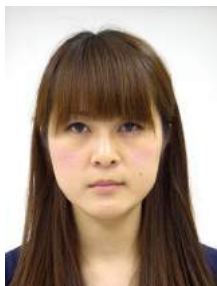
Marking the floor with plastic tape is recommended to keep the ideal distance between the patient and the camera.



Shadow appearing in the Face mode

Shadow might appear along the patient body or the background might be darker when photographing with flash lights on.

In order to overcome this problem, turn off the flash. When turning off the flash, bright images can be taken without creating shadow. However, the place has to be bright enough to take photos. Hold the camera securely to avoid image blurring.



Flash is turned off



Flash is turned on

• How to turn the flash on and off

Key operation



Rotate the Dial key while pressing F1 key.



- For more details about flash modes, refer to “Flash mode” in P.61.
- For more details about key operations, refer to the “Key operation” in P.71.

Tips to minimize shadow when photographing models and prostheses

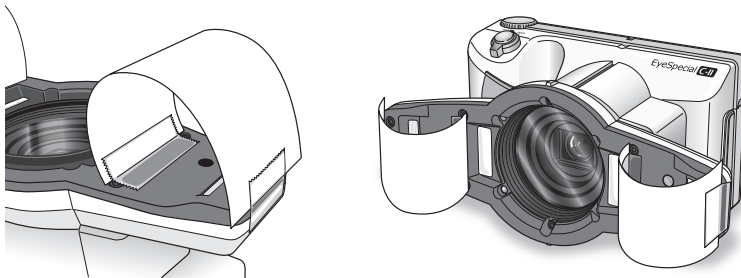
When trying to minimize shadow created when using the flash while photographing a model for inlay cavity in Low-glare mode or Tele-macro mode, using a diffuser is recommended.

● Preparation

Tracing paper 4×10cm : 2 pieces

* Using colorless tracing paper designed for photography is recommended.

Cover both outside flashes with the tracing paper and tape as indicated figures below.



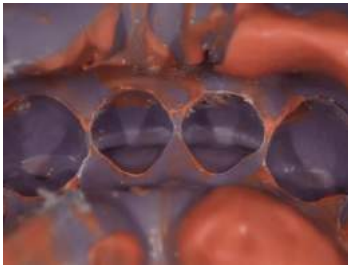
Tracing paper reduces light intensity so that brightness can be adjusted as needed.



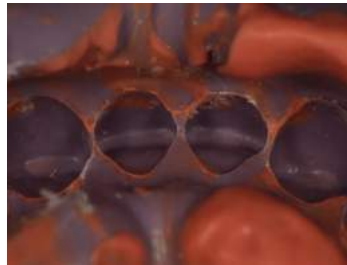
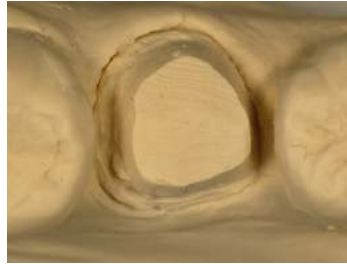
- For more details about brightness compensation, refer to “● Brightness compensation” in P.61.
- For more details about key operations, refer to the “Key operation” in P.71.

Use a light diffuser to minimize shadow.

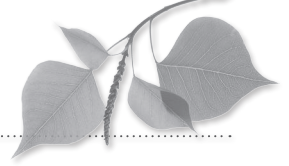
With diffuser



Without diffuser



5 Playback

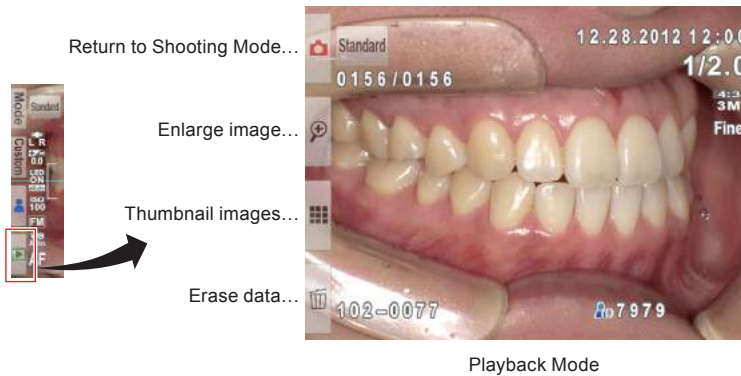


- Follow the safety information indicated in the attached “Important Safety Instructions”.

Viewing your image

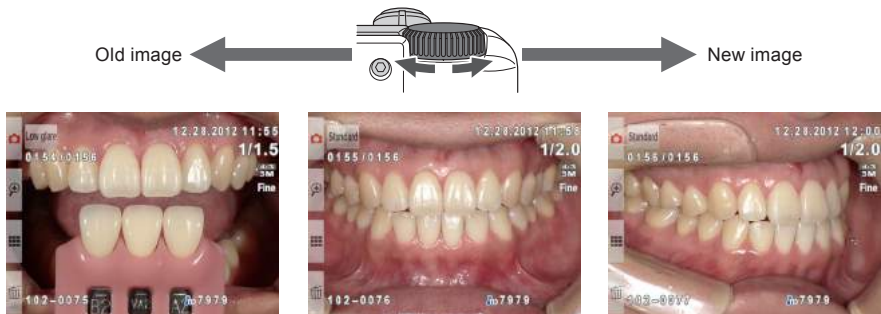
Single frame playback

Press F4 key in Shooting Mode to change to Playback Mode. The last image taken is displayed.



Reviewing other images

Rotate the Dial key to scroll backward or forward through pictures.



Magnifying pictures

- To magnify the image, press F2 Key in Playback Mode. Maximum magnification is at 6X. Press F3 Key to reduce the size of the picture. Press F1 Key to redisplay the picture at the 1X (original) size.
- To magnify different parts of the picture, directly touch the area you wish to see on the screen or press .




Thumbnail images

Press F3 Key to view thumbnail images. Nine images are displayed simultaneously. In order to display a single view, select one image by moving the cursor to select the image or directly touching it on the screen.



Erasing images


Erasing displayed image

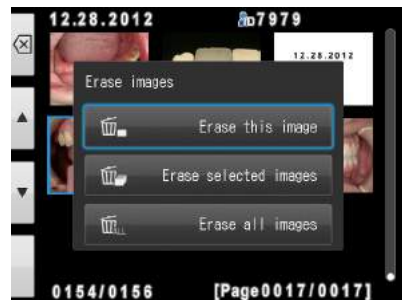
Select Playback Mode and press  F4 Key to erase the displayed picture. The message, "Erase this image?", appears on the image. Press "OK" to erase it.



