

# D300

## *User's manual*



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# About this IR Camera User Guide

## *Symbols Used*



This mark denotes issues that may affect the IR camera's operation.



This mark denotes additional topics that complement the basic operation procedures.

### ■ What do the icons listed in the Camera User Guide mean?

Information displayed on the LCD Monitor (p.13)

# Thumb Index

Introduction of camera components.

Preparing the  
IR Camera

Describes basic functions, learning how to turn on/off the IR camera and work with the control panel and LCD monitor.

Basic function

Describes working with the camera, from each analysis settings to using the camera's various analysis tools.

Shooting

Explains how to review recorded images, erase images and playback voice memos.

Playback and  
erase

Explains how to transfer images or video to a computer.

Connection  
and download

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**You must read this section before connecting your camera to a computer.**

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# Read This First

**Please Read**

## Test Shots

Before you try to shoot important subjects, we highly recommend that you shoot several trial images to confirm that the IR camera is operating and being operated correctly.

Please note that SATIR, its subsidiaries and affiliates, and its distributors are not liable for any consequential damages arising from any malfunction of an IR camera or accessory that results in the failure of an image to be recorded or to be recorded in a format that is machine readable.

## Warning Against Copyright Infringement



## Safety Precautions

Before using the camera, please ensure that you read and understand the safety precautions described below. Always ensure that the IR camera is operated correctly.

The safety precautions noted on the following pages are intended to instruct you in the safe and correct operation of the IR camera and its accessories to prevent injuries or damage to yourself, other persons and equipment.



# Warnings

Read on to learn about using IR camera properly.

## Avoid damaging eyesight

**Warning:** Do not trigger the laser pointer in human or animal eyes. Exposure to the laser produced by the laser pointer may damage eyesight.

## Do not disassemble

Do not attempt to disassemble or alter any part of the equipment that is not expressly described this guide.

## Stop operating immediately if it emits smoke or noxious fumes

Failure to do so may result in fire or electrical shock. Immediately turn the IR camera's power off, Unplug the power cord from the power outlet. Confirm that smoke and fume emissions have ceased.

## Stop operating immediately if it is dropped or the casing is damaged

Failure to do so may result in fire or electrical shock. Immediately turn the IR camera's power off, Unplug the power cord from the power outlet.

**Do not use substances containing alcohol, benzene, thinners or other flammable substances to clean or maintain the IR camera**

The use of these substances may lead to fire.

**Remove the power cord on a regular periodic basis and wipe away the dust and dirt that collects on the plug, the exterior of the power outlet and the surrounding area**

In dust, humid or greasy environments, the dust that collects around the plug over long periods of time may become saturated with humidity and short-circuit, leading to fire.

**Do not handle the power cord if your hands are wet**

Handling it with wet hands may lead to electrical shock. When unplugging the cord, ensure that you hold the solid portion of the plug. Pulling on the flexible portion of the cord may damage or expose the wire and insulation, creating the potential for fires and electrical shocks.

**Do not cut, alter or place heavy items on the power adapter cord**

Any of these actions may cause an electrical short circuit, which may lead to fire or electrical shock.

**Use only the recommended power accessories**

Use of power sources not expressly recommended for this IR camera may lead to overheating, distortion of the IR camera, fire, electrical shock or other hazards.

## **Use only recommended accessories**

**Disconnect the compact power adapter from both the IR camera and power outlet after recharging and when the IR camera is not in use to avoid fires and other hazards**

Continuous use over a long period of time may cause the unit to overheat and distort, resulting in fire.

**Exercise due caution when screwing on the separately sold tele-lens, close-up lens**

If the lens is loosened and fallen off, the glass shards may cause an injury.

**If your camera is used for prolong periods, the IR camera body may become warm**

Please take care when operating the IR camera for an extended period as your hands may experience a burning sensation.

# Prevent Malfunction

Read on to learn about preventing malfunction of IR camera.

## Avoid damaging the detector of the IR camera

**Warning:** Do not aim the IR camera directly into the sun or at other intense heat source which could damage the detector of the IR camera.

## Avoid Condensation Related Problems

Moving the IR camera rapidly between hot and cold temperatures may cause condensation (water droplets) on its external and internal surfaces.

You can avoid this by placing the IR camera in the plastic case (bundle) and letting it adjust to temperature changes slowly before removing it from the case.

## If Condensation Forms Inside the IR Camera

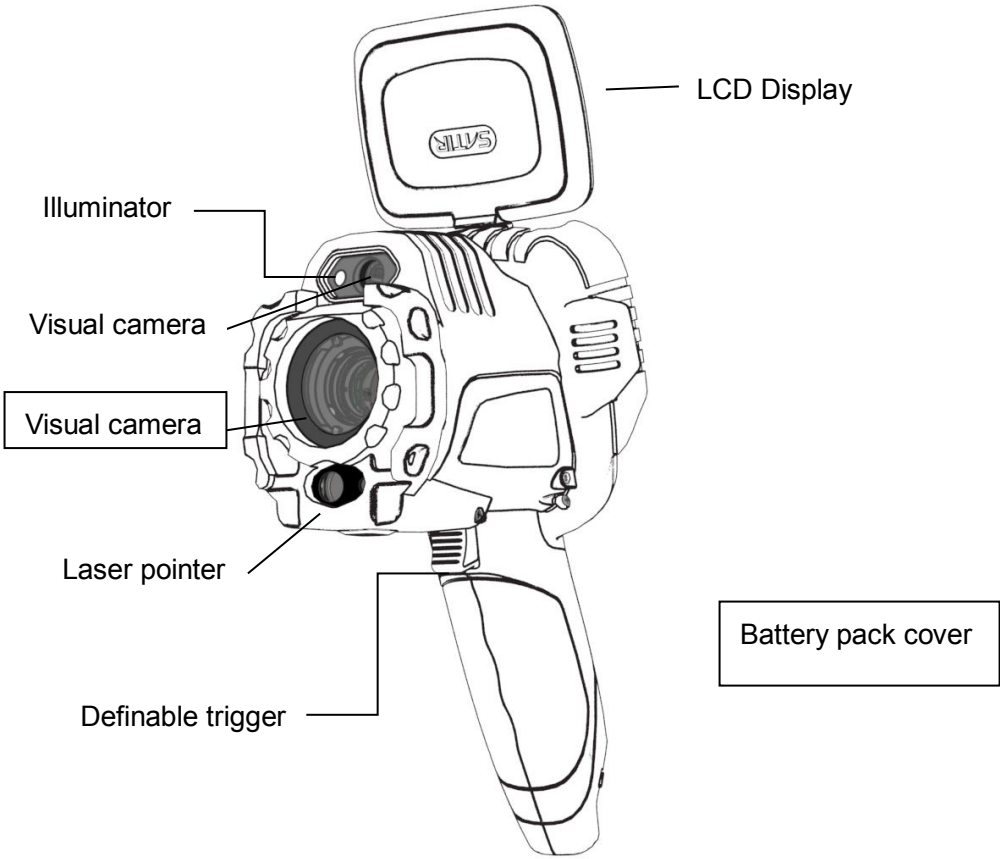
Stop using the camera immediately if you detect condensation. Continue to use may damage the IR camera. Remove the PC card, and a household power source, from the IR camera and wait until moisture evaporates completely before resuming use.

## Right Reserved

SATIR reserves the right to change the functions and configurations of our products without prior notice.

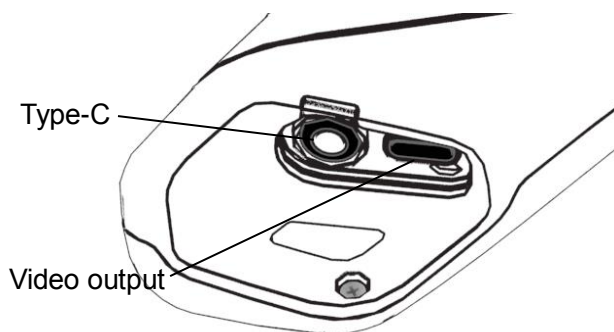
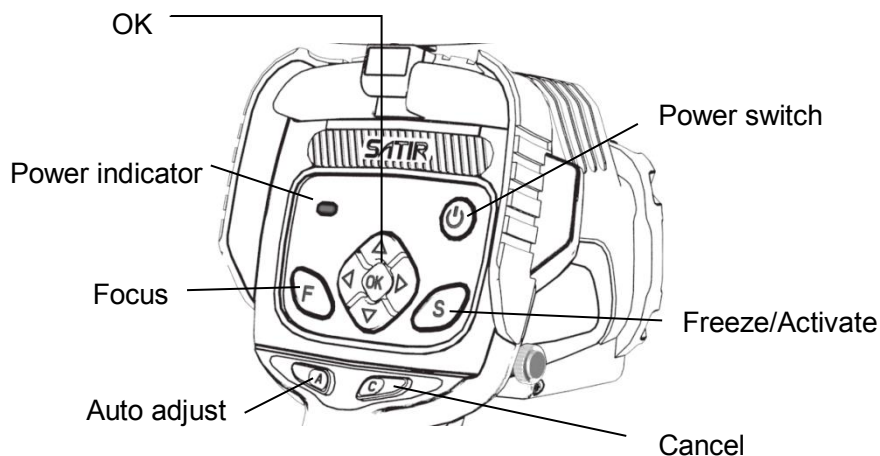
# Component Guide

## Front View



# Component Guide

## Back /Bottom View







# Preparing the IR Camera

## Charging the Device

Device has built in battery, when Low battery status symbols display in LCD, Please follow the steps below to charge the device

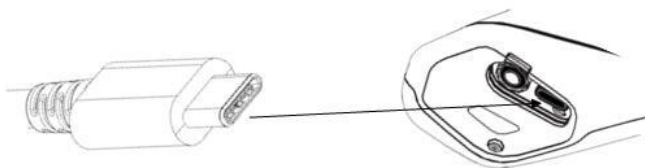
### Battery Status Symbols

The following icons indicate the battery status on the LCD display.

