- **IR Thermography Camera**

Dia CAm

C.A 1882

　　　User Manual

CHAUVIN® ARNOUX
CHAUVIN ARNOUX GROUP

English

You have just purchased a **C.A 1882 IR thermography camera** and we thank you for your confidence.

For best results from your device:
- **read this** user manual attentively,
- **comply with** the precautions for its use.

MEANING OF THE SYMBOLS USED

![symbol]	The rubbish bin with a line through it indicates that, in the European Union, the product must undergo selective disposal in compliance with Directive WEEE 2002/96/EC. This equipment must not be treated as household waste.
![symbol]	Risk of danger. See explanations in this user manual: Problems that may affect the operation of the I.R. camera.
![symbol]	Notes completing the essential operating procedures.
![symbol]	Laser radiation, do not look directly into the LASER beam.
CE	The CE marking indicates conformity with European directives, in particular LVD and EMC.

Specifications of the laser: Class 2, < 1 mW, wavelength 635 nm

WARNING
LASER RADIATION
DO NOT LOOK DIRECTLY INTO THE
BEAM
CLASS 2 LASER DEVICE

CONTENTS

1. PRECAUTIONS FOR USE

Before using the camera, make sure that you have read and understood the safety precautions described below. Make sure that the camera is used correctly.

Please refer to this manual each time you encounter a hazard symbol. To avoid exposure to laser radiation, injury, or damage to the device, and be sure that you use the camera in a risk-free way, observe the safety recommendations given below:

⚠ Do not look directly into the laser beam. Do not point the laser beam at people.

⚠ Do not use the instrument other than for its intended purpose; keep it out of reach of children and make sure that it is never treated as a toy.

⚠ Do not aim the device towards the sun or other source of intense heat.

⚠ Use only the recommended batteries and accessories. Do not leave the device connected to mains when not necessary.

⚠ Avoid problems due to condensation.

Moving the I.R. camera rapidly from a cold to a warm place can cause condensation (droplets of water) to form on its outside and inside surfaces.

You can avoid this problem by placing the camera in the plastic case and letting it warm slowly to the ambient temperature before removing it from the case.

- When you switch on the camera, wait 10 to 15 minutes before recording your first thermograms, to be certain that the camera's temperature has stabilized and that your measurements are correct.
- Focus the lens correctly according to the distance to the target to be inspected.
- In certain specific conditions only, this device may be sensitive to electrostatic discharges (ESD).

2. DESCRIPTION

2.1 FRONT PANEL

| Torch light |
| Lens locking ring |
| Visible-light camera |
| Laser pointer |
| Focusing ring |
| IR lens |
| Configurable trigger |
| Multi-function docking station |
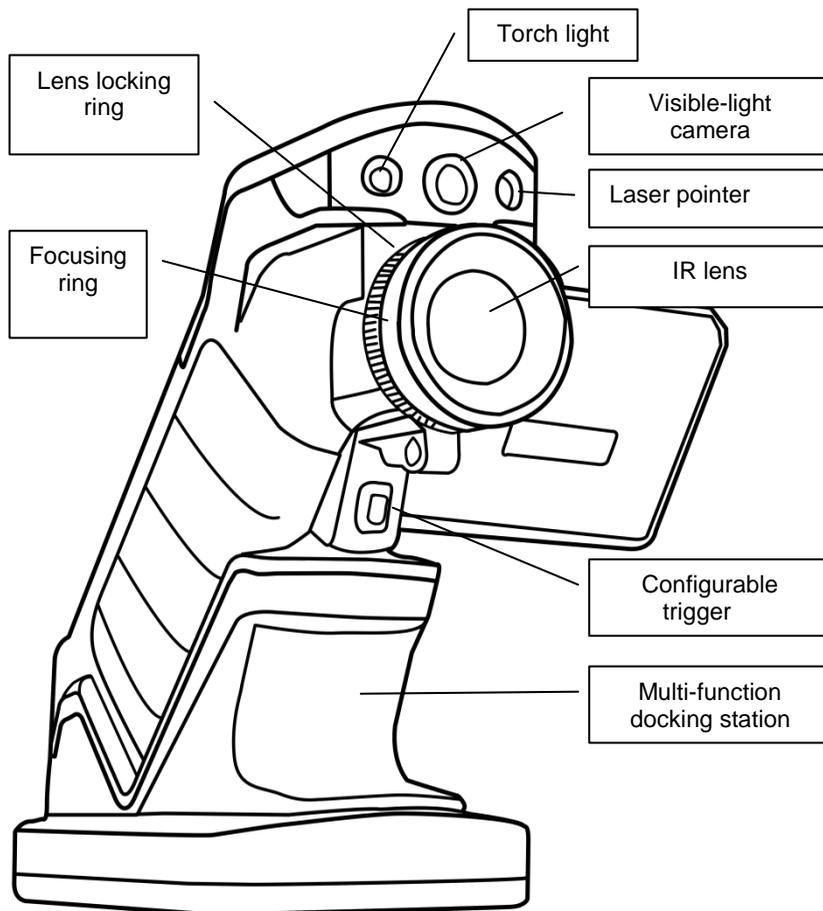
2.2 VIEW OF BACK AND BOTTOM