Erase selected multiple images simultaneously

You can erase multiple images simultaneously by selecting them from the thumbnail display.



Press  F4 Key and the following message appears.



- **Erase this image**

One image in the blue cursor will be erased.

- **Erase multiple images simultaneously**

Select images you wish to erase by directly touching the images on the screen or pressing  SET key. After finish selecting the images, press  F4 Key. Press OK to erase the selected images.



Finish selecting


Trash mark
Appears on the selected
images

● Erase all images

All images stored in the SD Memory Card will be erased.



 **Note** Once erased, the data can not be retrieved.

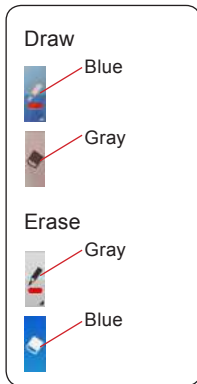
Edit images



You can draw on or rotate the recorded images. Press  MENU Key and the message appears on the display.




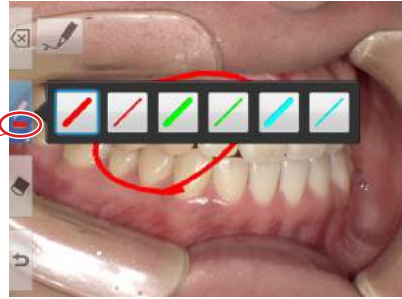
Draw on images (paint function)


When "Draw" is selected, you can draw lines on the recorded images. Press  F2 Key to draw lines and  F3 Key to erase them.

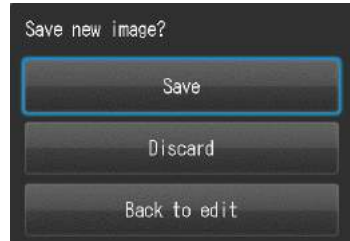


- Press  F4 Key to undo the previous actions (maximum 5 previous actions).
- Press  F2 Key again to change the line color and boldness (3 colors, 2 boldness)

Current line 






When finished editing, press  F1 Key. Select "Save" to save the edited image (the original image is also stored separately).



Edited image is saved in the size of 640×480 pixels.

Rotate images

The images can be rotated by 90°.

- Press  F2 Key to rotate the image clockwise or  F3 Key to counter-clockwise.
- Press  F1 Key to finish rotation. Select "Store rotated image" to record the image.

Rotate 90° clockwise.



Rotate 90° counterclockwise.




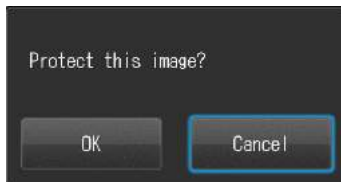
Some computer softwares including Windows Picture and Fax Viewer installed in WindowsXP can not display the rotated images due to failure of reading Exif information correctly. This is caused by the compatibility issues with their software, not by any defects of the camera.

Protect images

Protect the image to avoid accidental deletion or unintended editing.

Protecting images

Press  MENU key in the Playback Mode and select "Protect". You can protect the image currently displayed. Press "OK" to protect it.



To release protection, press MENU key, then select "Cancel".

Protecting selected multiple images simultaneously



You can protect multiple images simultaneously by selecting them from the thumbnail display. Press MENU Key in the thumbnail display. Then, select "Protect" and the message pictured right appears.



- **Protect these images**

The images selected from the thumbnail display are protected.

● Select images

Protect selected images or release protection. Touch the image you wish to protect on the screen or press  SET key, protect mark appears on the selected images. When touching the protected image again, the protection will be released. Press  F4 key to confirm the images to be protected. Press OK to confirm.



Finish selecting

Protect mark
Appears on the selected
images

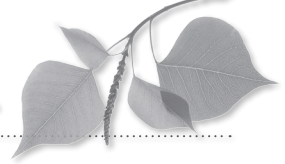
● Protect all images

All images stored in the SD Memory Card will be protected.

● Unprotect all images

All protected images stored in the SD Memory Card will be unprotected.

6 Transferring recorded images to your computer



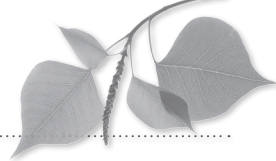
For simplified image management, Shofu has created proprietary file management software called “SureFile”.

To download this free software or for more information please visit <http://www.shofu.co.jp/eyespecial/en/surefile.html>.

The easy to use and convenient SureFile software quickly sorts and files all images taken by EyeSpecial C-II according to the patient ID entered prior to capturing images.


To use SureFile, your SD card must first be formatted by the Eye Special C-II camera. For proper formatting instructions, please refer to Page 8 in your Eye Special C-II User’s Manual or page 11 in the Advanced Manual. SD cards formatted via your PC or another device will capture images properly, but will not work with SureFile.

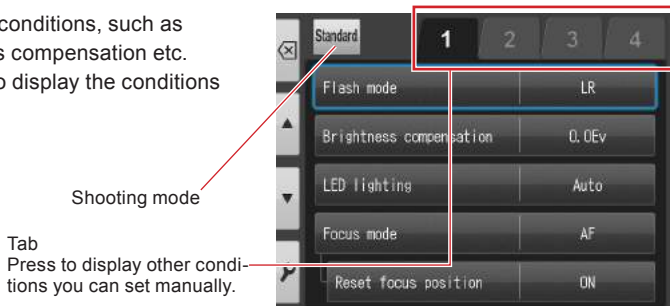
7 Menus



EyeSpecial C-II has a total of three menus; Shooting Menu, Playback Menu and Setup Menu.

Shooting Menu

You can manually set conditions, such as flash mode, brightness compensation etc. Press  MENU key to display the conditions you can set manually.



Shooting mode

Tab
Press to display other conditions you can set manually.