		<b>Sufficient battery charge</b>
		<b>Low battery</b>
		<b>Recharge the device</b>

### How to charge device

Using the recommended charger straight to recharge the machine. The charger is connected to the USB port on the side of the camera body USB connector and the other end of the charger into an electrical outlet



# Preparing the IR Camera

## Turning the Power On / Off

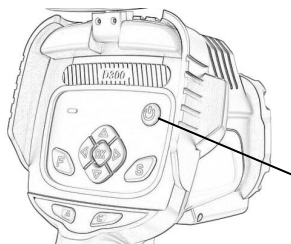
The power indicator is lit while the power of the camera is on.

**1**



**Holding the camera correctly with your right hand, put your thumb above the key pad and put your forefinger in front of the definable trigger.**

**2**



Power switch

**Press and hold the power switch for 3 seconds.**



---

**3**



**After a while, a startup image will appear on the screen.**

---

**4 Turn off the camera.**

Hold the power switch for 3 seconds.

- The power indicator goes off.

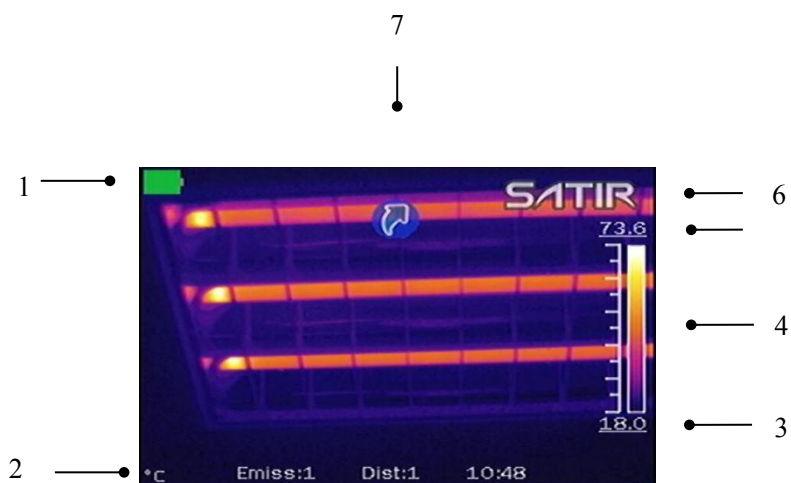
# Preparing the IR Camera

## Checking the Information on the LCD Monitor

The LCD monitor has a field of vision of 100% of the actual shooting image.

The following displays in information view.

Main interface



Explanation:

1	Power display
2	Temperature unit; Emissivity; Distance; Time
3	Span(Click to modify)
4	Color scale
5	Level(Click to modify)
6	SATIR trademark(Click to bring up the main menu)
7	Quick launcher (Click to bring up the shortcut menu)

# Preparing the IR Camera


## Setting the date and time

You need to set the Data / Time when the IR camera is turned on for the first time.

**1**


Press the [C] key or click the  icon.

**2**

Press the **DOWN** arrow on the omni selector to select the  [Settings] menu and press **OK** key.



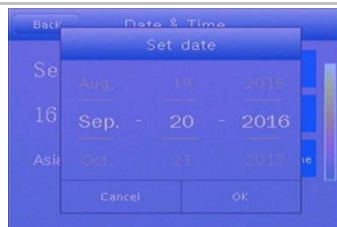
**3**

Press the **UP** or **DOWN** arrow on the omni selector to select the  [System] menu and click the [Date & Time] menu.



## 4 Setting date:

- Slide up and down the date item to modify the date;
- After modifying click **[OK]** button to save, click **[Cancel]** button to abandon changes.



## 5

### Setting time:

- Slide up and down the time item to modify the time;
- After modifying click **[OK]** button to save, click **[Cancel]** button to abandon changes.



## 6

### Setting time zone:

- Slide up and down the time zone item to modify the time zone;
- After modifying click **[OK]** button to save, click **[Cancel]** button to abandon changes.



# Preparing the IR Camera

## Local Settings


In this menu item, you can set style of the built-in menu system.

## Language setting

1


Press the [C] key or click the  icon.

2

Press the *DOWN* arrow on the omni on the selector to select the  [Settings] menu and press *OK* key.



3

Press the *UP* or *DOWN* arrow on the omni selector to select the  [System] menu and then click [Language].



# 4

## Local setup:

- Slide up and down to select a item to change;
- After modifying click **[OK]** button to save, click **[Cancel]** button to abandon changes.



## About the system settings


Language	Select the language of the menus and messages.
Update	update / backup / recovery thermal imager operating system
Date & Time	Set the system date and time display ,set time zone and screensavers
Control	Set thermal imager video output and the output mode / auxiliary lighting switch / laser switch / Set USB Mode / Set the multifunction key
Unit Setting	Set the format of the displayed temperature or distance unit of the camera.  °C or °F, Meter or Foot..
Power Manager	Set screen saver time / Set power off time

# Preparing the IR Camera


## Local Settings

### Unit setting

**1** Press the [C] key or click the **SATIR** icon.

**2** Press the *DOWN* arrow on the omni selector to select  [Settings], then press the *OK* key.



**3** Press the *DOWN* or *UP* arrow on the omni selector to select  [System] then click [Unit Setting].



**4** Click to select the unit and click [OK] to finish the setting.

- Length: Meter, Feet
- Temperature: °C, °F





# Preparing the IR Camera

## Local Settings

### TV-OUT modes Setting

1

Press the [C] key or click the  icon.

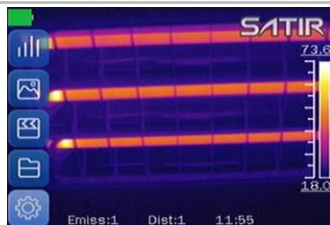
2

Press the *DOWN* arrow on the omni selector to select



[Settings] then press

OK key.



3

Press the *UP* or *DOWN* arrow on the omni selector to select



[System] then click

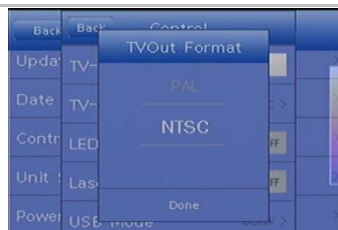
[Control].



- 
- 4** Click the *RIGHT* area of [TV-OUT] item to open TV-OUT after linked to your PC and click [TV-OUT Mode] to select a mode.



- 5** Slide to select NTSC or PAL mode.



# Preparing the IR Camera

## Local Settings

### QuickLauncher Setting

1

Press the [C] key or click the **SATIR** icon.

2

Press the *DOWN* arrow on the omni selector to select



[Settings] then press

*OK* key.



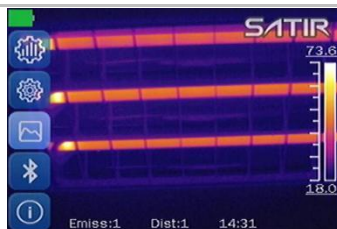
3

Press the *UP* or *DOWN* arrow on the omni selector to select




[Image] then press *OK*

key



- 4** Click the *RIGHT* area of [QuickLaucher] item to call QuickLaucher. Click again to cancel QuickLaucher



- 5** Click QuickLaucher icon . The shortcut menu will appear on right area of the screen



# Basic Functions

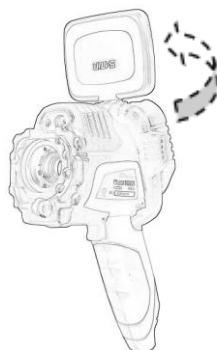
## Using the LCD Monitor

### Using the LCD Monitor

If you wish to use the LCD monitor for shooting, playing back thermal images and adjusting menu settings, follow the instructions below.

**1**

**Open the LCD displayer in the direction of the arrow.**



**2**

**Aim the IR camera at a subject.**



1. For a better temperature measurement, please do make the subject in center of the image that is shown on the LCD monitor.

