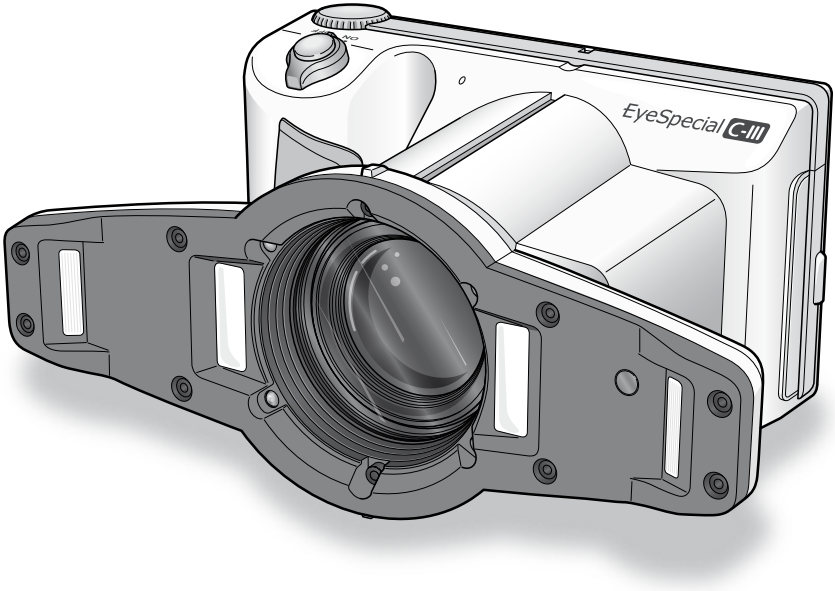
Read through the attached “Important Safety Instructions” before using this camera.



Smart digital camera designed exclusively for dentistry

EyeSpecial C-III

User’s Manual

For the “Advanced Manual” of the EyeSpecial C-III, visit our website at www.shofu.de.

SHOFU INC.

For the latest information on the EyeSpecial C-III and to download the “Advanced Manual”,
visit our website at www.shofu.de.

Before using your camera

Thank you for purchasing our EyeSpecial C-III. The following instructions 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 and ensure durability of this unit. Kindly keep this manual for your future reference.

Intended use

To take intraoral photos for documentation of dental procedures.

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 your SHOFU dealer.
- In case of missing pages or disorder, please contact your local dealer for replacement.

Test shooting

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

Data back-up

- The SD memory card or MultiMedia card can be damaged by dropping or strong static electricity and the data may be lost. Always back-up all important data in multiple locations, e.g. to your PC, removable HDD or other back-up volumes.

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 the rightful owner.
- Copyright law prohibits the use of pictures without the permission of the rightful owner.

Privacy policy

- The information, which can identify specific individuals, might belong to the “Personal Information” stipulated in the “Act on the Protection of Personal Information”. Handle all images properly in accordance with local laws and regulations.

Indemnity

- In no event shall SHOFU be liable for any infringement of privacy and damages, including, without imitation, 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 defect within the warranty period. We do not assume any responsibility for subsequent damages arising from the failure of the unit beyond the warranty period.

Disposal

- Do not dispose 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.

CAUTION

The EyeSpecial C-III 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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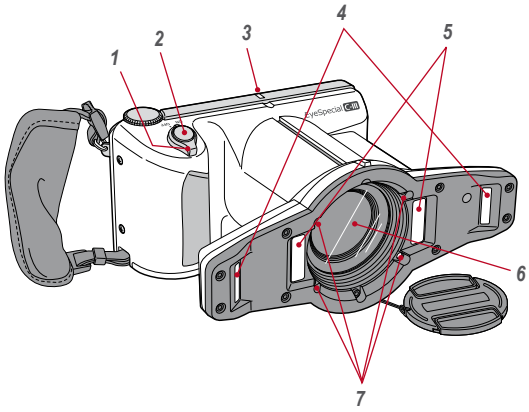
1 Getting to know your camera

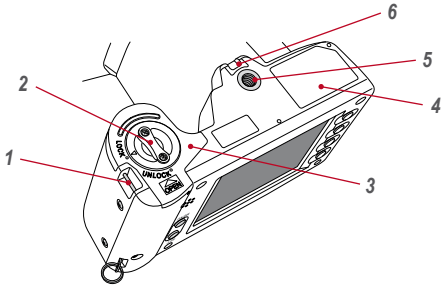
Names of parts

Front view



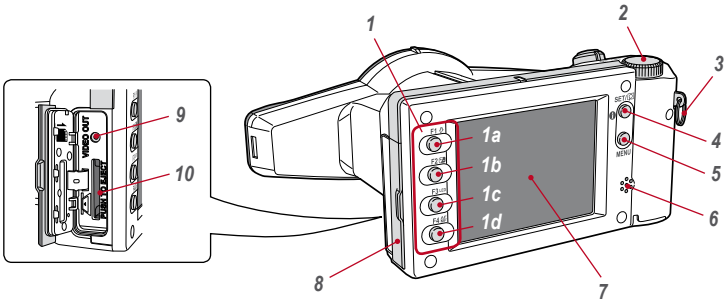
No.	Part name	No.	Part name
1	Power switch	5	Inside flash
2	Shutter button	6	Lens
3	Pilot lamp	7	LED light
4	Outside flash		

Bottom view



No.	Part name	No.	Part name
1	Strap eyelet	4	Name plate
2	Lock lever	5	Tripod socket
3	Battery cover	6	Strap hole

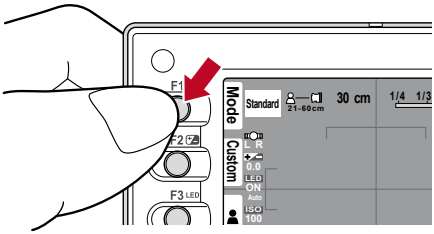
Back and side views

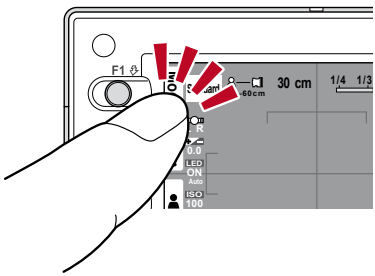


No.	Part name	No.	Part name
1	Function keys	4	SET key
	1a: F1	5	MENU key
	1b: F2	6	Speaker
	1c: F3	7	Liquid crystal display screen (touch panel)
	1d: F4	8	Card cover
2	Dial key	9	Video OUT connector
3	Strap mount	10	SD Card slot

Function keys

F1 – F4 keys are function keys which will change depending on the mode you select. They are displayed on the 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 the F1 key or the corresponding Mode tab on the LCD screen.