Items	Explanations
Tab 1	
Flash mode	To select flash mode
Brightness compensation	To adjust brightness of the image
LED lighting	To turn the LED lights on and off To adjust intensity of LED lights
Focus mode	To change focus mode
Reset focus position	To select on or off the function to reset the focus position
Tab 2	
Dial function	To change the dial function from "magnification" to "focus distance".
Auto-cropping	To change on or off the auto-cropping function
Focusing screen	To change the grid type
ISO	To adjust ISO speed
AE mode	To change AE mode
Tab 3	
White balance	To adjust white balance
Hue adjustment	To adjust hue
Contrast	To adjust the color contrast
Sharpness	To adjust the image sharpness
Tab 4	
Direction of the image	To change the image direction while holding the camera in a normal position
Flip direction	To select the flip direction of the image taken
Save settings	Save or reset the current custom settings

Tab 1

● Flash mode

To select flash mode.





Items	Explanations
Right&Left	Both flashes are on.
Right	Only right flash is on (seen from the LCD).
Left	Only left flash is on (seen from the LCD).
Auto	Flash is automatically turned on and off for different situation.
OFF	Flash is turned off.

*In some shooting modes, certain flash mode cannot be selected.

● Brightness compensation

To adjust brightness of the image.

Press + and - keys or rotate the  Dial key to adjust the compensation. Press OK or  SET key to determine.

Adjust by 1/3 step between -1.0Ev and +1.0Ev.
(Mirror mode : between -0.3Ev and + 1.7Ev)



● LED lighting

To turn the LED lights on and off & To adjust intensity of LED lights.

Touch + and - keys or rotate the  Dial key to adjust the light intensity. Press OK or  SET key to set the light intensity.

Auto … Light intensity is automatically adjusted for different situation.

Select between 0 and 3 … 0 (off) - 3 (highest light intensity)



● Focus mode

To change focus mode.

Three focus modes are available, AF Standard, AF SPOT and Manual Focus.



Items	Explanations
AF Standard	Standard focus mode. Focus is automatically set within the focus area.
AF SPOT	The spot you specified is focused. Touch the area you wish to focus within the AF frame.
MF	Photos are focused manually.

● Reset focus position

To select on or off the function to reset the focus position after taking a picture.

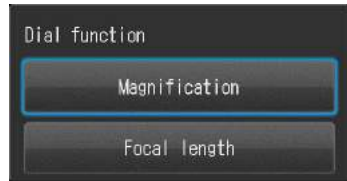


Items	Explanations
ON	The focus returns to the original position after photographing.
OFF	The focus does not return to the original position after photographing.

Tab 2

• Dial function

To change items adjusted with the  Dial key.



Items	Explanations
Magnification rate	To change magnification rate.
Focus distance	To change focus distance.

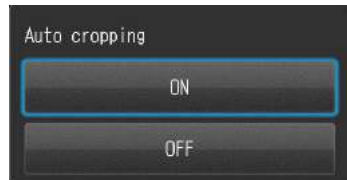
*When focus distance is changed, auto-cropping function is not available.

When setting focus distance manually, the indicator shown below appears on the upper right of the screen instead of the magnification indicator.



• Auto-cropping

To turn on and off the auto-cropping function.


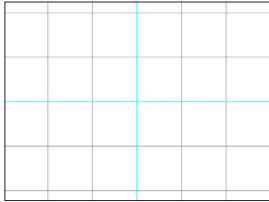



Items	Explanations
ON	The image is automatically cropped based on the size you select.
OFF	Image size is automatically adjusted based on the actual focus distance.

● Focusing screen

To change the grid type.



Items	Explanations
OFF	—
Type 1	
Type 2	
Type 3*	

* Type 3 is for Face mode only. Optimal grid is automatically selected.

• ISO speed

To adjust ISO speed.

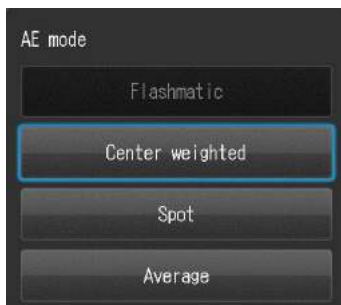


Items	Explanations
Auto	Light intensity is automatically adjusted for different situation.
100 to 400	When ISO speed is raised, bright image can be taken even in a dark place. However, image noise increases.

* ISO speed can be adjusted only in Face Mode and Tele-macro Mode, in which TTL light adjustment is used. It's set at 100 for the mode using FM light adjustment.

• Auto Exposure (AE) Mode

To change AE mode



Items	Explanations
FlashMatic	The camera automatically measures the distance from the subject and adjust the light intensity to control exposure.
Center weighted metering	Evaluates the lighting conditions of the subject centered in the viewfinder.
Spot metering	Evaluates the necessary exposure of only the center of the subject.
Average metering	Evaluates light conditions of the entire image to set an optimum picture exposure.

* AE mode can be adjusted only in Face mode and Tele-macro mode, in which TTL light adjustment is used.

Tab 3



● White balance

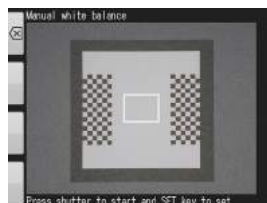
To change white balance.



Items	Explanations
Auto	White Balance is automatically corrected.
Incandescent lamp	Ideal for taking pictures under incandescent lamp.
Fluorescent lamp 1	Ideal for taking pictures under daylight color (6500k) fluorescent lamp.
Fluorescent lamp 2	Ideal for taking pictures under neutral (natural white) color (5000k) fluorescent lamp.
Manual	Photograph white or gray subject as the standard to adjust white balance.



*White balance can be changed in Face and Tele-macro Modes, in which TTL light adjustment is used. When using FM metering, white balance is automatically adjusted.

When you select "Manual", the image shown right appears on the screen. Set SHOFU Gray card or the subject you wish to use as the standard of white balance in the square appearing on the center of the screen, and press Shutter button. Then, press  SET to determine or  F1 key to cancel.



• Hue


To adjust hue.

Press “+” or “-” directly on the screen or select the color you wish to adjust by pressing ▲ (F2 Key) or ▼ (F3 Key), then rotate the  Dial Key to move the indicator. Press OK or  SET key to finish.



• Contrast

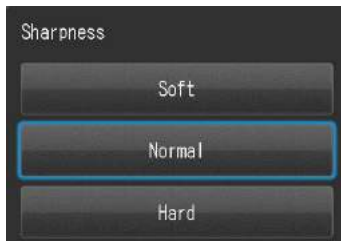
To adjust the color contrast.

Touch + and - keys directly on the screen or rotate the  Dial key to move the indicator. Press OK or SET key to finish.