2. The LCD monitor will turn off when it is closed.

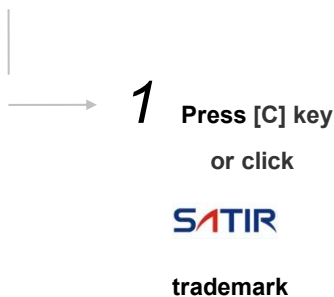
# Basic Functions

## Selecting Menus and Settings

You can select the settings by pressing the **OK** key.








- 1 Press the [C] key.
- 2 Press the *LEFT* or *RIGHT* arrow on the omni selector.
- 3 Press the *UP* or *DOWN* arrow on the omni selector.
- 4 Press the **OK** button.





## Main menu


	<b>Analysis(Spot / Area / Line tool and ISO)</b>
	<b>Images(Image mode / Palette / Adjust )</b>
	<b>Media(Snapshot / Edit / Voice record / Video record / Replay)</b>
	<b>File(Scan file and thermal images)</b>
	<b>Settings(Analysis setting / System setting / Image setting / Bluetooth / System info)</b>

# Basic Functions


## Resetting the Settings to Default

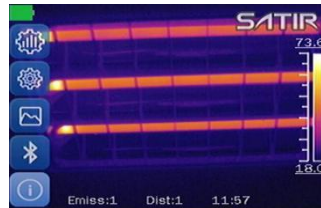
You can reset the menu and button operation settings to default.

**1** Press the [C] key or click the **SATIR** icon.

**2** Press the **DOWN** arrow keys to select  [Settings], then press the **OK** key.



**3** Press the **down** arrow key to select  [System Info], then press the **OK** key



**4** Click [Default Settings].

Please reboot the machine after a successful recovery.







After factory defaults, for the user data already stored in the internal memory which will delete all the settings are reset, and the external memory with the user data will not be deleted.

# Shooting

## IR Camera Adjustment

### Focus

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### Focus and digital zoom

---

- 1 Aim that the IR camera at the subject.



**2**

a. Press [F] key ,[F] key will turn blue to green which means device can be focusable

b. Press *UP* or *DOWN* arrow to focus(manual focus) or press the *LEFT* arrow to focus (auto focus)



**3**

Do not stop turning until the image is clear.



You can press *LEFT* +*UP*/*DOWN* to realize the digital zoom. Magnification(Zoom:xxx%) will show in left corner.

# Shooting

## IR Camera Adjustment

### Display Modes

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#### DuoVision Display modes

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#### Thermal, Visual and DuoVision image display

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This IR camera records visual images with its built-in digital camera. You can capture a visual image as a reference to the thermal image.

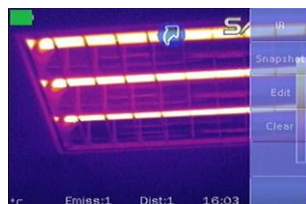
**1**



Click the icon .How to call QuickLauncher reference p21

**2**

In the pop-up menu, click [IR] to switch the corresponding display mode.



**3**

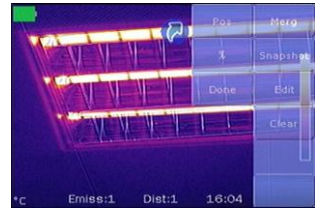
In the pop-up menu, click [CCD] to switch the corresponding display mode.



---

**4**

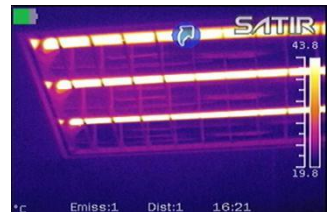
In the pop-up menu, click [Merg] to switch the corresponding display mode.



---

**5**

Click position beyond pop-up menu can hide pop-up menu



# Shooting

## IR Camera Adjustment



In **DuoVision** display mode, you can see the thermal images 'fuse' into the visible images.



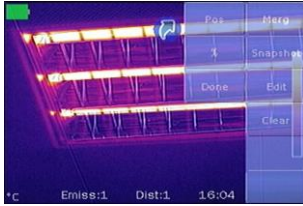
### IR

In this mode, you can use the analysis tools to analyze the target. But what you see is the image with pseudo color.



### CCD

In this mode , you can see the image with full color. But you can not use any analysis tools to analyze the target.



## Merg

In this mode, you can see the background image is full color visible image. And the thermal image 'fuses' on it in the center square. At the same time you can use any analysis tools to analyze the target.

---



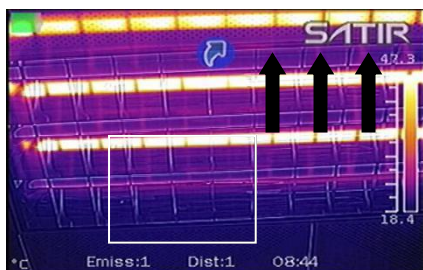
In the integration mode, you can click [position], by moving your finger up and down to adjust the position of the visible picture infrared and visible light images of harmony.



combination keys.

In **DuoVision** display mode, you can move the fusion area via the

## Moving the fusion square



## About the IR/Visible settings

Percentage

Sets the ratio of IR images and Visual images. The value is from 1% to 100%.

The items above are activated only in [Duo-Vision] mode.



# Shooting

## IR Camera Adjustment

### Image adjustment

You can adjust the Level (brightness) and Span (contrast) of the image captured by IR camera, manually or automatically.

### Auto adjustment

1

Press the [C] key or click the **SATIR** icon.

2

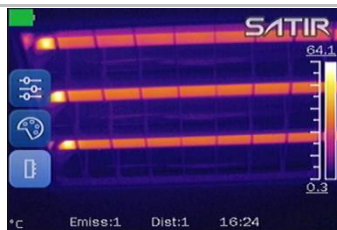
Press the *UP* or *DOWN* arrow on the omni selector to select



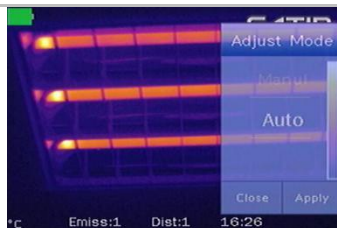
[Image] then press *OK* key.



- 
- 3** Press the *UP* arrow on the omni selector to select [Adjust] then press *OK* key



- 4** Slide up and down the item to select the Adjust Mode to be Auto , then click [Apply]



- 5** The IR camera will automatically adjust the brightness and / or contrast and calibrate when you press the A key.
-

# Shooting

## IR Camera Adjustment

### Manual Adjustment

- 1 Set device adjust mode to Manual. How to set please reference P34

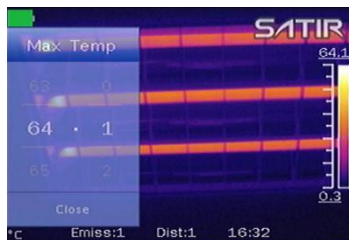
2

Click the right showed area of the main interface like the picture to call the level or Span adjustment menu.



3

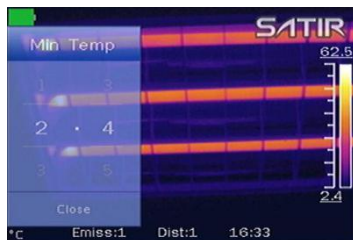
- a. Click the number above color scale
- b. Slide to select the value of the Max Temp and click [close] to finish the change.



**4**

Click the number below  
color scale

- a. Slide to select the  
value of the Min Temp  
and click [close] to  
save it.




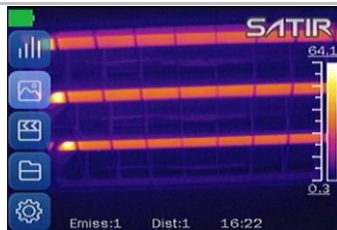
# Shooting

## IR Camera Adjustment

### Palette settings

**1** Press the [C] key or click the **SATIR** icon.

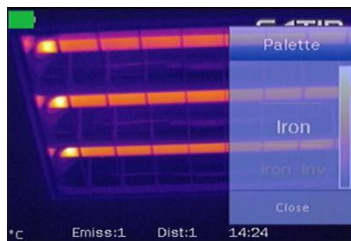
**2** Press the *UP* or *DOWN* arrow on the omni selector to select the  [Image], press the *OK* key to call the image toolbar.



**3** Click  [Palette].



- 
- 4** Slide to select the palette mode and then click [close] to finish the setting.



The camera provides 6 kinds of palettes: Iron, Iron inverted, Rainbow, Feather, Grey and Grey inverted.

# Shooting

## IR Camera Adjustment

### Shutter automatically

**1** Press the [C] key or click the **SATIR** icon.

**2** Press the **DOWN** arrow on the omni selector to select



[Settings] and then press **OK** key.



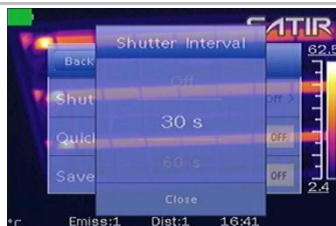
**3** Press the **DOWN** arrow on the omni selector to select



[Image] then click [Shutter Interval].