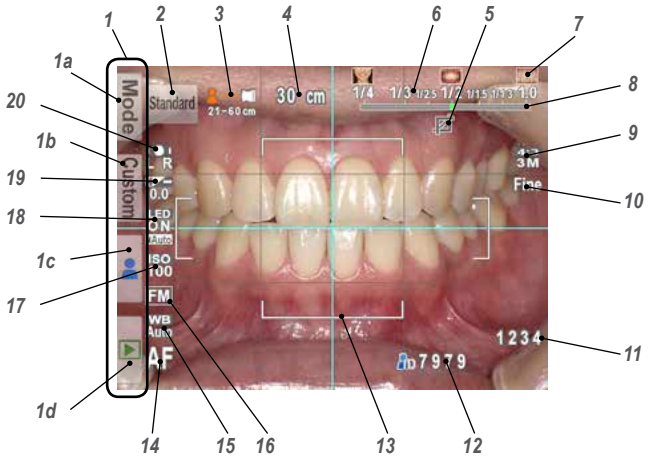




LCD screen indicator

Information displayed on the LCD screen for shooting mode and playback mode, respectively, is as follows.

Shooting mode

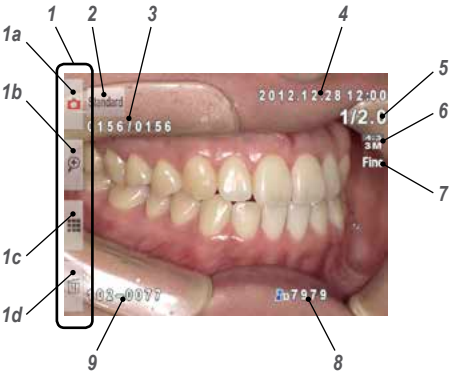


No.	Name	Reference	No.	Name	Reference
1	Function tabs		9	Image size	p. 38, 39
	1a: Preinstalled modes	p. 22	10	Image quality	p. 38, 39
	1b: Custom modes	p. 24	11	Storage capability	p. 15
	1c: Edit patient ID information	p. 20	12	Patient ID	p. 20-22
	1d: Playback mode	p. 31	13	AF frame	p. 27, 28
2	Active shooting mode	p. 22	14	Focus mode	p. 28
3	Estimated distance to target	p. 25	15	White balance	–
4	Optimal focus distance (before focusing) / Actual focus distance (after focusing)	p. 25, 27	16	AE mode	–
5	Auto cropping indicator	p. 29	17	ISO speed	p. 37
6	Magnification range	p. 25	18	LED light mode	p. 37
7	Illustration	p. 25	19	Brightness compensation	p. 37
8	Current magnification ratio	p. 25	20	Flash mode	p. 37

Other information might appear on the screen.

☞ *Refer to the "Advanced Manual", page 4 ("LCD screen indicator").*

Playback mode



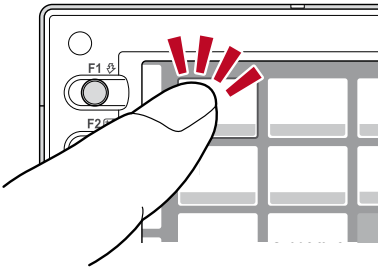
No.	Name	Reference
1	Function tabs 1a: Shooting mode 1b: Enlarge image 1c: Thumbnail index 1d: Erase image	 p. 22/23 p. 32 p. 32 p. 33
2	Selected shooting mode	p. 23
3	Picture No. / Total number of pictures taken	–
4	Date & time of the picture	–
5	Selected magnification ratio	p. 25
6	Image size	p. 38
7	Image quality	p. 38
8	Patient ID	p. 20 - 22
9	Register No. - File No.	–

Operation methods

There are two ways to operate this camera.

Direct screen touch

Touch a function tab you want to select.



Tips

Touch panel function of EyeSpecial C-III

Screen keys can be operated with or without gloves or by using the tip of a stylus. However, securely pressing with finger is recommended. Note that the screen does not respond to multi-touch or swipe motions.

Press keys

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

For the details of the function keys (F1 - F4), refer to page 8.

Getting started

Perform the following preparation before you start taking pictures.

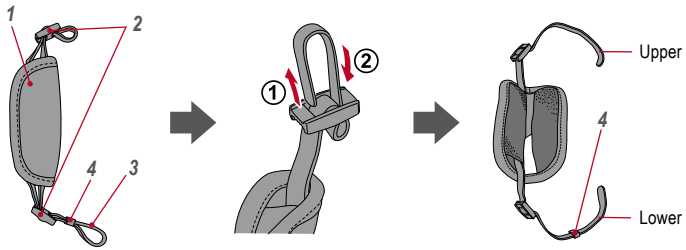
Attaching the hand strap

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.

⚠ ATTENTION

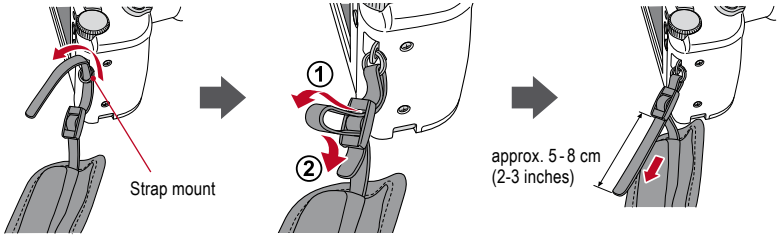
Always use the strap to avoid accidental dropping of the camera. This might cause injuries.

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

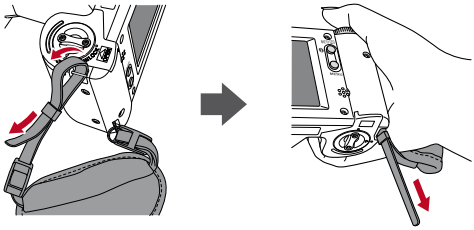


No.	Name	No.	Name
1	Flap	3	Belt
2	Slide adjuster	4	Retainer clip

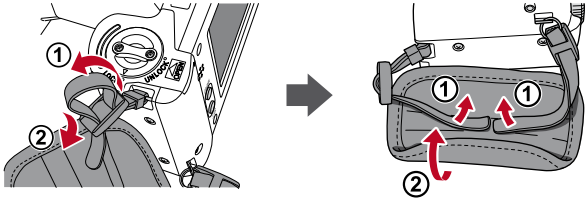
2 **Attach one end of the strap to the strap mount on the upper lateral side of the camera and adjust the belt length.**



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

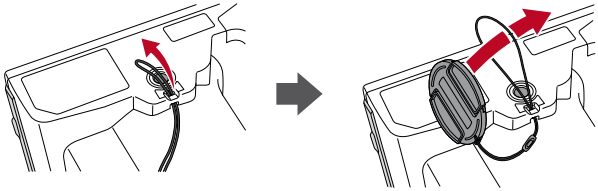


4 **Feed the strap end through the slide adjuster to fix.**
Insert the strap into the buckle as pictured below.



Attaching the lens cap strap (optional)

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

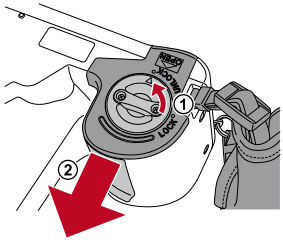


Info If you do not need the lens cap strap, cut it off with scissors etc.