• Sharpness

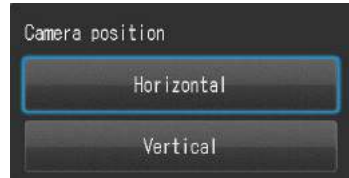
To adjust the sharpness of the image.



Tab 4

• Direction of the image

To change the image direction while holding the camera in normal (horizontal) position.



Items	Explanations
Horizontal image	The aspect ratio is 4 (width) : 3 (height).
Vertical image	The aspect ratio is 3 (width) : 4 (height).

When vertical image is selected, right and left margins are blacked out as shown in the photo below.



• Flip images

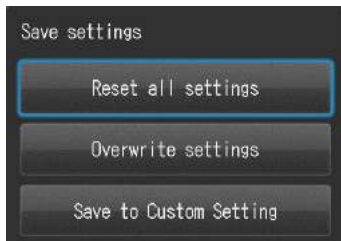
To select on and off image flip as well as flip direction.



Items	Explanations
Every time	You can select if you flip the image or not after each shot.
Vertical	The image taken is automatically flipped vertically and stored.
Horizontal	The image taken is automatically flipped horizontally and stored.
Don't flip	The image taken is stored without being flipped.

• Save settings

Save or reset the current custom settings.



Items	Explanations
Reset	Current custom settings are all reset and return to default setting.
Overwrite settings	Current custom settings overwrites the previous one.
Save to Custom setting	Current custom settings are stored as new custom setting.

When selecting "Save to Custom setting", select from Custom 1 to Custom 3 to register the setting.



Press ▲ (F2 Key) to select Custom Setting 1-3 to take photos.

 P. 22 "Custom mode"



Tips

- **Erasing custom settings**


Custom settings can not be erased one by one. When you wish to erase a custom setting, select “Reset all settings”. Please note that when you select “Reset all settings”, you will erase not just custom settings but all other startup settings.

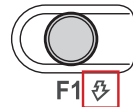
- **Overwriting custom settings**


Please select the custom setting you wish to overwrite.

Shortcut function in Shooting mode













EyeSpecial C-II has shortcut functions. Following 4 settings can be changed in Shooting mode without going into the Menu mode.


Shortcut can be performed by pressing Function key (not function tab), while rotating the  Dial key. The item you can adjust with each function key in its shortcut function is described in blue under each key.



When pressing and holding a Function key for a few seconds, the icon of the setting to be adjusted is underlined in red. Then, rotate the  Dial key to adjust.




Operation	Items	Icon
 + 	Change flash mode	
 + 	Adjust brightness compensation	
 + 	Turn LED lighting on or off	
 + 	Change focus mode	

 **Note** Shortcut can be performed by pressing the Function key, not Function tab, while rotating the Dial key.

Playback mode menu

You can edit the stored images (draw lines and rotate) or protect them from accidental deletion or edit.


Press  MENU key on the Playback Mode.

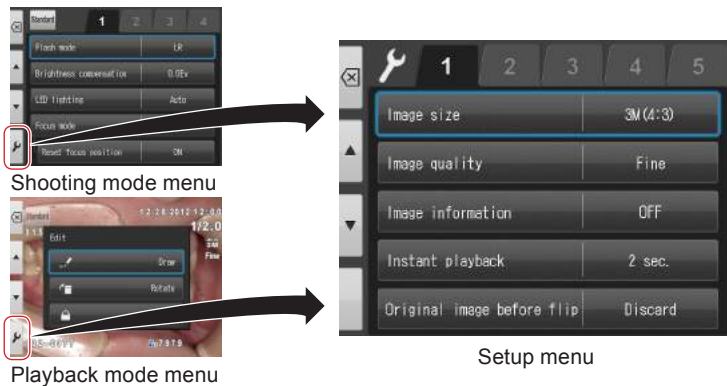
Items	Explanations
Draw	To draw lines on the images
Rotate	To rotate the image by 90°
Protect	To protect the images to avoid accidental deletion or unintended editing

Refer to “Edit images” on P.55.

Setup menu

Basic settings including the image size and on/off the key sound etc. can be changed.

Press  (F4) Key to display setup menu on Shooting Mode or Playback Mode.



Items	Explanations
Tab 1	
Image size	To select the image size
Image quality	To select the image quality
Image information	To select on or off the image information (date and settings)
Instant playback	To select the time to display the last image taken
Original image before flip	To select save or discard the original image before flip
Tab 2	
LCD brightness	To adjust the brightness of the LCD screen
Date format	To store current date & time. To select display type of date & time
Language	To change the language to display menu and screen messages
Metric/Imperial	To change the display style of length
Video standard	To change the video output style
Tab 3	
Preview zoom reset	To select the timing to reset the preview zoom
File number memory	To turn the the file number memory function on or off
Reset	To reset the file number from the next image taken
Folder name	To change the folder type
Tab 4	
Volume	To adjust the volume
Key sound	To turn the key sound on or off
Shutter sound	To turn the shutter sound on or off
Focus sound	To turn the focus sound on or off when focused automatically
Power save ON	To select the stand-by time before power saving starts
Tab 5	
Reset all settings	To reset the camera settings to default
Flash calibration	To calibrate the light intensity of the flash lights
Touch panel calibration	To adjust the response range of the touch panel
Format SD card	To delete all information from the SD memory card

Image quality	Compressive ratio	Intended use
Extra fine	Extremely small	Photo process & enlarge print
Fine	Small	Normal print (L-2L size) & for viewing photos on the computer screen
Standard	Middle	Use on the Internet



Tips

Compressive rate

The quality of JPEG images vary depending on the compressive rate you select when you save the images. The bigger the compression rate, the lower the image quality. Once the image quality is lowered, you can't return it back to the original quality. When you view the photos on a computer, "Fine" is sufficient for quality viewing. However, when you process them with Retouch Software etc, please select "Extra fine". In the case you wish to downsize the image, regardless of the quality, selecting "Standard" is recommended.

• Image information

Turning the image information on or off (date and settings).



Items	Explanations
Off	No information is imprinted on the image
Type 1	"Patient ID" + "Date of the photo" + "Conditions of photography (magnification rate, Shooting mode, Flash mode)"
Type 2	"Date of the photo" + "Conditions of photography"
Type 3	"Date of the photo"

• Instant playback

To select the time to display the last image taken.