**4** Slide to set the shutter interval and then click the [Close] to finish settings.



# Shooting

## IR Camera Adjustment

### Turning the LED and Laser on/off

**Warning:** Do not trigger the laser pointer in human or animal eyes. Exposure to the laser produced by the laser pointer may damage eyesight.

**1** Press the [C] key or click the **SATIR** icon.

**2** Press the **DOWN** arrow on the omni selector to select



[Settings] then press the **OK** key.



**3** Press the **DOWN** arrow on the omni selector to select

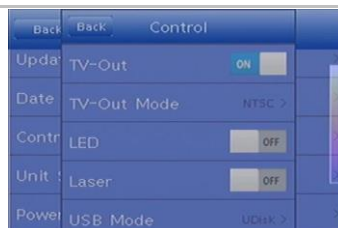


[System] then click [Control].





- 4** Click the right area of the list to open the LED and laser. Click again can close the tools.



## About Control

<b>TV-OUT</b>	Click to open and press the <i>UP</i> and <i>DOWN</i> arrow on the omni selector to close.
<b>TV-OUT Mode</b>	Slide to select the NTSC or PAL mode.
<b>LED</b>	Click to open when using CCD in darkness.
<b>Laser</b>	Click to open the laser to aim at the object.
<b>USB Mode</b>	Slide to select the UDisk or Trans. Mode.
<b>Muti-Func. Key</b>	Slide to set the Muti-Function key.

# Shooting

## IR Camera Adjustment

### Laser ranging

**Warning:** Do not trigger the laser pointer in human or animal eyes. Exposure to the laser produced by the laser pointer may damage eyesight.

**1** Press the [C] key or click the **SATIR** icon.

**2** Press the **DOWN** arrow on the omni selector to select



[Settings] then press the **OK** key.



**3** Press the **DOWN** arrow on the omni selector to select



[System] then click [Control].



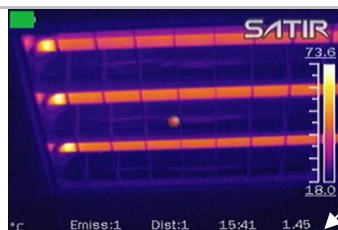
- 4** Click the right area of the list to open the laser. Click again can close the tool.



- 5** Click [Multi-Func Key], Slide up and down the item to select [LaserDist] and then click [Done]



- 6** Align the object to be measured, press the multi-function keys, number in the bottom right of the screen (right of the time) shows the distance between objects.




Distance

# Shooting


## IR Camera Adjustment

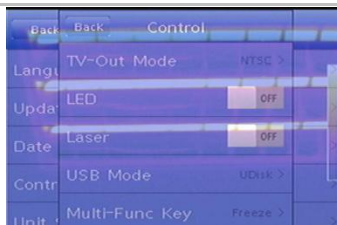
### USB Mode Setting

**1** Press the [C] key or click the **SATIR** icon.

**2** Press the *DOWN* arrow on the omni selector to select  [Settings] then press the *OK* key.



**3** Press the *DOWN* arrow on the omni selector to select  [System] and click [Control], slide *UP* the list and click [USB Mode].



**4** Slide to select [UDisk] or [Trans.] mode and then click [Done] to finish the setting.



# Shooting

## IR Camera Adjustment

You can set the multifunction key with different functions such as shutter , freeze and snapshot through the system.


## Setting the multifunction key

**1**

Press the [C] key or click the **SATIR** icon.

**2**

Press the *UP* or *DOWN* arrow on the omni selector to select

the  [Settings] menu , then press the *OK* key.



---

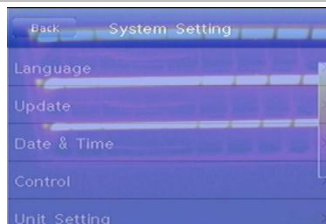
**3**

Press the *UP* or *DOWN* arrow on the omni selector to select the



[System] ,then press the

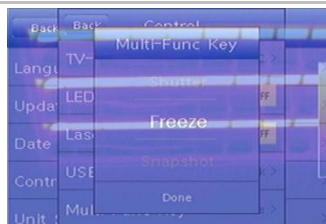
[Control].



---

**4**

Click [Multi-function key] option, slide up and down to Edit menu, click [Finish] to save the changes and exit the menu.





## About the function of multifunction key


<b>Shutter</b>	The machine will shutter one time by pressing the multifunction key.
<b>Freeze</b>	You can activate / freeze a thermal image by pressing the multifunction key.
<b>Snapshot</b>	Save the image by pressing the multifunction key.
<b>Laser</b>	Open laser by pressing the multifunction key
<b>LaserDist</b>	Operate measuring distance by pressing the multifunction key
<b>LED</b>	You can turn on/off LED by pressing the multifunction key

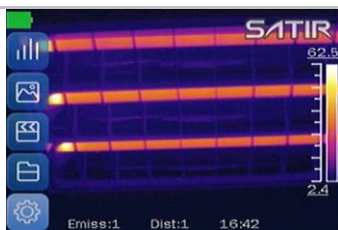
# Shooting


## IR Camera Adjustment

### Bluetooth setting

**1** Press the [C] key or click the **SATIR** icon.

**2** Press the *DOWN* arrow on the omni selector to select  [Settings], then press the *ok* key.



**3** Press the *DOWN* arrow on the omni selector to select the [System] then slide *UP* and click  [Bluetooth].



**4** Press the *DOWN* arrow on the omni selector to select the [Start Bluetooth] and press the *OK* key to edit the name of the camera's Bluetooth.






# Shooting


## IR Camera Adjustment

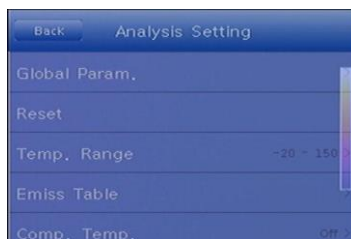
### Measurement range

**1** Press the [C] key or click the **SATIR** icon.

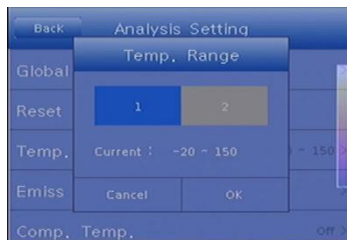
**2** Press **DOWN** arrow on the omni selector to select the  [Settings] then press the **OK** key.



**3** Press the **UP** arrow on the omni selector to select the  [Analysis] then click the [Temp. Range].



- 
- 4** Click the number to select the right range and click [OK] to finish the settings. Then press the [C] key to back to the main interface.
- 



The camera offers three Temp. Range:  $-20\sim150^{\circ}\text{C}$ ,  $140\sim600^{\circ}\text{C}$

# Shooting

## IR Camera Adjustment

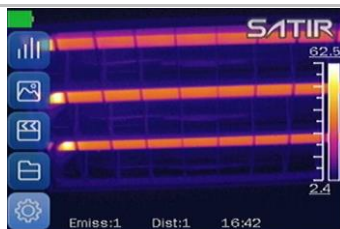
### Freezing / Activating an image

You can activate / freeze a thermal image by pressing the **S** key on the keypad.

- 1** Press the [S] key, then the image is freezing.



- 2** Press the [S] key again then the image is active.



# Shooting

## IR Camera Adjustment

### Checking the emissivity table

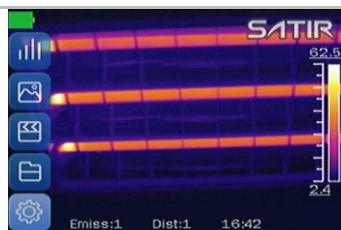
1

Press the [C] key or click the **SATIR** icon.

Press the **DOWN** arrow on the omni selector to select



[Settings] then press the **OK** key.



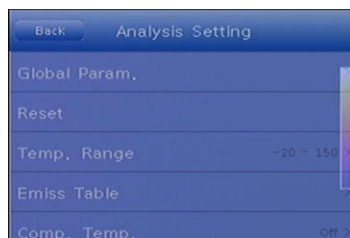
2

Press **UP** arrow on the omni

selector to select



[Analysis], then click [Emiss Table].



3

Press **LEFT** or **RIGHT** arrow on the omni selector to checking the emissivity of the measuring target . Press the [C] key to exit after checking.