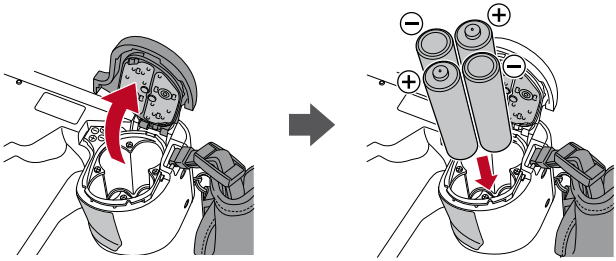
Installing batteries

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

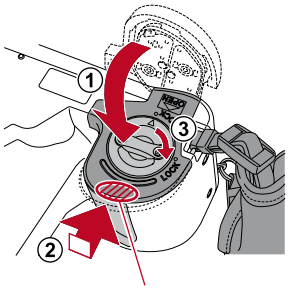
1 **Turn the lock lever to the position “UNLOCK”. Then, slide the battery cover to the front side of the camera.**



2 **Flip up the battery cover and insert 4 rechargeable AA nickel metal hydride batteries (NiMH) or alkaline batteries.**



3 **Close and slide back the battery cover to the original position and rotate the lock lever to the “LOCK” position.**



Slide back the battery cover while pressing here.

Note

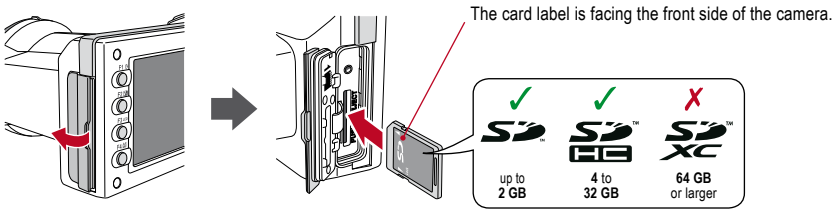
- **Make sure to rotate the lock lever to the “LOCK” position to avoid dropping the batteries.**
- **Use only nickel metal hydride batteries (NiMH) or alkaline batteries. Never use manganese batteries or nickel cadmium batteries.**
- **Never use batteries of different types or different manufacturers together or mix old and new batteries.**

Info

- Rechargeable nickel metal hydride batteries (NiMH) may be inert and consequently they might not supply power immediately after purchase or if they are left unused for a longer period of time. Recharge and discharge the batteries 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 longer 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 card cover and insert the SD memory card.**



Note

- **This camera is compatible with SD and SDHC memory cards but not with SDXC memory cards.**
- **Make sure the card is facing the right direction. Forcing the card may damage the camera or card.**

2 **Close the cover securely.**

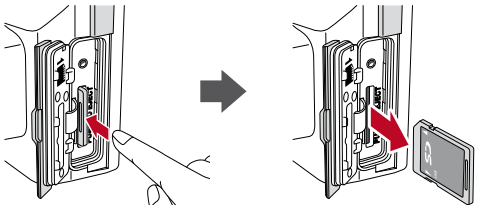
Tips

If you want to use the “SureFile” Software, your SD memory card must first be formatted by the EyeSpecial C-III camera.

see page 36 (“Transferring images to your computer”)

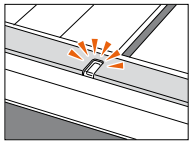
Removing SD memory card

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



Note

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.



Tips

● Storage capacities (number of pictures)

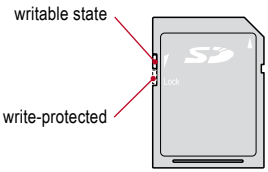
Approximately 350 shots can be taken on a fully charged rechargeable nickel metal hydride battery (NiMH; cell capacity 1,900 mAh).
Approximately 250 shots can be performed when using new alkaline batteries (based on in-house test results).
The numbers above are just rough estimates and your results may vary. Extensive operation of the camera settings or reviewing photographs may cause the number of shots to be reduced.

● Note for Wi-Fi SD memory cards

Use rechargeable nickel metal hydride batteries (NiMH) for the camera when using a Wi-Fi SD memory card. Alkaline batteries might not be able to supply enough energy to operate the camera properly. Also, Wi-Fi SD memory cards consume more energy to operate than regular memory cards. The number of pictures that can be taken and stored are less than the above mentioned number.

● Write-protection tab

The SD memory card has a write-protection tab. Slide down the tab to prevent valuable data from being accidentally erased from the memory card. To save, edit or erase data on a 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 4 GB SDHC memory card with a variety of conditions are shown below for your reference.

Image size → / Image quality	12 M (4:3)	10 M (3:2)	8 M (4:3)	7 M (3:2)	5 M (4:3)	4 M (3:2)	3 M (4:3)	3 M (3:2)	2 M (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**

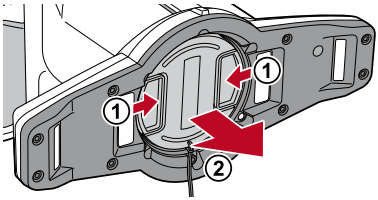
* Default setting
** Can take 9,999 shots or more.
The figures are just rough estimates.

Note

- **Even a large capacity SDHC memory card may not be able to store images up to its full memory.**
- **This camera can manage 65,000 images per memory card.**

Removing the lens cap

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



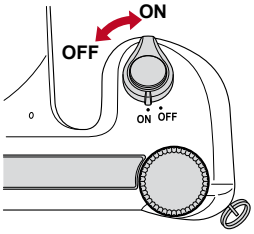
- Reattach the lens cap by pinching the notches.
- Always attach the cap when the camera is not in use.

Turning the camera on

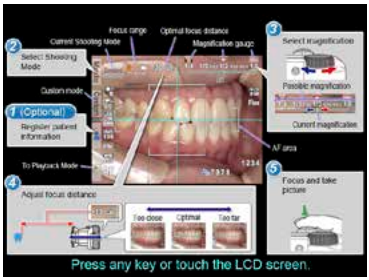
1 **Rotate the power switch to turn the camera on.**

- 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 the 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

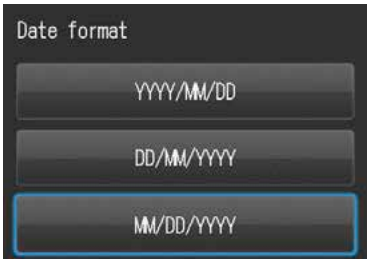
When you turn the camera on for the first time, you may need to set the language, date, time and units.

1 **Language selection**

Select one of the following languages:
Japanese, English, German or French.

2 **Choosing the display style**

Select one date format.

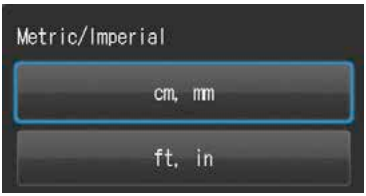


3 **Setting the date and time**

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.



Info 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.
The stand-by time for the power save mode can be changed in the setup menu.

☞ *see page 38 "Setup menu"*

● Energy supply to the SD memory card slot during power save mode

Energy is still supplied to the SD memory card slot while power save mode is on. When using a Wi-Fi SD memory card, data transfer continues even if the camera shifts to the power save mode.

● 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, switch off the camera and reactivate it by turning the power on. When the camera turns off with auto-power off, the entered non stored patient ID number and information is erased.

● 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 depleted" (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

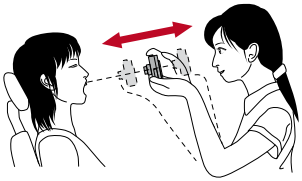
The EyeSpecial C-III sometimes does not respond to your command immediately when other operations are in progress; for example, immediately after you rotate the dial key to change the magnification ratio and then press the shutter half-way to focus or just after you´ve taken a picture etc.
For optimum performance wait until ongoing processes have concluded before operating.