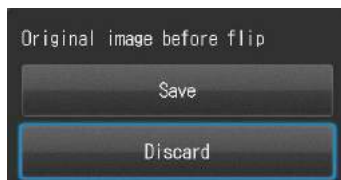
Items	Explanations
2sec., 5sec. or 10sec.	The last image taken is displayed for the selected seconds.
Off	Instant playback is off.



- Even if you select "Off", the last image taken appears briefly.
- When you wish to return to take photos during instant playback, half-press the Shutter button or press SET key.

• Original image before flip

To select save or discard the original image before flip.



Items	Explanations
Save	Two images, before and after flip, are stored.
Discard	Only flipped image will be saved.



The images can be distinguished between before and after flip with the icon appearing on the image during Playback Mode.



Original image



Flipped image

Tab 2

• LCD brightness


To adjust the brightness of the LCD monitor.

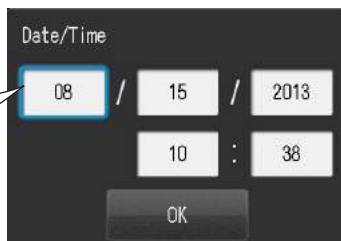


• Date format

To store current date & time.



Rotate  Dial Key or touch the item you wish to change.
Press ▲ F2 or ▼ F3 key to alter the value.



• Language selection

To change the language to display menu and screen messages.



• Selecting unit display

You can choose from metric and imperial unit display.

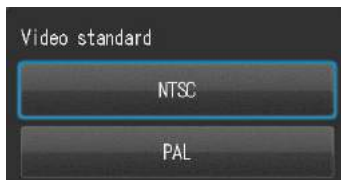


Focus distance is displayed in metric system only.



● Video standard

To change the video output style.




Items	Explanations
NTSC	Japan, United States, Korea etc
PAL	European countries (except for France), Australia, China etc

Tab 3

● Preview zoom reset

To select the timing to reset the preview zoom.



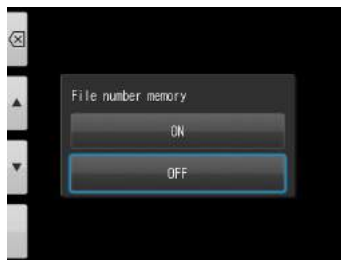
Items	Explanations
Every shot	Preview zoom is reset after each shot.
Every magnific.	Preview zoom is reset when you change the magnification rate. When you continue using the same magnification rate for taking next photo, preview zoom remains unchanged.
OFF	Preview zoom returns to the magnification rate you selected after every shot. Unless preview zoom is changed by pressing  SET key, it does not return to the original size.



When you turn the camera off or change the shooting mode, the image is displayed in original size.

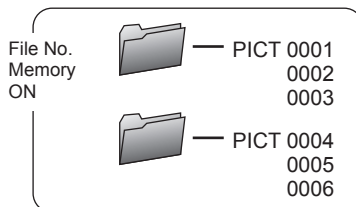
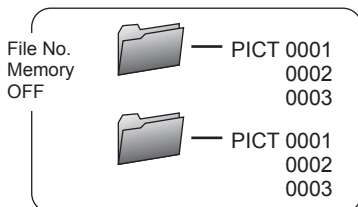
● File number memory

To turn the file number memory function on or off. In default setting, file number starts with “PIC0001.JPG” when you change or format SD card or when you erase all images stored in the SD card. When the date of the dated folder is changed, file number also starts with “PIC0001.JPG”, which can be used sequentially.



Items	Explanations
ON	File number is stored. Even if you stop full screen display, change or format SD card, file number is continued.
OFF	File number is not stored. File number restarts with “PIC0001.JPG” when you change or format SD card or when you erase all images stored in the SD card. When the date of the dated folder is changed, file number also restarts with “PIC0001.JPG”. However, when you store some images in one folder, their file numbers will be consecutive.

Image figure



● Reset file number

When the “Reset file number” is selected, the next image taken will reset the counter.

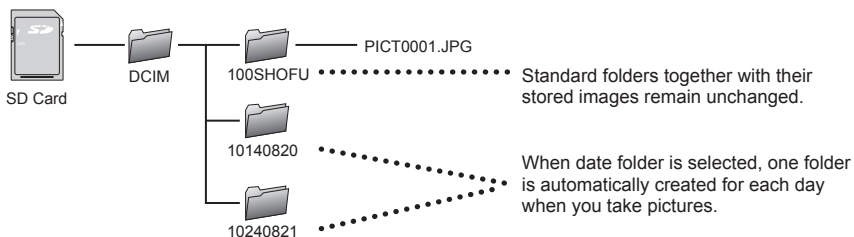


● Folder name

To change the folder name.



Std. format	A folder named with “Folder No. (3 digits) + SHOFU” is created. Folder number is 3-digit number starting from 100. A maximum of 9999 images can be stored in one folder.
Dated format	A folder named with “Folder No. (3 digits) + year, month, date (5 digits)” is created and its image is stored. Folder numbers are 3-digit numbers starting from 100. Date format is “year (single digit) + Month (double digits) + day (double digits)”.



In the default setting, file number restart with PIC0001 when a new folder is created. When you wish to use consecutive number even if you change the holder, set the file number memory “ON”. Refer to File number memory.

Tab 4

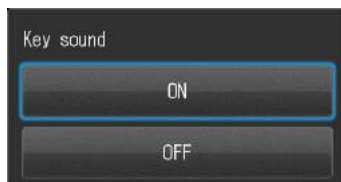
● Volume

To adjust the volume.



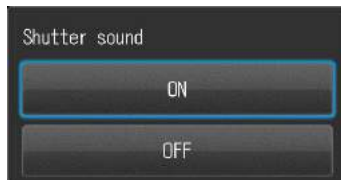
● Key sound

To turn the key sound on or off.



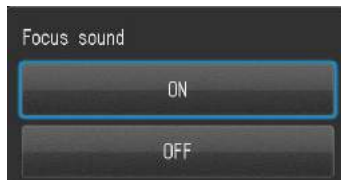
● Shutter sound

To turn the shutter sound on or off.



● AF sound

To turn the focus sound on or off when focused automatically.



● Power save ON

To select the standby time before power saving starts.

If no key operation is performed for the set period of time (the initial setting is 1 minute), the display on the LCD screen will turn off.

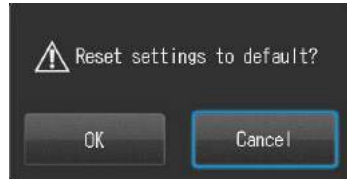
Stand-by time for the Power save mode can be changed.