Name	Type	Min	Max
Asphaltum	Nonmetal	0.85	0
Brick	Nonmetal	0.75	0
Calcimine	Nonmetal	0.90	0
Ceramics(vase type)	Nonmetal	0.90	0
Copper wire	Metal	0.87	0
Diode	Nonmetal	0.89	0
Fire resistance brick	Nonmetal	0.75	0
Graphite(lamp black)	Nonmetal	0.95	0
Glass	Nonmetal	0.91	0

# Shooting


## Fulfill the Analysis Function

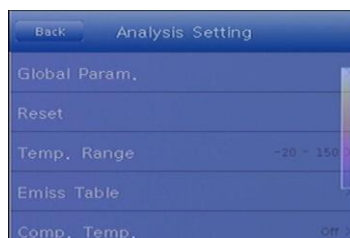
### Setting object/global settings

**1** Press the [C] key or click the **SATIR** icon.

**2** Press the **DOWN** arrow on the omni selector to select the  [Settings] then press the **ok** key.



**3** Press the **UP** arrow on the omni selector to select the  [Analysis] then click the [Global Param.].



## 4 Setting analysis parameter

- Press the **UP** or **DOWN** arrow  
on the omni selector to select an  
item to change.
- Press the **LEFT** or **RIGHT**  
arrow on the omni selector to  
set the values.



## 5 Click [Save] to save the settings.



## About the analysis parameters


Object	Selects the object of which you want to set the parameters.
Emissivity	Different material has different emissivity. Use different emissivity to measure different material.
Distance	Different object has different distance to the IR camera. Use different distance to measure different object.
Ambi. Temp	Input ambient temperature.
Refl.Temp	Input reference temperature
Humidity	Input ambient humidity.
Offset	Offset the measurement temperature
Background	Hide or show the background

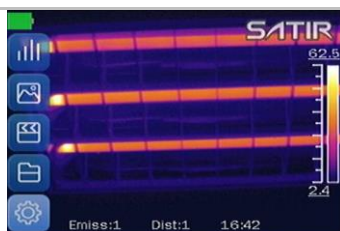
# Shooting


## Fulfill the Analysis Function

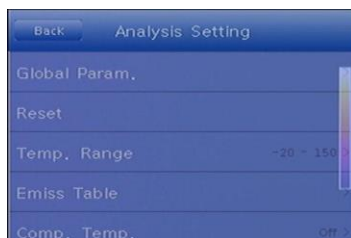
### Reset the default settings

**1** Press the [C] key or click the **SATIR** icon.

**2** Press the **DOWN** arrow on the omni selector to select  [Settings] then press **Ok** key.



**3** Press the **DOWN** arrow on the omni selector to select  [Analysis] and click [Reset].



**4** Click [OK] to finish the setting.





# Shooting

## Fulfill the Analysis Function

### Setting analysis tools

---

This topic briefly explains how to set the analysis tools on the thermal image.

### Spot analysis

---

1

Press the [C] key or click the **S4TIR** icon.

2

Press the *UP* or *DOWN* arrow on the omni selector to select the



[Analyze] then press *ok* key

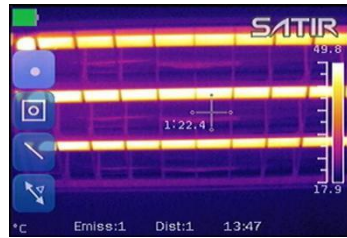


### 3

Press the **UP** or **DOWN** arrow on the omni selector to select the



[Spot] then press **ok** key or click icon.



### 4

**Setting the spot analysis.**

- Press the arrow keys and choose a spot, then press the **ok** key or double click spot
- Press the **UP** or **DOWN** arrow on the omin selector to select what you want to be changed ,then press the **LEFT** or **RIGHT** arrow on the omin selector to change it.

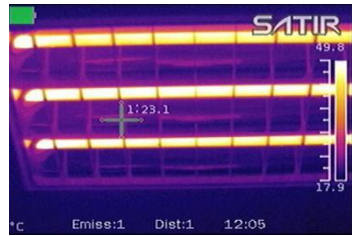


---

## 5

### Moving the spot.

- Click spot. Spot turn to green
- Press the **UP, DOWN, LEFT, RIGHT** arrow on the omni selector to move the spot or drag spot to target location



---

## 6

### Removing the spot.

- Keep pressing the spot you want to remove ,then you will find a ashcan appears on the screen .Drag the spot into the trashcan to clear it.



# Shooting

## Fulfill the Analysis Function

### Area analysis

**1** Press the [C] key or click the **S4TIR** icon

**2** Press the *UP* or *DOWN* arrow on the omni selector to select the



[Analyze] then press *ok* key



**3** Press the *UP* or *DOWN* arrow on the omni selector to select the



[Area] then press *ok* key or click icon.



**4** Setting the analysis area.

- Double click the center or the four corners of the need to change area.
- Then, the menu bar of this area will pop up ,you can click the Options what you want to be changed directly on the screen



## 5 Moving the area.

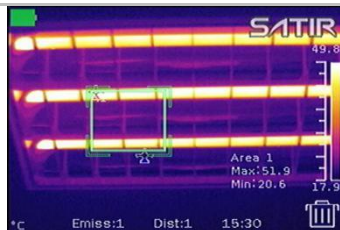
- Select the area you want to move by click the area.
- One way: Press the **UP, DOWN, LEFT, RIGHT** arrow on the omni selector to move the area.

The other way: press anywhere of the area you want to move and drag it to anywhere



## 6 Removing the area.

- Keep pressing anywhere of the area you want to remove, then you will find a ashcan appears on the screen. Drag the pressed place into the trashcan to clear the area.

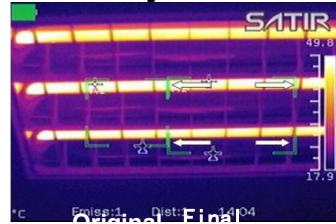
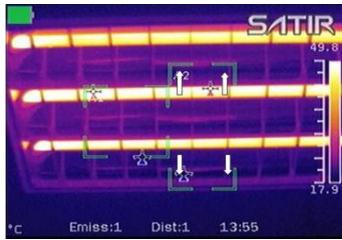


## 7 About changing the shape of the analysis area.

- Select the area you want to move by click the area.
- By pressing LEFT and UP you can elongated the length of the area on vertical direction;  
By pressing LEFT and DOWN you can shorten the length of the area on vertical direction;  
By pressing RIGHT and UP you can elongated the length of the area on horizontal direction  
By pressing RIGHT and DOWN you can shorten the length of the area on horizontal direction .



## About changing the shape of the analysis area.



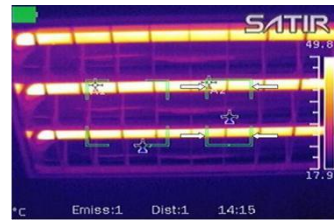
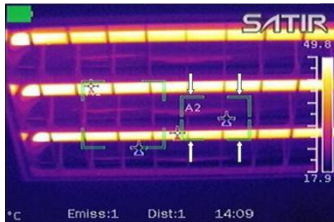
**LEFT and UP**

**LEFT and DOWN**



**RIGHT and UP**


**RIGHT and DOWN**




# Shooting


## Fulfill the Analysis Function

### \*Line analysis

**1** Press the [C] key or click the  icon.

**2** Press the *UP* or *DOWN* arrow on the omni selector to select the  [Analyze] then press *ok* key

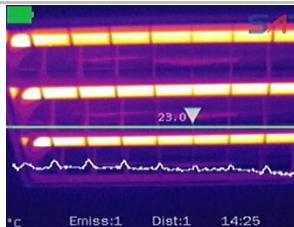


**3** Press the *UP* or *DOWN* arrow on the omni selector to select the  [Line] then press *ok* key or click icon.



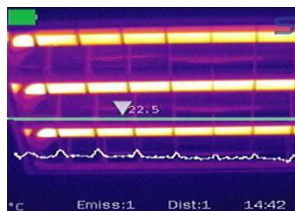
**4** Moving the line.

- Select the line you want to move by click the line.
- One way: Press the *UP*, *DOWN*, to move the line ,press the *LEFT*, *RIGHT* arrow on the omni selector to move the Inverted triangle.The other way: keep pressing the inverted triangle that on the line and drag it to anywhere.



## 5 Removing the line.

- Keep pressing the inverted triangle that on the line ,then you will find a ashcan appears on the screen. Drag the inverted triangle into the trashcan to clear it .






# Shooting


## Fulfill the Analysis Function

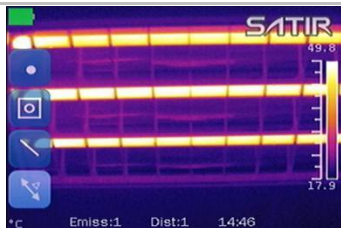
### \*Isotherm analysis

**1** Press the [C] key or click the **SATIR** icon.

**2** Press the *UP* or *DOWN* arrow on the omni selector to select the  [Analyze] then press *ok* key



**3** Press the *UP* or *DOWN* arrow on the omni selector to select the  [ISO] then press *ok* key or click icon.



**4** Setting isotherm range.

- Start from Step 1 to set or select isotherm analysis.
- One way: Press *UP* or *DOWN* arrow to select upper limit or lower limit. Press *LEFT* or *RIGHT* arrow to adjust the number.  
The other way: Click +/- beside the number to adjust the values.