LCD screen

Keypad

USB connector

Video output connector

Cover of the battery/SD card compartment
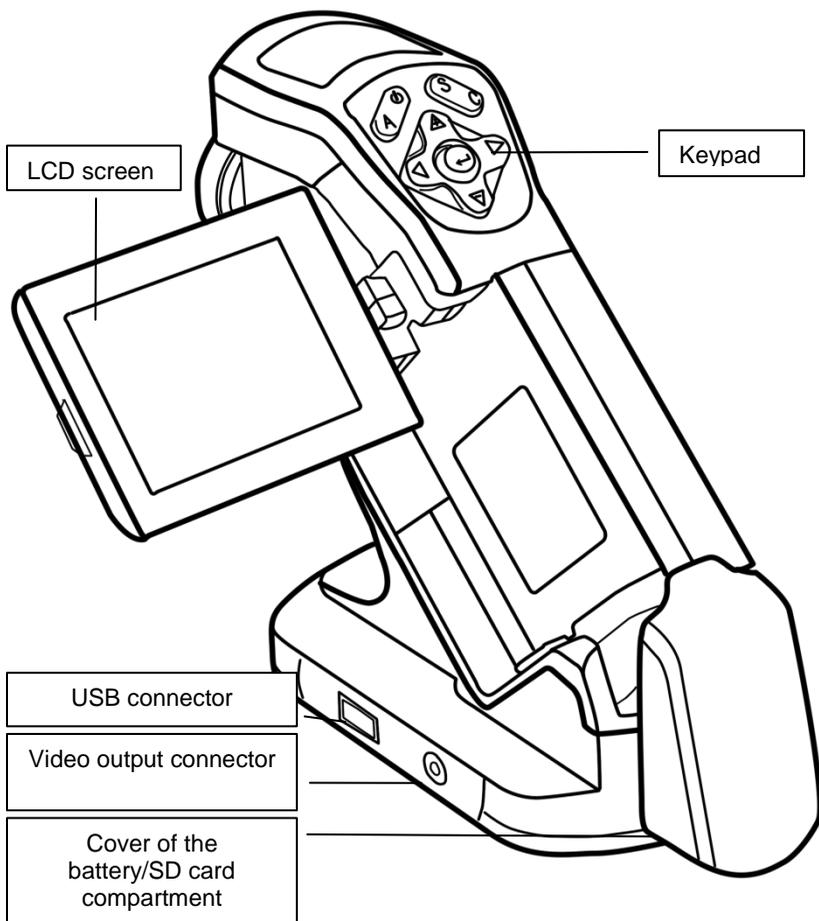
2.3 CONTROLS / MULTI-FUNCTION DOCKING STATION