Tab 5

● Reset settings

To reset the camera settings to default.



● Flash calibration

To calibrate the light intensity of the flash lights.

When you take many photos, light intensity might decrease or color temperature might slightly change. Please adjust the light intensity and white balance with SHOFU Gray card provided. It takes about 10 minutes for the calibration to complete.

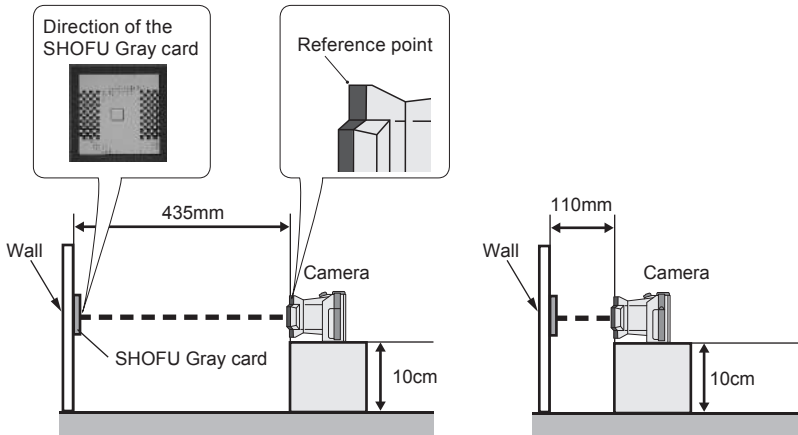
How to perform calibration (Please prepare the following items)

- SHOFU Gray card (provided)
- Scale (50cm)
- Small table (10cm) to place the camera.

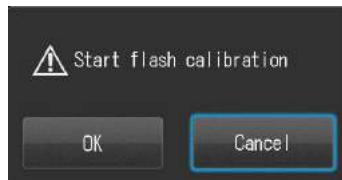
Please place the camera and SHOFU Gray card as shown in the figure below.

To calibrate inside flash

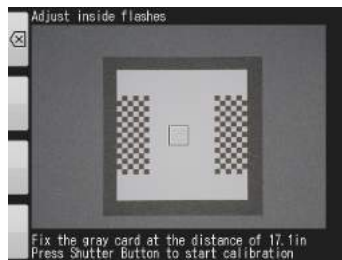
To calibrate outside flash



- 1** When you select “Flash calibration”, the message pictured right appears on the screen. Press OK to start calibration.



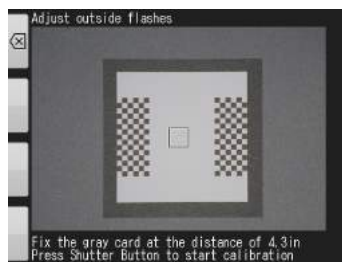
- 2** When the figure shown in the right photo appears, keep 435mm between the camera and SHOFU Gray card, while setting the Gray card on the center of the screen. Then, press the Shutter Button.



- 3** When the message shown in the right photo appears, check the distance between the camera and the gray card. Then, reperform calibration from the beginning.



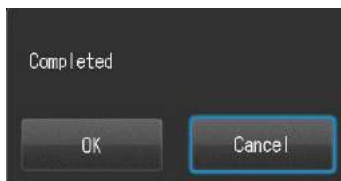
- 4** When calibration of inside flash is complete, the figure in the photo right appears. When it appears, keep the distance of 110mm between the camera and SHOFU Gray card, while setting the Gray card on the center of the screen. Then, press the Shutter Button completely down.



- 5 When the message shown in the right photo appears, check the distance between the camera and the gray card and reperform calibration from the beginning.



- 6 When calibration is completed properly, the message shown in the photo right appears. Press "OK" to store calibration result. Or press "Cancel" to discard it.



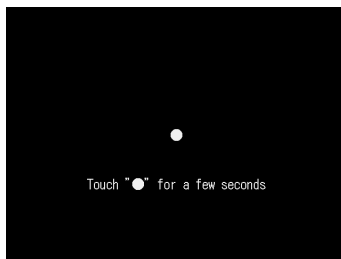
- Note**
- Do not move the camera during calibration.
 - Calibration is recommended every six months.

• Touch panel calibration

To adjust the response range of the touch panel. When you feel the difference between the position you touch and response position, calibrate the touch panel. A white spot appears on the screen on 5 different positions, press it for a few seconds each.



Use stylus etc to perform calibration. Do not use a tool with a very sharp point to avoid damaging the screen.

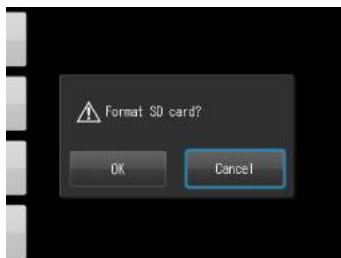


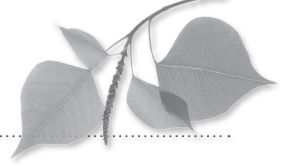
• Format SD card

To delete all information from the SD memory card.



- Note** When formatting the SD memory card, all images including the protected images are deleted.





Operating temperature

- Recommended temperature to use and store this camera is between 0°C and 40°C.
- Do not subject the camera or batteries to extreme temperature or high humidity.
- Avoid exposing to extreme temperature changes to prevent condensation from forming inside the camera. When bringing this camera from cold environment to warm one, place the camera into a plastic bag and completely remove the air inside of the bag. After bringing the camera inside, wait until the camera reaches room temperature before you remove your camera from the plastic bag.

Recording media

- The recorded data might be lost in the following cases. SHOFU will not be responsible in any way for the loss of recorded data or the consequences of such loss. It is recommended to always maintain backup data on another media (hard disc etc).
 1. If the card is misused by the user or any third person.
 2. If the card is affected by strong static electricity or electrical noise.
 3. If the card is removed or the camera is tuned off while recording data to or formatting the card.
 4. If the card has reached its write cycle limit.
- When the card is formatted, all the recorded data has been erased. Make sure to backup important data.
- Once the memory card has reached its limit of read/writes, you will not be able to use it. Please replace the card with new one.
- Avoid using in areas where strong static electricity or electric noise is generated.
- Do not bend, apply excess force or expose to extreme temperatures.
- Strong static electricity or shock might damage the memory card resulting in failure to record or playback images. Please replace the damaged card with new one.
- Do not touch the terminal with fingers or metals.
- Keep away from heat, moisture and direct sunlight.