## About the ISO mode

Under Below	Use the same color to indicate the isothermal zone and below the lower limit of the isothermal zone.
Over Above	Use the same color to indicate the isothermal zone and above the upper range of the isotherm.
Interval	Use the same color to indicate the isothermal section, the rest of the normal display pseudo-color mode
Dual Below	Use the same color to indicate the isothermal zone and the other color to indicate below the lower limit of the isothermal zone
Dual Above	Use the same color to indicate the isothermal zone and other color to indicate above the upper range of the isotherm

# Shooting

## Fulfill the Analysis Function

### Setting the Alarm temperature

1

Press the [C] key or click the **SATIR** icon.

2

Add a analyze spot tool, then press the *OK* key again or double click spot to call the setting window of the spot.



3

Press *UP* or *DOWN* arrow on the omni selector to select [Alarm Temp:] or [Alarm Mode], press *LEFT* or *RIGHT* arrow to set the value of alarm temperature or mode.



# Shooting


## Fulfill the Analysis Function

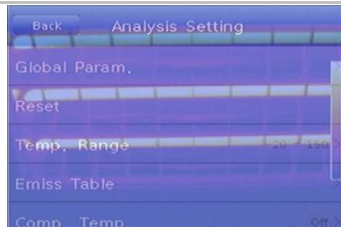
### Setting the comparing temperature

**1** Press the [C] key or click the  icon

**2** Add a area analysis tools.



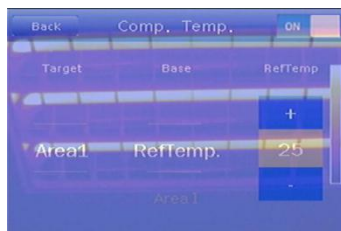
**3** Press the [C] key.  
Press **DOWN** arrow to select  [Settings] and press the **OK** key.



Select  [Analysis] and click [Comp. Temp.]

**4** Click the upper *right* corner of the interface.

Slide to select the target and base, click [+/-] to set the value of reference temperature.



**5**

---

Press the [C] key twice to back to the main interface.

Press the [C] key again to hide the menu.

You can see the values of difference beside 'Comp:' on downer right area of the screen.


# Shooting

## Fulfill the Analysis Function

### Remove analysis tools

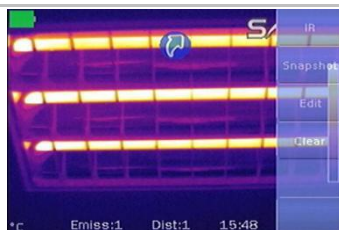
This topic briefly explains how to remove analysis tools you place on the screen.

**1**

Click the  icon on the screen. How to call shortcut tool , reference p21


**2**


In the pop-up menu bar on the right side click [Clear] key to clear all the analysis tools.



# Shooting

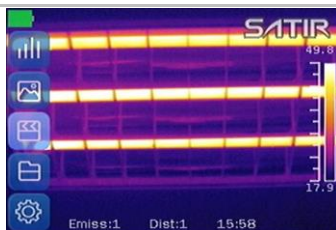
## Saving the Image

After you freeze an image, you can Click the  icon on the screen In the pop-up menu bar on the right side, click [snapshot] key to save the image , or you also can save the image with the next steps.

**1** Press the [C] key or click the  icon.

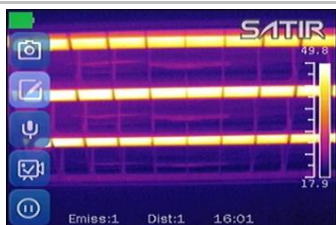
**2** Press the UP or DOWN arrow on the omni selector to

select the  [Media] menu, then press the OK key.



**3** Press the UP or DOWN arrow on the omni selector to

select the  [Snapshot]



**4** Successfully saved there will have a sign be displayed on the screen.




# Shooting

## Attaching Voice Memos Images


You can introduce an image with voice recording.

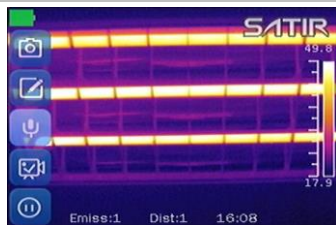
### Voice recording

**1** Install the Bluetooth headset.


**2** Press the **C** key, then Press the **UP** or **DOWN** arrow on the omni selector to select the  [Media] menu, then press the OK key.



**3** Press the **UP** or **DOWN** arrow on the omni selector to select  [Voice], then press the OK key.



**4** In the pop-up menu bar, click the  icon ,when 

change into  This means the voice being recorded , click the [save] key to save the voice ,click the [Play] to play the voice you just recorded. Click the [close] you can exit the menu.








The storage capacity of the memory will not decrease when you attach voice comment to an image.

# Shooting


## Snapshot and Edit the image

### Snapshot/Edit


**1** Press the [C] key or click the **SATIR** icon.

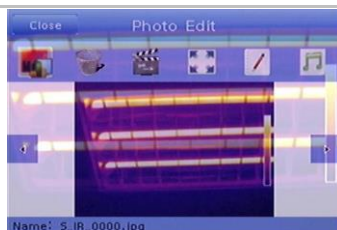
**2** Press the *UP* or *DOWN* arrow on the omni selector to select the  [Media] then press the *OK* key.



**3** Press the *UP* or *DOWN* arrow on the omni selector to select the  [Snapshot] and press the *OK* key then the image will be saved automatically.








**4** Press the *UP* or *DOWN* arrow on the omni selector to select the  [Edit], then press the *ENTER* key, you can edit the image like adding the text or voice note.





## About the Media


	<b>Snapshot:</b> Select and press the <b>OK</b> key to capture the present image.
	<b>Edit:</b> Edit the captured image.
	<b>Voice:</b> Record voice for the image.
	<b>Video:</b> Record a video.
	<b>Replay:</b> Replay the record video.

# Shooting


## Record/Replay the Video

### Record/Replay the Video

**1** Press the [C] key or click the **SATIR** icon.

**2** Press the *UP* or *DOWN* arrow on the omni selector to select the  [Media], then press the *OK* key.




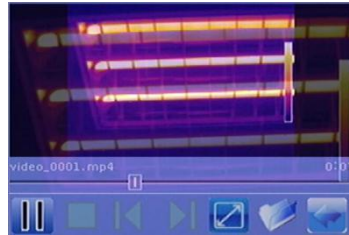
**3** Press the *UP* or *DOWN* arrow on the omni selector to select the  [Video] and press the *OK* key to start recording the video.



**4** Select  [Video Record] and press the *OK* key again to stop recording.










- 5** Press the *UP* or *DOWN* arrow on the omni selector to select  [Replay] and press the *OK* key to replay the recorded video.



- 6** Press the [C] key to exit after replaying.



### About the Replay toolbar


	<b>Play:</b> Play or pause the playing.
	<b>Stop:</b> Stop playing the video.
	<b>Last:</b> Playing the last video.
	<b>Next:</b> Playing the next video.
	<b>Full Screen:</b> Playing the video full screen.
	<b>Select File:</b> Select a video.
	<b>Back:</b> Back to the [Media] menu.

# Playback and Erase


## Opening Images

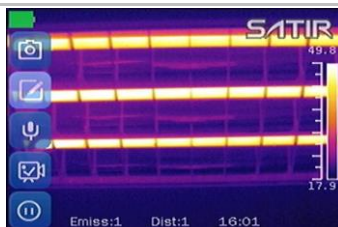
You can view and analyze the recorded images on the LCD monitor.

**1** Press the [C] key or click the **SATIR** icon.

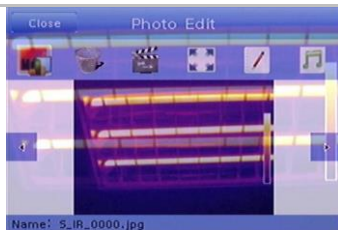
**2** Press the *UP* or *DOWN* arrow on the omni selector to select the  [Media] and press the *OK* key.



**3** Press the *UP* or *DOWN* arrow on the omni selector to select  [Edit], then press the *OK* key.



**4** Press *LEFT* or *RIGHT* arrow on the omni selector to select an image, then press *OK* key to open it. How to select an image, refer to (p.76).



You can analyze and attach voice memo to a recorded image when you open it.



## Photo edit sub menu description

	<b>Analysis</b> (Analysis tools can be used to analyze the heat images)
	<b>Delete</b> (Delete the currently selected picture)
	<b>Slideshow</b> (All current picture slideshow)
	<b>Full screen</b>
	<b>Text Note</b> (Add text notes for the current picture)
	<b>Record</b> (Add voice notes to the current picture)




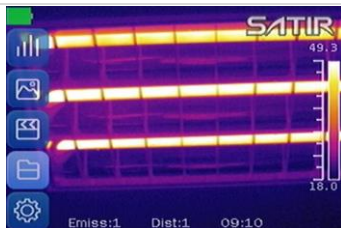
## Selecting the file path

1


Press the [C] key or click the **SATIR** icon.