| Automatic adjustment key | | Switch | | Indicator |

Freeze/Activate

Cancel key

Menu/Enter key

Cursor key

USB connector

Video output connector

Power supply connector

English

2.4 BOTTOM/CONNECTORS

Multiple connector

Slot for SD card

Battery compartment

Battery latch

Lock

Multiple connector
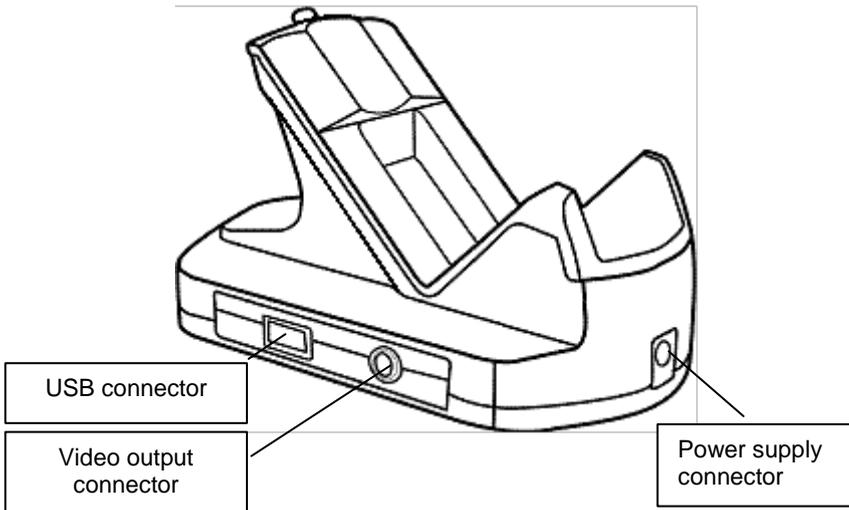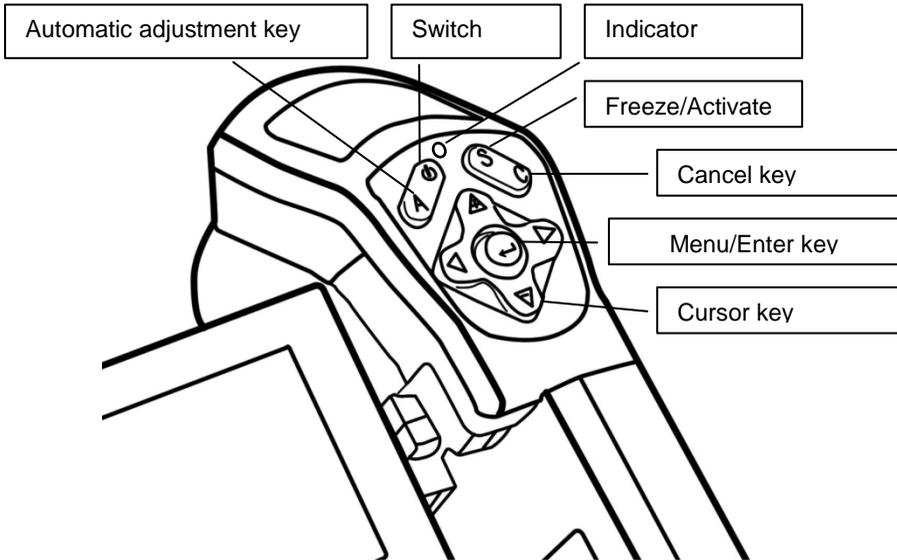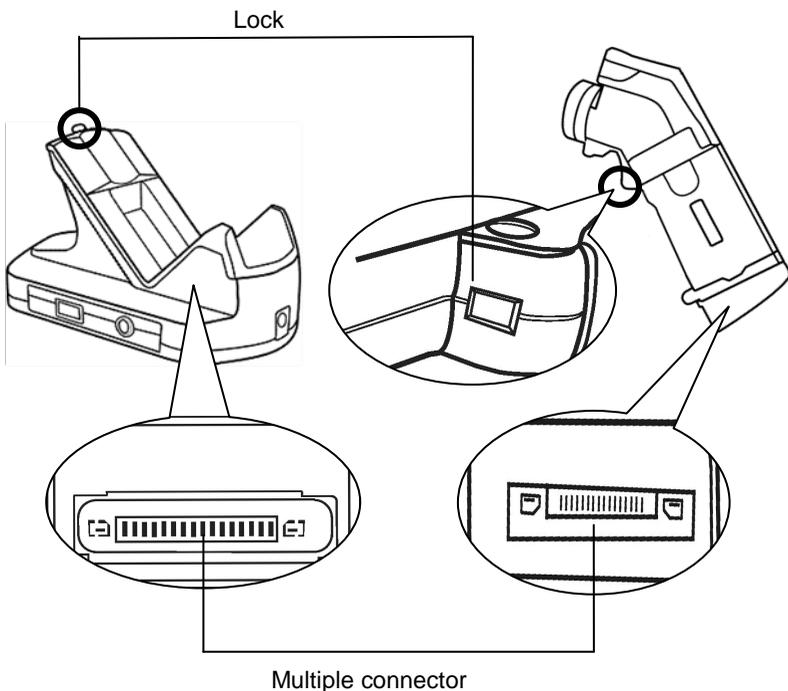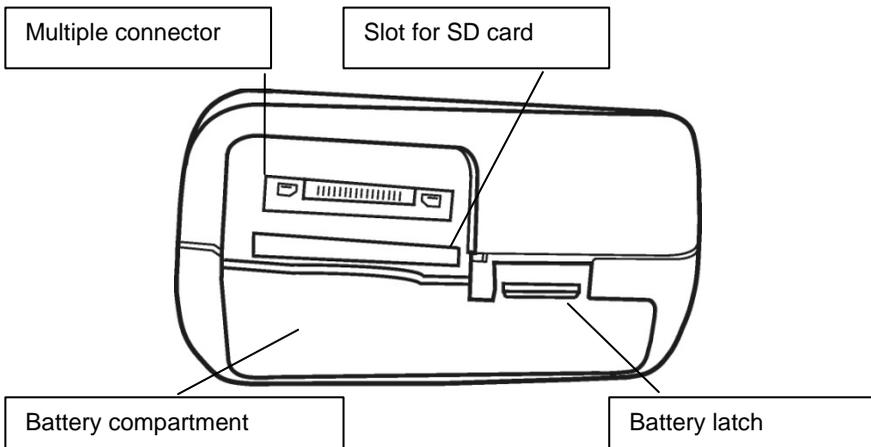
3. PREPARING THE IR CAMERA