LCD screen (with touch panel function)

- The LCD monitor has been developed using high-precision engineering. Although the percentage of active pixel is more than 99.99%, there may be white, black or red pixel at 0.01%. This is not a sign of defect and does not affect the recorded images.
- Do not scratch or press the screen with any sharp instruments.
- When using this camera in a cold location, the screen may appear darker immediately after start using compared to normal environment. The screen will return to normal brightness as the internal temperature of the camera rises.
- If the LCD monitor becomes dirty with fingerprints or dust, wipe with a soft, dry cloth.

Degradation of image quality

- The image quality is not degraded even if the camera becomes old naturally through normal use. However, if you try to take photos of the sun and intense light comes into CCD, or if too many photos are taken, it might degrade the image quality. Please contact your SHOFU dealer for maintenance and repair.

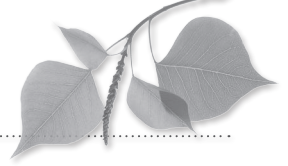
Water proof and chemical proof

- EyeSpecial C-II is IPX4 waterproof. This means that it can withstand against water jets from all directions and can be cleaned with a disinfectant-moistened gauze (ethanol for disinfection). However, never immerse it into any liquid.
- Do not handle batteries and SD Memory card with wet hands.

Others

- Do not apply unnecessarily strong forces to this camera.
- Turn the camera off while carrying it in the bag.
- Do not expose the lens to direct sunlight to avoid damaging internal components.

9 Maintenance and storage



- Follow the safety information indicated in the attached “Important Safety Instructions”.

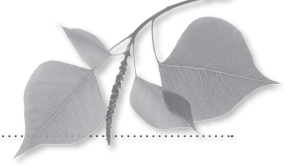
Maintenance

- Wipe the outside of the camera with a soft, clean and dry cloth. For disinfection, gently wipe with a disinfectant-moistened gauze etc. Should this camera come into contact with sand, avoid dusting off with hands, instead, use compressed air to clean.
- Use compressed air to remove dust and dirt from the lens. When the lens becomes very dirty, wipe it with a lens cleaner moistened soft cloth or lens tissue in a circular motion. Never pour lens cleaner directly onto the lens.
- Do not use thinner, benzene or any organic solvent to clean the lens.
- Do not touch the lens directly with fingers.

Storage

- Store this camera in a cool, dry and well-ventilated area away from dust and chemicals. Before storing the camera when not in use for a long time, store in a hermetic container. Placing some desiccant in the container is recommended.
- Before storing the camera when not in use for a long time, remove the batteries and SD Memory card.
- Even while the camera is in storage, press the Shutter button a few times once in a while to check that the camera is working properly.

10 Q&A (Troubleshooting)



Camera problems

Trouble	Cause	Measure	Reference
Cannot take pictures or cannot playback the images.	Batteries are exhausted.	Replace the old batteries with new ones.	P.89
	Auto-Power off is working.	Power is automatically turned off when the camera is not used for 30 minutes after power save mode is on. Switch on the camera again.	P.15
Cannot focus even if the Shutter is half-pressed.	Manual focus is selected.	Change to Auto-focus Standard or AF Spot Auto-focus.	P.29
	Focus distance is outside the recommendation.	Take a photo within the limit of focus distance.	P.26
"No Card" appears even if the memory card is in place.	The memory card is damaged.	Replace the defective card with new one.	-
Photographs appear too bright, too dark or blurred.	The camera was moved after focusing.	Do not move the camera once it's focused. If it's moved, refocus before taking pictures.	P.28
Color fidelity is poor when viewed on the PC or printed out.	Monitor setting is not optimal. The images taken with this camera are designed to present optimal color fidelity when they are viewed on sRGB, whose color temperature is 6,500k with 2.2 gamma.	For more details, refer to a specialized book in color matching.	-
When the camera is turned on, nothing appears on the screen while red pilot lamp lighting and eventually the camera freezes.	This may occur only occasionally when the batteries are exhausted.	Replace old batteries with new ones.	-
The camera does not work properly.	Turn off the camera and remove all the batteries. Replace the batteries and turn on the camera again. If the camera still does not work, it might have some defect. Contact your SHOFU dealer.		P.13

Error messages

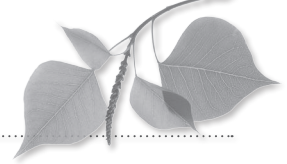
Message	Cause	Measure	Reference
Battery depleted	Batteries are dead.	Replace the old batteries with new ones.	P.10
Focus distance error	The camera is positioned far outside the focus distance range.	Take from within the focus distance range displayed on the screen.	P.26
No memory card	There is no card in the camera.	Insert the SD card.	P.11
Invalid size	The image is too big to display.	Check the maximum image size that can be displayed on the screen.	P.74
Invalid image format	The image is not JPEG.	Only JPEG images can be displayed.	-

Message	Cause	Measure	Reference
Memory card full	The storage is full.	Change the image size and image quality.	P.12
		Erase some images.	P.54
		Replace the full memory card with another memory card with sufficient capacity remaining.	P.11
All file numbers used	Too many files are stored in the SD card. *This camera can manage approximately 65,000 images per memory card.	Erase some images.	P.54
		Replace the full memory card with another memory card with sufficient capacity remaining.	P.11
Memory card locked	SD memory card is protected.	Slide up the write-protected tab.	P.12
No image	No image is recorded in the SD card.	Replace the empty card with the recorded one, or take new photos to record.	P.11
Cannot read file	The image file is damaged.	Cannot read the damaged JPEG files.	P.86
Incompatible memory card	Incorrect/unsupported SD card is being used.	Compatible memory cards are SD Card or SDHC Card. SDXC cards are not currently supported.	P.11
	Following factors are considered. · File system was changed by formatting the SD card using a computer. · Formatted in different camera or other devices. Format the SD card following the instructions displayed on the LCD screen of the camera. All recorded images are erased after formatting the SD card. Backup the necessary files by transferring pictures to the computer. It might be also considered that SD card is defective. Please try another card if you have one.		P.86
File system error	SD card system error has been found.	Format the SD card following the instructions displayed on the LCD screen of the camera. It might be also considered that SD card is defective. Please try another card if you have one.	P.85
WB unadjusted	Something other than the provided SHOFU Gray card was photographed when white balance is manually set.	Use provided SHOFU Gray card.	P.83