2 Taking pictures

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

Before you start taking pictures

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



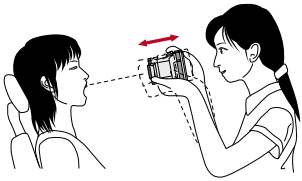
General digital camera

ADVANTAGES

- Can take photos at any distance.

DISADVANTAGES

- Cannot take clear pictures from close distances.
- The subject doesn’t always appear in the same size in the photos.
- Light distribution is uneven.



EyeSpecial C-III

ADVANTAGES

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

DISADVANTAGES

- Distance has to be within a limited range.

Procedure

1	Input of patient ID or photograph patient record (optional)	• Enter number • Scan QR code • Photograph patient record	see p. 20 see p. 21 see p. 22
2	Select shooting mode	• Preinstalled modes • Custom modes	see p. 22, 23 see p. 24
3	Select magnification ratio		see p. 25
4	Adjust focus distance		see p. 25, 26
5	Take picture		see p. 27

Input patient ID or photograph patient record (optional)

You can choose an image management method from the following 2 methods:

- Give patient information to each image.
- Photograph patient record.

This procedure is optional and can be skipped.

Press the F3 key or touch the tab in the shooting mode; the following message appears on the screen. You can enter a new patient number or edit and erase stored information.

… Enter number (maximum 10 digits including underscore, hyphen and space)

… Read patient's name and ID no. by scanning QR code

... Photograph patient record

... Confirm stored information

... Erase stored information

Enter number

When you select "Enter number", number keys appear on the display. You can enter maximum a 10 digits number (including underscore, hyphen and space when used).

Scanning QR code (feature only available in conjunction with special patient ID software)

The 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 the 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 shown on the right will appear on the screen. Press "OK" to store the information.

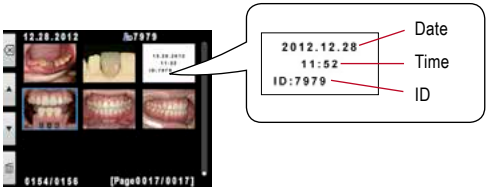
Tips

The 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 the 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 as shown below is created.



Photograph patient record

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

☞ *Refer to the "Advanced Manual", page 19 ("Photograph patient´s record").*

Confirm / erase patient information

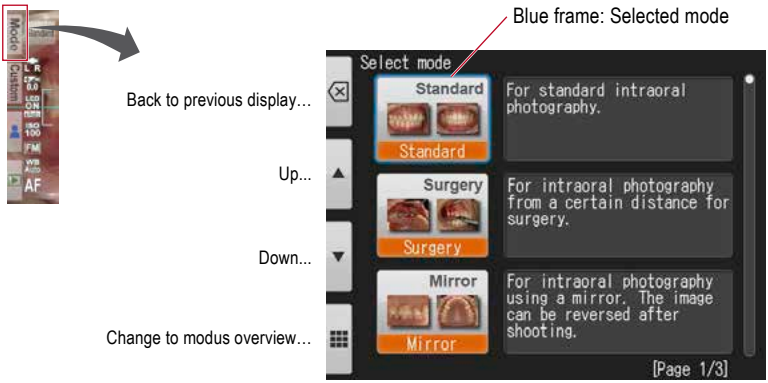
Select "Confirm information" to display the patient's ID number along with his/her name.
The patient's name is displayed only when a QR code is scanned to register the patient's information. It can´t be entered manually.

To erase data, select "Erase information" and press "OK".

Select shooting mode

Preinstalled modes

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



Shooting modes

Mode	Intended use	Explanation
Standard	For standard intraoral photography	Basic mode for dentistry.
Surgery	For intraoral photography from a distance	You can take photos from a greater distance than in Standard mode. This mode is optimal for surgery, when you do not wish to put the camera close to the subject.
Mirror	For intraoral photography using a mirror	Afterwards the image can be reversed along the vertical or horizontal axis.
Face	For shooting facial views or half-body portraits	Hold the camera vertically as indicated by the " ▲ UP" mark. (Auto cropping is not available in this mode.)
Low glare	For taking detailed pictures 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	Optimal for shade comparison before and after whitening / bleaching	Similar conditions to the Low glare mode but with lower light intensity, which reduces glare and emphasizes the surface texture and shade of the teeth.
Tele macro	For taking photos of anterior teeth, indirect restorations and working models	The outside flash enables photography with a higher magnification rate. Close-up lens must be mounted.
Isolate shade	You can isolate the shade of the gingiva for optimal shade taking.	Two images are automatically created in this mode; an image taken in Low glare mode + another image, in which the tooth colour is natural while deemphasizing the background, in order to minimize the deception of visual shade evaluation.

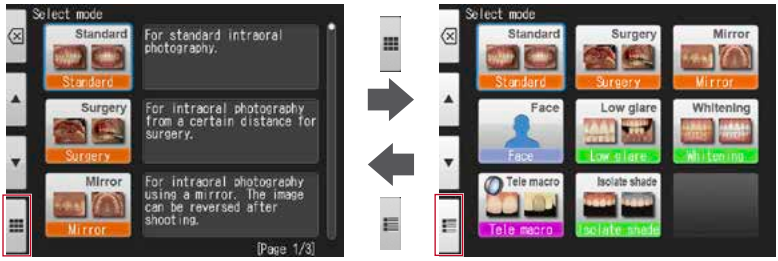
Note

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 discoloured.

Tips

Change mode display

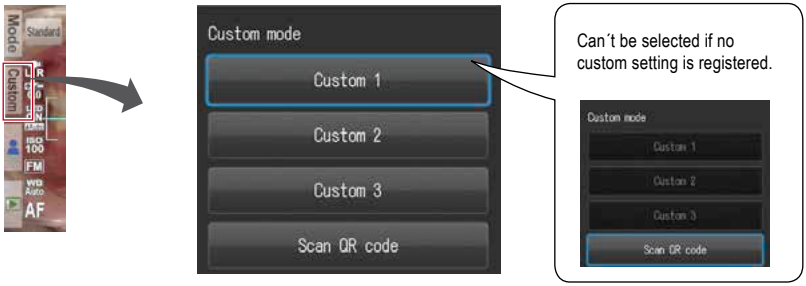
There are two different ways of displaying the modes: mode list and mode details. Press the F4 key (/) to alternate between them.



Mode details Mode list

Custom modes

Preinstalled camera settings can be changed and registered as custom modes for future use. When pressing Custom or the F2 key in the shooting mode, three custom settings appear on the screen.



Scanning QR code

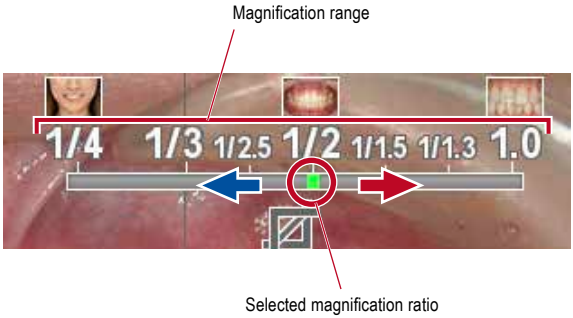
Camera settings can be changed all at once by scanning a QR code (exclusive for this camera).