3.1 CHARGING THE BATTERY

Proceed as follows to charge the battery for the first time, and thereafter when the "battery low" icon appears on the screen.

1		**Align the edge of the battery pack with the line marked on the battery, then insert it in the direction shown by the arrow.**
2	**Connect the mains cord to the battery charger and the plug at the other end to a wall outlet.**	**The charging indicator lights up red during charging of the battery and turns green when the battery is fully charged.**
		After recharging, disconnect the battery charger and remove the battery pack.

	• The battery is a lithium ion battery, and so does not have to be completely discharged before it is recharged. It can be recharged at any time. However, since the life span of the battery is approximately 300 charging cycles, we recommend charging the battery only when it has been completely discharged, so that it will last longer. • The recharging time varies with the ambient relative humidity and the battery charge condition.

3.2 INSTALLING THE BATTERY / SD CARD

Install the battery in the camera as follows.

	• Charge the battery before using it for the first time.
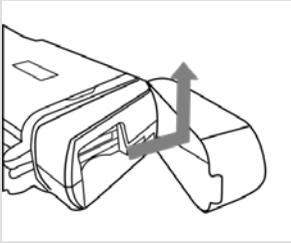
1		**Check that the power is off and slide the battery compartment cover in the direction shown by the arrow.**
2		**Insert the battery.** **Insert the battery in the direction shown by the arrow.**
3		**Insert the SD card.** **Insert the SD card in the direction shown by the arrow.**
4	**Close the cover of the battery/SD card compartment.**	
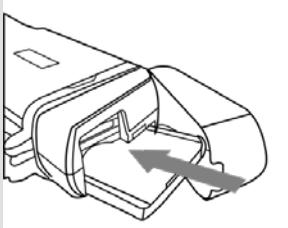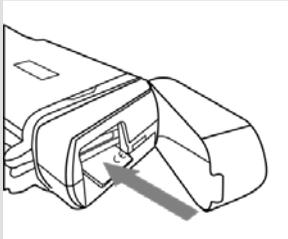
	• Remove the battery when the camera is not in use. • The SD card must be formatted for FAT 32; otherwise the IR camera will not recognize it.

Symbols representing the battery charge condition
The following icons on the LCD screen indicate the condition of the battery.

▉III ▉III ▉ II	Battery adequately charged
▉ I	Battery low
▉ ☐	Battery needs to be replaced or recharged

3.3 POWERING UP THE CAMERA

The indicator comes on when the camera is powered up.
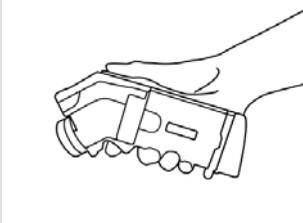
1		**Holding the camera correctly in your right hand, place your thumb above the keypad and your index finger alongside the trigger.**
2		**Press the switch for 3 seconds.** **The indicator lights up green.**
3	**After a moment, the startup screen is displayed.**	
4	**Switching the camera off:** **Press the switch for 3 seconds.** **The indicator goes off.**	

3.4 CHECKING THE INFORMATION ON THE LCD SCREEN

The LCD screen has a field of view covering 100% of the real image sighted.
The following information is displayed on the screen.