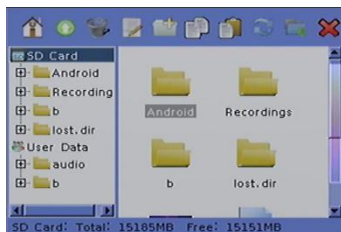
2

Press the *UP* or *DOWN* arrow on the omni selector to select the  [File], then press the *OK* key.



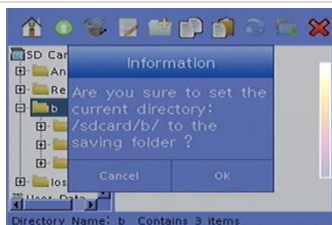
3

Press the *UP* or *DOWN* arrow on the omni selector to select the [SD Card] option (save files in SD Card), select  [User Data](save files in inside memory) then press the *LEFT* and *RIGHT* arrow to select



4

Press the *OK* key and all files will be saved in the file path.






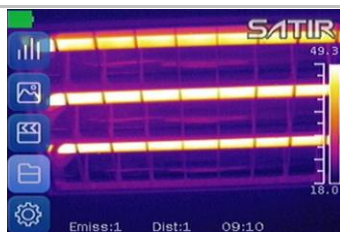
# Playback and Erase

## File Manager

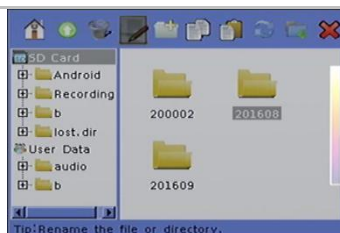
### File manager

**1** Press the [C] key or click the **SATIR** icon.

**2** Press *UP* or *DOWN* arrow on the omni selector to select  [File] then press the *OK* key.













**3** Press *UP* or *DOWN* arrow on the omni selector to select file or tool, press the [C] key to shift file to tool. Press the *OK* key to execute the operation on the chosen file.





## About the File manager

	<b>Home</b> (Enter the home directory)
	<b>Previous</b> (Back to the parent directory)
	<b>Remove</b> (Remove the file or directory)
	<b>Rename</b> (Rename the file or folder)
	<b>New</b> (Build a directory)
	<b>Copy</b> (Copy the file)
	<b>Paste</b> (Paste the file)
	<b>Refresh</b> (Refresh the file list)
	<b>Save Folder</b> (Setting the saving path)
	<b>Close</b> (Close file manager)

# Connection and Download

## Download the images

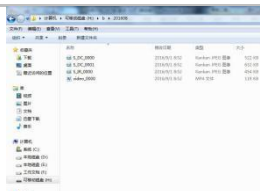
- 1 Open the USB / Video cover on the button of device



- 2 Use USB cable connect device to computer then modify device USB Mode to UDisk



- 3 Copy images and videos to your computer



# Connection and Download

## Connecting to a monitor

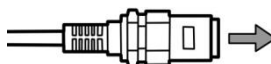
A video-compatible monitor connected via the video cable (supplied) can be used to view and analyze images you shoot.


- 1** Attach video cable to the video out terminal on bottom of camera.




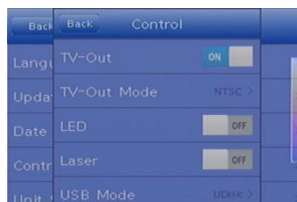
- 2** Plug the other end of the video cable to the video in jack on the monitor.

To the video in jack



- 3** Press C key  
Press **DOWN** arrow to select  [Settings] and press the **OK** key.

Select  [Analysis] and click [Control]  
Turn on [TV-out]



# Connection and Download

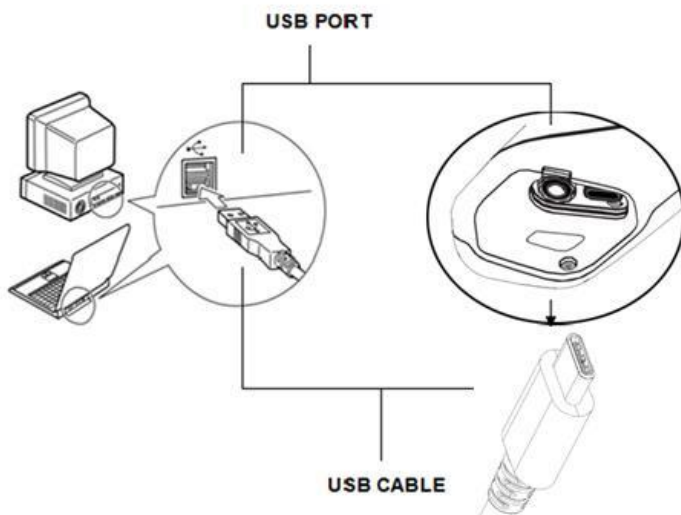
## Connecting to a computer

### Connection

Connect the USB cable to the computer's USB port and the multi-functional dock's terminal.



- You do not need to turn off the computer or camera when making this connection.
- Please refer to your computer manual for information regarding the location of the USB port

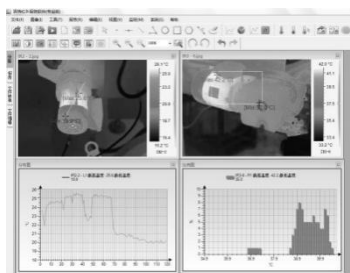


# Connection and Download

## Real-time transfer

You can analyze and save the thermal video in computer directly via the USB by the optional real-time software.

- 1** Power on the camera。
- 2** Connect the camera and computer via USB cable, p.59.
- 3** The operating system will recognize the camera automatically.
- 4** Run the analysis software. Meanwhile, please set the camera as below: [System setup]-[camera setup]-[USB type]-[USB real-time].You can analyze the real-time video, and save it in your computer's disk.



# Connection and Download

## Real-time transfer

### Troubles shooting

---

When you have any problems in the process of connecting the IR camera to a computer to use optional real-time software, check this first.

#### First, Check the Following

1. Does your computer comply with these requirements?

Ensure the system has a built-in USB port.

The USB interface is not supported for systems not complying with the above conditions.

2. Is the camera correctly connected to the computer?
3. Is the built-in battery charged sufficiently?

#### •If the Problem Is Not Mentioned Above

If the USB Driver is not correctly installed, it is possible that Windows is not recognizing the USB Driver. Please contact your motherboard's manufacturer for the latest driver.

The USB2.0 real-time transmission function may not properly work under some model of motherboard's chipset. In this case, connect the IR camera to another computer which is based on the chipset of Intel configuration or Nvidia configuration and try again.

# Connection and Download

## Use the Bluetooth headset

Follow the steps to install the Bluetooth headset for the first time.

1	Turn on the camera and Bluetooth headset.
2	Turn on the Bluetooth headset first. Press and hold the power button about 10 seconds. And then you can see the power indicator begins to blink red and blue. The headset is in pairing status in 120 seconds.
3	Turn on the camera. Go to <b>Settings-System-Bluetooth-Start Bluetooth</b> and input the camera's Bluetooth name. Click <b>Search-Search</b> to search the Bluetooth headset, then click <b>Bind</b> and input the PIN ( <b>0000</b> or <b>1234</b> ) to bind the Bluetooth headset. Click <b>Connected Dev</b> to check the headset.
4	Once bound successfully, set the Bluetooth headset to pairing status, then go to <b>Paired Dev</b> to click <b>Bind</b> and input the PIN to bind the headset.
5	Try again step 1 to 4 if fail to bind. Press <b>[C]</b> key and <b>Enter</b> key together to free the Bluetooth headset.
6	Wear the headset, you can record the voice memos or play back the memos now.



\*Bluetooth headset is not the standard accessory. The picture is for reference and the sample is subject to the real product which you will receive.



# Troubles Shooting

Problem	Cause	Solution
Camera will not operate	Power is not turned on	<ul style="list-style-type: none"> <li>• Turn on the camera. See <i>Turning the Power On / Off</i> (p.12).</li> </ul>
	Insufficient battery voltage	<ul style="list-style-type: none"> <li>• Fully charge the battery.</li> </ul>
Camera will not record	Internal memory is full	<ul style="list-style-type: none"> <li>• If required, download the images to a computer and erase them to make some space.</li> </ul>
Battery pack consumed quickly	Battery pack capacity reduced because of disuse for one year or more after being fully charged.	<ul style="list-style-type: none"> <li>• Replace the battery pack with a new one.</li> </ul>
	Battery life exceeded.	<ul style="list-style-type: none"> <li>• Replace the battery pack with a new one</li> </ul>

# Appendix

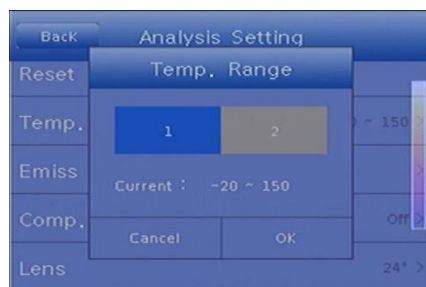
## How to setup for optional Lens

There are various lenses for D300 available, from tele-lens to close-up lens.