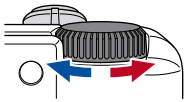
☞ *See page 44 “QR codes for custom presets” in this User’s Manual.*

☞ *Refer to the “Advanced Manual”, page 22 (“Custom mode”) and page 23 (“Scan QR Code”).*

Select magnification ratio

Determine the magnification ratio by rotating the dial key.





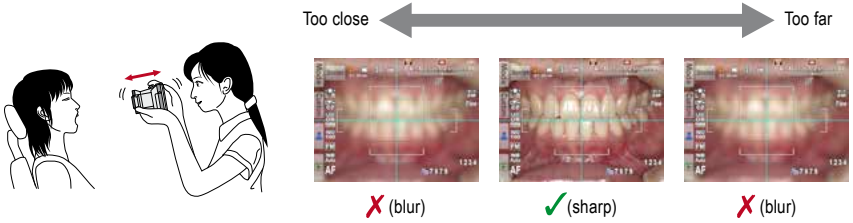
☞ *Refer to the "Advanced Manual", page 25 ("Select magnification").*

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.**

The optimal focus distance varies depending on the magnification selected.

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

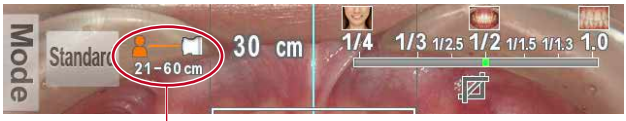


Note **Do not press the shutter button until the distance is determined.**

Tips

● Focus distance

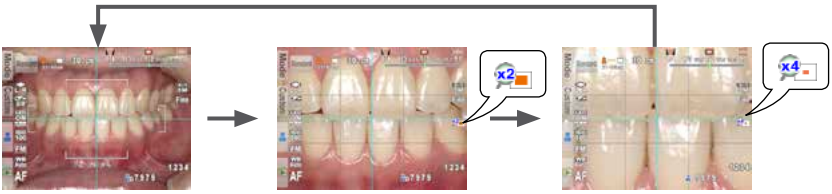
Even if the actual focus distance is outside the optimal focus distance, you can take a picture as long as it's within the possible distance range.



possible distance range

● Magnification of the image to be recorded

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.



Original x2 x4

Focus and take picture

Tips

When the flash mode icon is displayed, the flash is being charged. You cannot take photos until it is fully charged. (Flash charging takes longer, if the batteries haven´t been used for a longer period of time.)

1 **Half-press the shutter to focus.**

Set the focus within the AF frame. When the focus is properly determined, the following four types of information are displayed:

1 Actual distance from the subject when focused properly

28.5 cm (Green): Within the possible distance range

62.8 cm (Red): Out of the possible distance range (Check the distance)

2 Auto cropping indicator

(Green): Auto cropping in range

(Red): Auto cropping out of range (Check the distance)

3 Magnification ratio

1/2.0 (Green): Magnification in range

1/2.3 (Red): Magnification out of range (Check the distance to the target)

4 Focus indicator

(Green): In focus

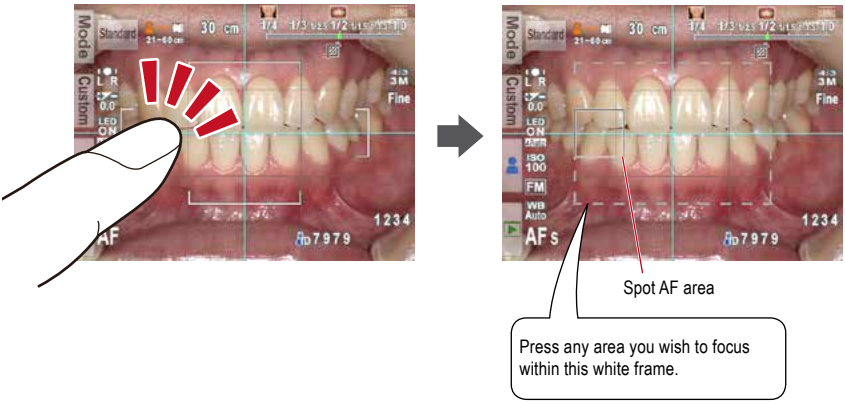
(Red): Out of focus (Check the distance or if the subject can be focused appropriately)

When all indicators are green, you can take photos with all settings valid. However, you can still take photos even if all indicators other than focus are red.

Tips

Spot Auto-focus

When touching the LCD screen around the center (while in 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.



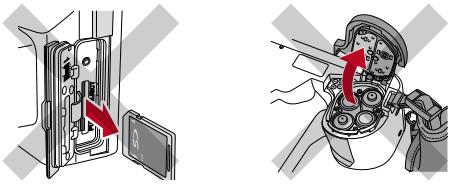
☞ *Refer to the "Advanced Manual", page 62 ("Focus mode") and page 71 ("Shortcut function in shooting mode").*

2 After focusing, press the shutter button completely down to take the picture.

- After taking a picture, the image will automatically display on the LCD screen for about 2 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 SET.

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 to avoid losing data.



Tips

Auto cropping

The auto cropping function crops the images automatically based on the selected magnification ratio. Due to this function, the picture can still be taken at the magnification ratio you selected, even if the subject is out of the optimal focus distance.
If the subject is within the focus distance, auto cropping might not work if the camera is positioned too far from the subject.

(Auto cropping function is not available for Face mode and Tele macro mode.)

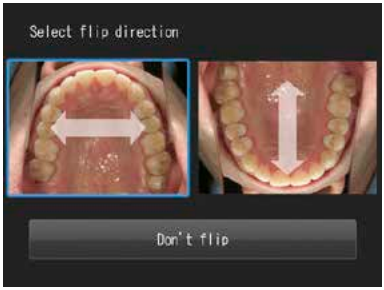
The distance indicator is a reference for your convenience only. For optimal photo quality and the image size you desire, it is always recommended to maintain the optimal distance indicated.

☞ *Refer to the "Advanced Manual", page 30 ("Auto cropping").*

Special functions of shooting modes

- **Mirror mode**

  When you have taken a picture in Mirror mode, the image can be flipped vertically or horizontally afterwards as shown in the message display.



Info

- This message does not appear when you set the flip direction in the setup menu in advance.
- You can also flip the image in Surgery mode and Tele macro mode.

☞ *Refer to the "Advanced Manual", page 68 ("Flip direction").*

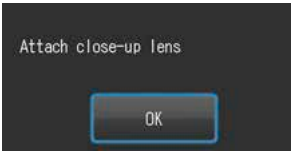
- **Face mode**

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

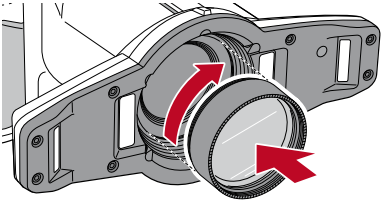
- **Tele macro mode**

  When selecting Tele macro mode, "Attach 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 securely attached.**



Note **Use the close-up lens only for Tele macro mode.**

3 Playback

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

Viewing your image

Single frame playback

Press the F4 key in shooting mode to change to playback mode. The last image taken is displayed.