Frequently asked questions

Question	Answer
How long is the battery life?	Refer to "Tips: Storage capacities (number of pictures (p.12))"
Why don't the number of pictures remaining decrease after taking pictures? Or why does it sometimes decrease two at once?	The picture does not take up enough space to decrease the number or the picture takes up space to decrease 2 or more at once. The camera is operating normally and you can continue taking pictures.
Cannot see a picture taken on the camera screen. Why?	Possible causes are as follows; · If the file name is changed or its location is changed to another folder, the image cannot be displayed on the camera screen. Get it back to the original name and position. · If the image is edited or rotated on the computer and then overwritten, the new image might not be able to be displayed on the camera screen. In this case, it can not be restored to display on the camera.
What's the temperature range for camera use?	It's between 0°C to 40°C (Humidity : 10 to 80%)

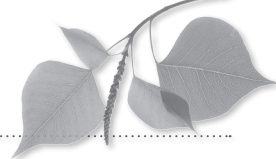
11 Specifications



Items		Specification
Sensor	Kind	Primary Color Filter, Complementary color filter
	Size	1/2.33inch
	Total pixels	Approx. 12 million pixels (4,164x3,050)
	Number of effective pixels	Approx. 12 million pixels (4000x3000)
	Camera sensitivity	ISO 100 - 400
Lens	Focal length (35mm equivalent)	50 - 175mm
	Maximum aperture	3.4 - 8.6
	Zooming method	Optical electric zoom + Electronic zoom
	LPF/IR cut filter	LPF (405 to 664nm), Anti-reflection coat/IR cut filter, UV cut
AF	Method	Contrast auto focus
	AF area	Center-weighted/SPOT
	Focus mode	One (single) shot auto focus and manual focus by adjusting the distance
	AF-assist light	4 White LED ring lights
AE	Method	TTL (through the lens) metering/ FlashMatic (patented) light control
	AE area	Center-weighted/SPOT/Standard
	Shutter	Electronic & Mechanical shutter
	Shutter speed	1/15 - 1/1000 Automatic change
WB	Modes	Auto/Dental/Fine weather/Fluorescent light/Flash/Custom
Shooting Mode	Kinds	Standard/Surgery/Face/Mirror/Low-glare/Whitening/Tele-macro/Isolate shade
Flash	Method	Total 4 lights (2 built-in and 2 external lights)
	Flash sync speed	1/1000 speed of using flashmatic light control, 1/60 speed of using Face mode
	Flash light control	Flashmatic light control or automatic light control by sensor
	Outside flash connector	-
	Emission calibration	Can be implemented in Setup Mode
LED	Method	4 white LED lights for illumination
	Light emission mode	0 (OFF)/OFF/ON/AUTO
Finder	Finder style	<ul style="list-style-type: none"> • No viewfinder • 3.5inch VGA (640*480) Liquid crystal display • Movie plays on NTSC/PAL
	Electronic magnifier	No magnification/Full-screenx2/Full-screenx4
	Focusing screen	Type 1/Type 2/Type 3/OFF
	LCD Frame rate 30fps	30fps
Record	Record Media	SD/SDHC Card (Max. 32GB)

Items		Specification
Display/ Playback Mode	Image format	JPEG
	SD Card record format	DCF (Standard/date)
	Image size	12M 4,000x3,000
		8M 3,264x2,448
		5M 2,560x1,920
		3.2M 2,080x1,560
		2M 1,600x1,200
		VGA 640x480
		10.6M 4,000x2,672
		7.1M 3,264x2,176
		4.3M 2,560x1,712
		2.8M 2,080x1,392
	Image quality	Extra fine/Fine/Standard
	Digital zoom	Up to x2 of maximum optical zoom when setting focus distance manually (10 Steps from x1.05[1/0.95] to x2[1/0.5])
ExifTag information	In accordance with Exif2.21+DCF standard	
Information imprinting	<ul style="list-style-type: none"> • Date + Shooting conditions + Patient ID • Date + Shooting conditions • Date 	
Display/ Playback Mode	Display format/magnification	9-image index, x1 - x6
	Image review	OFF/2sec./5sec./10sec.
	Language	Japanese, English, Germany, French
	Date format	yy/mm/dd, mm/dd/yy, dd/mm/yy
	Metric/Imperial	cm, mm / in, ft
	Rotate/reverse function	Rotate 90°based on Exif information
	Data erase function	1 image/Selected image/All images
Operation environment	Power supply	4 Alkaline AA batteries / 4 Nickel-hydride batteries
	Battery for built-in clock	SR44 (cannot be replaced by users)
	External power supply	-
	Weight	465g (accessories not included)
	Operating Temperature / Humidity	0 to 40°C / 10 to 80% (without condensation)
	Storage Temperature / Humidity	-10 to 60°C / 10 to 90%
	Water proof	Complying with IPX4
Chemical proof	Ethanol for disinfection	
External I/O	Tripod socket	○
	Hot shoe	-
	Remote release terminal	-
	SD Card slot	SD/SDHC card
	PC connecting slot	-
	AV out connector	○ (Image output only)
	Sound input	-
	Audio output	Built-in speaker

12 Accessories



Name	Quantity	Note
EyeSpecial C-II Main body	1	-
Lens cap	1	Mounted on the camera body
Hand strap	1	-
Alkaline AA battery	4	-
Video cable	1	-
SDHC card	1	4GB
SHOFU Gray card	1	-
Close-up lens	1	AC close-up No. 5, Diameter : 49mm
Important safety instructions	1	-
User's Manual	1	-
Quick reference	1	-
Warranty	1	-

*EyeSpecial C-II is sold without Alkaline AA batteries in EU countries and some other countries due to regulations.


13 Warranty

This product has undergone strict quality control and inspection. In the unlikely event that a defect or other problem is discovered under normal usage within the warranty period (for 1 year after you purchase the product), SHOFU will replace or repair this product free of charge. Refer to the Warranty attached to this camera.

Alkaline AA batteries, lens cap, hand strap, SDHC card and SHOFU are consumables and will not be covered by the Warranty.

 **Manufacturer**
SHOFU INC. Kyoto 605-0983, Japan

SHOFU DENTAL CORPORATION San Marcos, CA, USA

 **SHOFU DENTAL GmbH** Ratingen, Germany

SHOFU DENTAL ASIA-PACIFIC Singapore

SHOFU DENTAL TRADING (SHANGHAI) China