When an optional lens is installed, please enter “Manual Adj.” to setup the correct mode for lens:

Select “Temp Range Filter”, then press directional keys “UP”+”DOWN” together, a letter would appear where the arrow points as below(Figure.1), for its meaning please refer table.1.

**Figure.1**



**Table.1**

	<b>D300</b>
<b>Null</b>	<b>24°Standard</b>
<b>A</b>	<b>12°</b>
<b>B</b>	<b>48°</b>
<b>D</b>	<b>7°</b>

# Appendix

## Camera Care and Maintenance

Use the following procedures to clean the camera body, lens, LCD monitor and other parts.

Camera Body	Wipe the body clean with soft cloth or eyeglass lens wiper.
Lens	<p>First use a lens blower to remove dust and dirt, then remove any remaining dirt by wiping the lens lightly with soft cloth.</p> <ul style="list-style-type: none"><li>• Never use synthetic cleaners on the camera body or lens.</li></ul>
LCD monitor	<p>Use a lens blower brush to remove dust and dirt. If necessary, gently wipe the LCD monitor with soft cloth or an eyeglass lens wiper to remove stubborn dirt.</p> <ul style="list-style-type: none"><li>• Never rub or press forcefully on the LCD monitor. These actions may damage it or lead to other problems.</li></ul>



Never use thinners, benzene, synthetic cleaners or water to clean the camera. These substances may distort or damage the equipment.

# Appendix

## Emissivity table

Material	Temperature (°C)	Emissivity approximation
Metal		
Aluminum		
Polished aluminum	100	0.09
Commercial aluminum foil	100	0.09
Electrolytic chromeplate alumina	25~600	0.55
Mild alumina	25 ~ 600	0.10 ~ 0.20
Strong alumina	25 ~ 600	0.30 ~ 0.40
Brass		
Brass mirror (highly polished)	28	0.03
Brass oxide	200 ~ 600	0.61 ~ 0.59
Chrome		
Polished chrome	40 ~ 1090	0.08 ~ 0.36
Copper		
Copper mirror	100	0.05
Strong copper oxide	25	0.078
Cuprous oxide	800 ~ 1100	0.66 ~ 0.54
Liquid copper	1080 ~ 1280	0.16 ~ 0.13
Gold		
Gold mirror	230 ~ 630	0.02

# Appendix

## Emissivity table (continue)

Material	Temperature (°C)	Emissivity approximation
Polished cast iron	200	0.21
Processed cast iron	20	0.44
Polished tempered Iron	40 ~ 250	0.28
Polished steel ingot	770 ~ 1040	0.52 ~ 0.56
Raw welded steel	945 ~ 1100	0.52 ~ 0.61
Surface ferric oxide	20	0.69
Completely rusty surface	22	0.66
Rolled iron plate	100	0.74
Oxidized steel	198 ~ 600	0.64 ~ 0.78
Cast iron (Oxidizing at 600°C)	198 ~ 600	0.79
Steel (Oxidizing at 600°C)	125 ~ 520	0.78 ~ 0.82
Electrolytic ferric oxide	500 ~ 1200	0.85 ~ 0.89
Iron plate	925 ~ 1120	0.87 ~ 0.95
Cast iron, heavy ferric oxide	25	0.80
Tempered iron, ferric oxide	40 ~ 250	0.95
Melting surface	22	0.94
Melting cast iron	1300 ~ 1400	0.29
Melting mild steel	1600 ~ 1800	0.28
Liquid steel	1500 ~ 1650	0.42 ~ 0.53
Pure liquid iron	1515 ~ 1680	0.42 ~ 0.45

# Appendix

**Emissivity table (continue)**

Material	Temperature (°C)	Emissivity approximation
Lead		
Pure lead (Non-oxidization)	125 ~ 225	0.06 ~ 0.08
Mildly oxidized	25 ~ 300	0.20 ~ 0.45
Magnesium		
Magnesia	275 ~ 825	0.55 ~ 0.20
Magnesia	900 ~ 1670	0.20
Hg	0 ~ 100	0.90 ~ 0.12
Nickel		
Electroplate polishing	25	0.05
Electroplate	20	0.01
non-polishing		
Nickel wire	185 ~ 1010	0.09 ~ 0.19
Nickel plate	198 ~ 600	0.37 ~ 0.48
Nickel oxide	650 ~ 1255	0.59 ~ 0.86
Nickel alloy		
Nickel-chrome (heat-resistance) alloy wire (shining)	50 ~ 1000	0.65 ~ 0.79
Nickel-chrome alloy	50 ~ 1040	0.64 ~ 0.76
Nickel-chrome (heat resistance)	50 ~ 500	0.95 ~ 0.98
Nickel-silver alloy	100	0.14
Silver		
Polished silver	100	0.05

# Appendix

## Emissivity table (continue)

Material	Temperature (°C)	Emissivity approximation
Stainless steel		
18-8	25	0.16
304(8Cr,18Ni)	215 ~ 490	0.44 ~ 0.36
310(25Cr,20Ni)	215 ~ 520	0.99 ~ 0.97
Tin		
Commercial tin plate	100	0.07
Strong oxidization	0 ~ 200	0.60
Zinc		
Oxidizing at 400°C	400	0.01
galvanized shining iron plate	28	0.23
Ash zinc oxide	25	0.28
Non-metal materials		
Brick	1100	0.75
Fire brick	1100	0.75
Graphite(lamp black)	96 ~ 225	0.95
Porcelain enamel (white)	18	0.90
Asphaltum	0 ~ 200	0.85
Glass (surface)	23	0.94
Heat-resistance glass	200 ~ 540	0.85 ~ 0.95
Calcimine	20	0.90
Oak	20	0.90

# Appendix

## Emissivity table (continue)

Material	Temperature (°C)	Emissivity approximation
Carbon piece		0.85
Isolation piece		0.91 ~ 0.94
Sheet metal		0.88 ~ 0.90
Glass pipe		0.90
Loop type		0.87
Porcelain enamel products		0.90
Porcelain enamel designs		0.83 ~ 0.95
Solid materials		0.80 ~ 0.93
Ceramics (vase type)		0.90
Film		0.90 ~ 0.93
Mica		0.94 ~ 0.95
Flume mica		0.90 ~ 0.93
Glass		0.91 ~ 0.92
Semiconductor		0.80 ~ 0.90
Transistor (plastics sealed)		0.30 ~ 0.40
Transistor (metal) Diode		0.89 ~ 0.90
Transmitting loop		
Pulse transmission		0.91 ~ 0.92
Level chalkiness layer		0.88 ~ 0.93
Top loop		0.91 ~ 0.92



# Appendix

## Emissivity table (continue)

Material	Temperature (°C)	Emissivity approximation
Electric materials		
Epoxy glass plate		0.86
Epoxy hydroxybenzene plate		0.80
Gilded sheet copper		0.30
Solder-coated copper		0.35
Tin-coated lead wire		0.28
Brass wires		0.87 ~ 0.88
Block talcum terminal		0.87

# Specification

All data is based on SATIR's testing standard. Subject to change without notice.

Type	D300
<b>Image performance</b>	
FOV/Min.focus distance	24° x18°/0.20m
Spatial resolution	1.3 mrad
Thermal sensitivity	≤0.05°C@30°C
Detector type	UFPA
Resolution	384 x288
Spectral range	8-14um
Focus	Manual/Motor/Auto
<b>Image presentation</b>	
Image mode	IR/CCD/Duo-vision//Duo-vision Plus
LCD Display	3.5" Capacitive touch screen
Visible pixels	High definition CCD , 5million pixels
Video output	NTSC (60Hz) or PAL (50Hz) composite video
<b>Temperature measurement</b>	
Measurement range	-20°C ~ +600°C , up to +1500°C(optional)
Accuracy	±2° or ±2% of readings

Measurement mode	8 movable spots, auto hot/cold spot, profile, 2 area boxes, isotherm, line
Correction	Emissivity, ambient temperature, distance, relative humidity, reflected temperature
Alarm	Yes
<b>Image storage</b>	
Type	16GB
File format	.JPG(thermal/Visual)
Annotation	Voice, note annotation
<b>Power system</b>	
Battery type	Built-in rechargeable lithium-ion battery
Charge interface	Type-C
Battery operating time	8 hours
Power manage	Auto shut off / Sleep mode
<b>Environment specification</b>	
Operating temperature range	-20°C to +50°C
Storage temperature range	-40°C to +70°C
Humidity	10% to 95%, non-condensing
Encapsulation	IP54
Shock	25G
Vibration	2G
Drop resistance	2 meter
<b>Physical characteristic</b>	
Weight	Less than 900g

Tripod mounting	1/4" _20
<b>Additional features</b>	
Illuminator	Yes
Laser pointer	Yes
Built-in memory	Yes
Video record	Yes
Ports	USB port , Analog video output
Bluetooth	Yes
Available optional lenses	7°, 12°, 48°

## **Manufacturer Information**

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