Return to shooting mode…

Enlarge image…

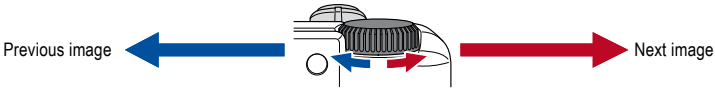
Thumbnail images…

Erase data…

Playback mode

Reviewing other images

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



Magnifying images

- To magnify the image, press the F2 key in playback mode. Maximum magnification is at 6x. Press the F3 key to reduce the size of the picture. Press F1 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 the F3 key to view thumbnail images. Nine images are displayed simultaneously. In order to display a single view, select an image by moving the cursor with the dial key or using the ▲ or ▼ keys and then press the SET SET key. You can also select the image by touching it directly on the screen.

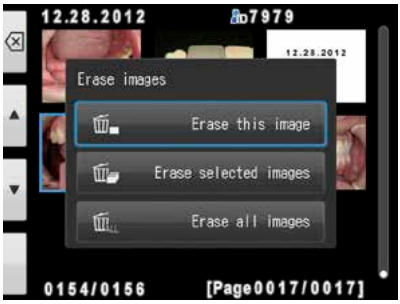
Erasing images

Erasing the displayed image

Select playback mode and press the F4 key to erase the displayed picture.
The message “Erase this image?” appears on the display. Press “OK” to erase it.

Erase selected multiple images simultaneously

You can erase multiple images simultaneously by selecting them from the thumbnail display. Press the F4 key and this message appears.



- **Erase this image**

  The blue framed image will be erased.

- **Erase selected images**

  Select the images you wish to erase by directly touching the images on the screen or pressing SET SET. After you´ve finished selecting the images, press the OK F4 key. Press “OK” to erase the selected images.

- **Erase all images**

  All images stored on the SD memory card will be erased.

Finish selecting

The selected images are marked with a trash icon.

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

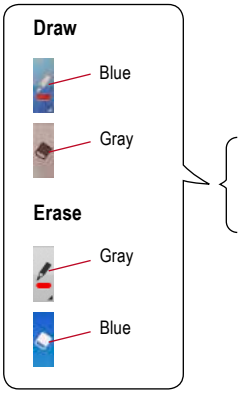
Edit images

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

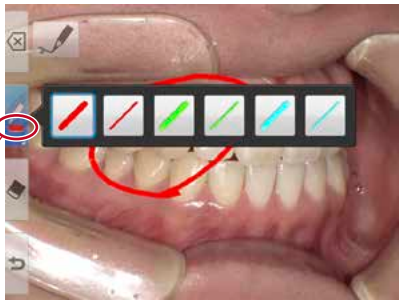
Draw on images (paint function)

When “Draw” is selected, you can draw lines on the recorded images.

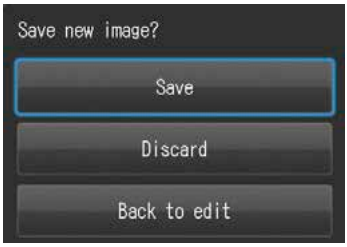
- Press F2 to draw lines and F3 to erase them.



- Press F4 to undo the previous actions (maximum 5 previous actions).
- Press F2 again to change the line colour and boldness (three colours, two boldnesses).



- When finished editing, press the F1 key. Select “Save” to save the edited image (the original image is also stored separately).



Rotate images

The images can be rotated by 90 degrees.

- Press F2 to rotate the image clockwise or F3 to rotate counter-clockwise.
- Press F1 to finish rotation. Select “Save rotated image” to save the image.

Info

Some computer software 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 the software, not by any defects of the camera.

Protect images

Protect the image to avoid accidental deletion or unintended editing.

☞ *Refer to the “Advanced Manual”, page 57 (“Protect images”).*

4 Transferring images to your computer

For simplified image management, SHOFU has created a proprietary file management software called “SureFile”. To download this free software or for more information please visit www.shofu.co.jp/eyespecial/en/surefile.html.

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

To use SureFile, your SD memory card must first be formatted by the EyeSpecial C-III camera.

How to format SD memory cards

1. Insert your SD memory card into the card slot
2. Press the MENU MENU key
3. Press the F4 key
4. Select tab 5
5. Select “Format SD card”

Note

- **When formatting your SD memory card, all images including the protected ones are erased. Back-up the data you wish to keep before formatting.**
- **SD memory cards formatted by your PC or another device will store images properly, but will not work with SureFile.**
- **Wi-Fi memory cards should not be formatted by the EyeSpecial C-III to avoid damaging the card. To transfer data via Wi-Fi the card doesn´t need to be formatted by this camera.**

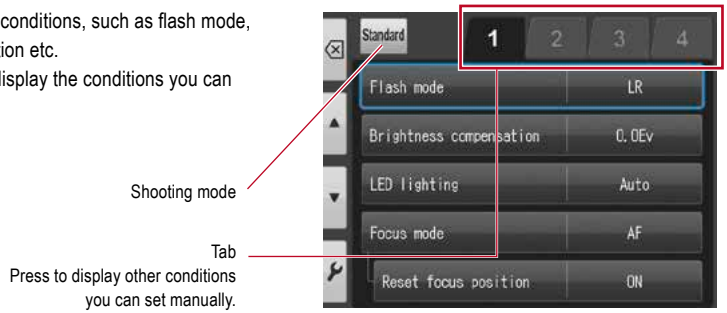
5 Menus

The EyeSpecial C-III has a total of three menus: shooting mode menu, playback mode menu and setup menu. This chapter gives you an outline of these menus.

☞ *Refer to the "Advanced Manual", page 60 ("Menus").*

Shooting mode menu

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



Items	Explanation
Tab 1	
Flash mode	To select flash mode (right & left / right / left)
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 the focus mode
Reset focus position	To turn the function "Reset focus position" on or off
Tab 2	
Dial function	To change the dial function from "magnification" to "focal length"
Auto cropping	To turn the auto cropping function on or off
Focusing screen	To change the grid type
ISO	To adjust the ISO speed
AE mode	To change the AE mode
Tab 3	
White balance	To adjust the white balance
Hue adjustment	To adjust the hue
Contrast	To adjust the colour contrast
Sharpness	To adjust the image sharpness
Tab 4	
Camera position	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

Playback mode menu

You can edit the stored images (draw lines and rotate).
Press MENU MENU in the playback mode.

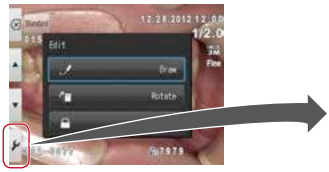
Items	Explanation
Draw	To draw lines on the images
Rotate	To rotate the image by 90 degrees
Protect	To protect the images to avoid accidental deletion or unintended editing

☞ *For more details, refer to page 34 “Edit images” and page 35 “Protect images” in this User’s Manual.*

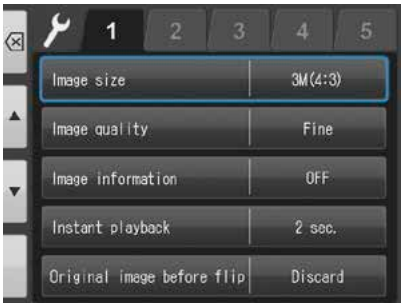
Setup menu

Basic settings including the image size and turning on / off the key sound etc. can be changed.
Press the F4 key to display the setup menu on shooting mode or playback mode.

Shooting mode menu



Playback mode menu



Setup menu

Items	Explanation
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 and time To select display type of date and time
Language	To change the language of the display menus and screen messages
Metric / Imperial	To change the measurement unit for 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 file number memory function on or off
Reset	To reset the file number from the next image taken
Folder name	To change the folder format
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 focussing 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 and white balance of the flash lights
Touch panel calibration	To adjust the response range of the touch panel
Format SD card	To format the SD memory card

6 Notes on use

Operating temperature

- Recommended temperature to use and store this camera is between 0 °C and 40 °C.
- Do not expose the camera or batteries to extreme temperatures or high humidity.
- Avoid exposing to extreme temperature changes to prevent condensation from forming inside the camera. Before taking the camera from a cold to a warm environment, 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 removing it 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 back-up data on another volume (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 turned 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 recorded data will be erased. Make sure to back-up important data before.
- Once the memory card has reached its limit of read / writes, you will not be able to use it anymore. Please replace the card by a new one.
- Avoid using the camera 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 by a new one.
- Do not touch the electrical contacts 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 pixels is more than 99.99%, there may be white, black or red pixels 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, immediately after switching on the camera the screen may appear darker compared to a normal temperated 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 it with a soft, dry cloth.

Degradation of image quality

- The image quality is not degraded even if the camera has been in normal use for a few years. However, if you try to take photos of the sun and the image sensor is exposed to intense light or if too many photos are taken, the image quality might be degraded. Please contact your SHOFU dealer for maintenance and repair.

Water and chemical resistance

- The EyeSpecial C-III is IPX4 water resistant. This means that it can withstand 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 cards 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.

Flash calibration

You might need to calibrate the light intensity and white balance of the flash lights from time to time.
When you take many photos, the light intensity might decrease or the colour temperature might slightly change.
Please adjust the light intensity and white balance with the SHOFU gray card provided. The complete calibration takes about 10 minutes.

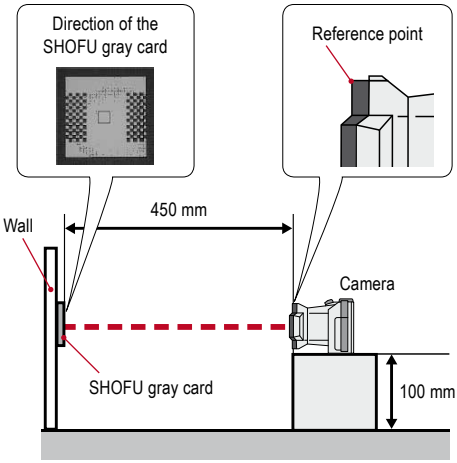
How to perform the calibration

Please prepare the following items:

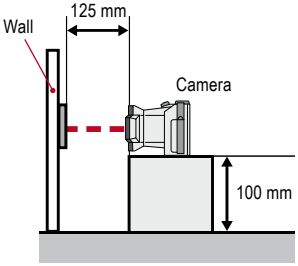
- SHOFU gray card (provided)
- Ruler or measuring tape (50 cm)
- Small table (height 10 cm) to place the camera

Place the camera and the SHOFU gray card as shown below.

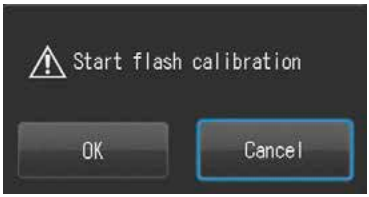
To calibrate the inside flash



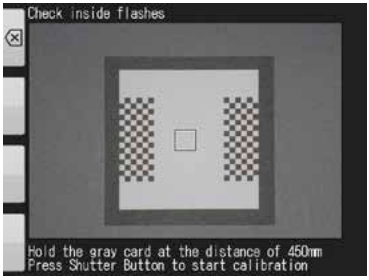
To calibrate the outside flash



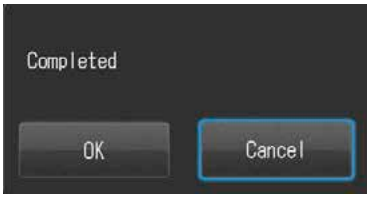
1 When you select “Flash calibration” in the setup menu (tab 5), the message pictured right appears on the screen. Press “OK” to start the calibration.



2 Perform the calibration following the instructions appearing on the screen.



3 When the calibration is completed properly, this message appears.
Press “OK” to store the calibration result or press “Cancel” to discard it.



Note

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

☞ *Refer to the “Advanced Manual”, page 83 (“Flash calibration”).*

QR codes for custom settings

Following are 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 models.	Brightness compensation is -0.7 Ev with other settings based on the Standard mode.
	Stone model (small)	For photographing small stone models such as abutment models.	Brightness compensation is -0.7 Ev with other settings based on the Low glare mode.
	Surgery mode using a mirror	When using a mirror in Surgery mode.	Brightness compensation is +0.7 Ev with other settings based on the Surgery mode. Afterwards the image can be reversed along the vertical or horizontal axis.
	X-ray capture	When photographing X-ray photos on a X-ray film viewer.	Basic settings are the same as Face mode but the focus is set manually and the flash and LED lights are turned off.

7 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 it off with your 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 in a circular motion with a soft cloth or lens tissue moistened with lens cleaner. 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 longer time, store it in a hermetic container. The placing of some desiccant in the container is recommended.
- Before storing the camera when not in use for a longer 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.

8 Troubleshooting

Camera problems

Trouble	Cause	Measure	Ref.
Cannot take pictures or cannot playback the images	Batteries are exhausted.	Replace the old batteries with new ones.	p. 13
	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. 18
Cannot focus even if the shutter is half-pressed.	Manual focus is selected.	Change the focus mode to Auto-focus Standard or Auto-focus Spot.	p. 37
	Focus distance is outside the recommendation.	Take a photo within the limit of focus distance.	p. 26
“No memory Card” appears even if the memory card is in place.	The memory card is damaged.	Replace the defective card with a 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. 27
Colour fidelity and brightness of the photos are poor (when viewed on the PC or printed out)	Flash lamps have been aging so light intensity and colour temperature are decreasing.	Perform flash calibration.	p. 42
	Monitor setting is not optimal. The images taken with this camera are designed to present optimal colour fidelity when they are viewed on sRGB, whose colour temperature is 6,500k with 2.2 gamma.	For more details, refer to a specialized book in colour 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.		–
Even after installing new batteries, the message “Battery depleted” appears.	Wi-Fi SD memory card is inserted into the camera, while powering with alkaline batteries.	Since Wi-Fi SD memory cards consume more energy to operate than regular memory cards, energy insufficiency causes this error. Only use rechargeable nickel metal hydride batteries (NiMH) batteries when using Wi-Fi SD memory cards.	p. 15
Batteries drain too quickly	The camera is used in a cold area or batteries are too cold. Generally, the lower the temperature, the quicker the batteries drain.	Use the camera in a warmer area.	–
	When using rechargeable batteries, they might have outlived their usefulness.	Replace the old batteries with new ones.	–

Trouble	Cause	Measure	Ref.
Even though you inserted a SD memory card into your computer, images can´t be transferred via SureFile.	SureFile recognizes and transfers images only when the SD memory card was formatted with the EyeSpecial C-III.	Format SD memory cards with the EyeSpecial C-III before using SureFile. (Back-up the data you wish to store before formatting the SD memory card.)	p. 36
“Memory card full” appears even though you haven´t stored that many images on the SD memory card.	SD memory card is occupied with files other than JPEG format (such as document files or back-up files) and does not have sufficient space to store new images.	Erase all files other than JPEG format.	–
	A folder numbered “999” exists, which was created by a camera other than the EyeSpecial C-III.	Format the SD memory card. (Back-up the data you wish to store before formatting the SD memory card.)	–
No photo is taken after pressing the shutter button.	Flash has not been fully charged yet.	Flash charging takes longer, if the batteries haven´t been used for a longer period of time. Wait until the flash mode icon disappears.	–
When inserting a Wi-Fi SD memory card, “Incompatible memory card” appears on the display.	When inserting a Wi-Fi SD memory card after the camera has been switched on, sometimes initialization might fail and this message appears.	Remove the card from the camera and insert it again. If the error appears again, switch off the camera. Now, first reinsert the Wi-Fi SD memory card and then switch on the camera.	–

Error messages

Message	Cause	Measure	Ref.
Battery depleted	Batteries are dead.	Replace the old batteries with new ones.	p. 13
Focus distance error	The camera is positioned far outside the focus distance range.	Take the photo from within the focus distance range displayed on the screen.	p. 25
No memory card	There is no card in the camera.	Insert a SD memory card.	p. 14
Invalid image size	The image is too big to be display.	Check the maximum image size that can be displayed on the screen.	p. 38
Invalid image format	The image is not a JPEG file.	Only JPEG images can be displayed. Even if taken in JPEG format, some images might not be able to be displayed if they were edited on a computer or taken with a digital camera other than the EyeSpecial C-III.	–
Memory card full	The card storage is full.	Reduce the image size and image quality.	p. 15
		Erase some images.	p. 33
		Replace the full memory card with another memory card with sufficient storage capacity remaining.	p. 14
All file numbers used	Too many files are stored on the SD card. This camera can manage approximately 65,000 images per memory card.	Erase some images.	p. 33
		Replace the full memory card with another memory card with sufficient storage capacity remaining.	p. 14
Memory card locked	SD memory card is protected.	Slide up the write-protection tab.	p. 15
No image	No image is stored on the SD memory card.	Replace the empty card with a recorded one, or take new photos to record.	p. 14
Cannot read file	The image file is damaged.	Cannot read the damaged JPEG files.	p. 40
Incompatible memory card	Incorrect / unsupported SD memory card is being used.	Compatible memory cards are SD or SDHC Card. SDXC cards are currently not supported.	p.14
	Following factors are considered • File system was changed by formatting the SD memory card using a computer. • Formatted in different camera or other devices Format the SD memory card following the instructions displayed on the LCD screen of the camera. All recorded images are erased when formatting the SD card. Back-up the necessary files by transferring pictures to your computer. It might also be considered that the SD memory card is defective. Please try another card if you have one.		p. 40
File system error	SD card system error has been found.	Format the SD memory card following the instructions displayed on the LCD screen of the camera. It might also be possible that the SD card is defective. Please try another card if you have one.	p. 40
WB unadjusted	Something other than the provided SHOFU gray card was photographed when white balance was manually set.	Use the provided SHOFU gray card.	p. 37

Frequently asked questions

Question	Answer
How long is the battery life?	Refer to “Tips: Storage capacities (number of pictures)” (p. 15)
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´t 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%).

9 Specifications

Sensor	Type	CMOS sensor
	Size	1/1.7 inch
	Total pixels	Approx. 12 million (4,163 x 3,062)
	Number of effective pixels	Approx. 12 million (4,000 x 3,000)
	Camera sensitivity	ISO 100 to 400
Lens	Focal length (35 mm equivalent)	28 - 300 mm
	Maximum aperture	Wide: 2.83 - 7.99 / Tele: 2.85 - 11.44
	Zooming method	Optical zoom + digital zoom
	Digital zoom	From x1.05 [1/0.95] to x2 [1/0.5] in 10 steps
Autofocus	Method	Contrast autofocus
	AF area	Center-weighted / Spot
	Focus mode	Single shot autofocus and manual focus by adjusting the distance
	AF assist light	4 white LED lights
Automatic Exposure	Method	TTL (through the lens) metering / FlashMatic (patented) light control
	AE area	Center-weighted / Spot / Standard
	Shutter release	Electronic & mechanical shutter release
	Shutter speed	1/15 to 1/1,000 sec., automatic change
Image storage	Storage media	SD / SDHC card (max. 32 GB)
	File format	JPEG
	SD card record format	DCF (standard / date)
	Image size	12M / 8M / 5M / 3.2M / 2M / VGA / 10.6M / 7.1M / 4.3M / 2.8M
	Image quality	Extra fine / fine / standard
	ExifTag information	In accordance with Exif 2.21 and DCF standard
	Information imprinting	• Date + shooting conditions + patient information • Date + shooting conditions • Date
Camera	Power supply	4 Alkaline AA batteries / 4 nickel metal hydride batteries (NiMH)
	Battery for built-in clock	SR44 (cannot be replaced by user)
	External power supply	–
	Power save function	1 / 2 / 3 / 5 min
	Dimensions	W 176 x H 80 x D 125 mm (accessories not included)
	Weight	Approx. 590 g (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 resistance	Complying with IPX4
	Chemical resistance	Ethanol disinfection

☞ *Refer to the "Advanced Manual", page 93 ("Specifications").*

10 Accessories

Name	Quantity	Note
EyeSpecial C-III camera	1	–
Lens cap	1	Mounted on the camera body
Hand strap	1	–
Alkaline AA battery	4	–
Video cable	1	–
SDHC memory card	1	4 GB
SHOFU gray card	1	–
Close-up lens	1	AC close-up lens No.5, diameter: 49 mm
Important safety instructions	1	–
User's manual (this document)	1	–
Quick Reference	1	–
Warranty	1	–

11 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 (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 memory card and SHOFU gray card are consumables and will not be covered by the warranty.

Manufacturer
SHOFU INC. 11 Kamitakamatsu-cho, Fukuine, Higashiyama-ku, Kyoto 605-0983, Japan

SHOFU DENTAL ASIA-PACIFIC PTE. LTD. 10 Science Park Road, #03-12, The Alpha, Science Park II, Singapore 117684
SHOFU DENTAL CORPORATION 1225 Stone Drive, San Marcos, California 92078-4059, USA
SHOFU UK Riverside House, River Lawn Road, Tonbridge, Kent, TN9 1EP, UK
SHOFU DENTAL TRADING (SHANGHAI) CO., LTD. No. 645 Jiye Road, Sheshan Industrial Park, Songjiang, Shanghai 201602, China
EC REP **SHOFU DENTAL GmbH** Am Brüll 17, 40878 Ratingen, Germany (www.shofu.de)

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