Reading

Temperature

Upper limit of colour scale

Colour scale

Lower limit of colour scale

Min. temperature

Time

Battery charge

Activate/Freeze

Current emissivity

Operating indicator
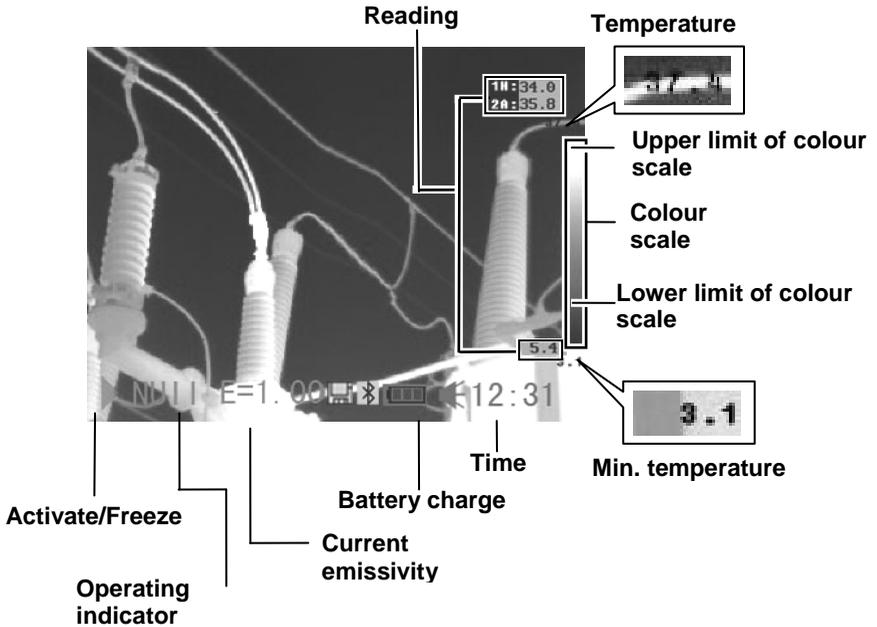
	About the operating indicator
	• The operating indicator indicates the current operating status of the camera.

Status of the camera

NULL E=1. 00
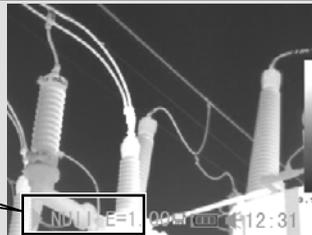
Status of the camera	**Menu**	**Displays the menu mode.**
	Null	**Displays the non-menu mode with no analysis tool selected.**
	*SP1 … 9	**Displays the current analysis tool** **Cursor 1**
	CAP.	**Displays the current analysis tool mode of the cursor in automatic tracking.**
	E	**Current emissivity value.**
	💾	**An SD card has been inserted.**

* The status varies according to the camera model.

Before doing anything more, please switch to [Null] mode.

	How do I switch to [Null] mode? • Press the cancel key several times until the null message appears on the operating indicator.

3.5 SETTING THE DATE AND TIME

You must set the date and time when the camera is used for the first time.

1	Check that the IR camera is in null mode.
2	**Press the MENU/ENTER key then the UP or DOWN arrow of the selector to choose [System Setup].**

File ►
Analysis ►
Manual Adj ►
IR / Visible ►
< Iron >
< Lighting On >
System Setup ►

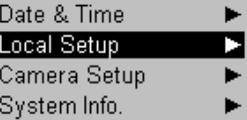| 3	**Press the UP or DOWN arrow of the selector to choose [Date & Time], then press the MENU/ENTER key.**	Date & Time ► Local Setup ► Camera Setup ► System Info. ►
4	**Setting the date and time:** • Press the UP or DOWN arrow of the selector to choose an item to modify; • Press the LEFT or RIGHT arrow of the selector to set the value.	Date & Time Year: Month: Day: Hour: Minute:
5	**After setting the parameters, press the MENU/ENTER key to save the changes or the C key to return to the main menu without saving.**	

3.6 LOCAL PARAMETERS

In this menu, you can select the style of the integrated menu system.

1	**Check that the IR camera is in Null mode.**	
2	**Press the MENU/ENTER key then the UP or DOWN arrow of the selector to choose [System Setup].**	File ► Analysis ► Manual Adj ► IR / Visible ► < Iron > < Lighting On > System Setup ►
3	**Press the UP or DOWN arrow of the selector to choose [Local Setup], then press the MENU/ENTER key.**	Date & Time ► Local Setup ► Camera Setup ► System Info. ►

4	**Local Setup:** • Press the UP or DOWN arrow of the selector to choose a field to modify; • Press the LEFT or RIGHT arrow of the selector to set the values.	Local Setup Language: Video Output: Temp.Unit: Dist. Unit:
5	**After setting the parameters, press the MENU/ENTER key to save the changes or the C key to return to the main menu without saving.**	

📑	**About the local parameters**
Language	**Selects the language of the menus and messages.**
Video output	**Determines the format of the video output of the camera: PAL or NTSC.**
Temp. unit	**Chooses the scale for display of the temperature by the camera: °C or °F.**
Dist. unit	**Determines the unit of distance displayed by the camera: Metres or Feet.**

4. BASIC FUNCTIONS

4.1 USING THE LCD SCREEN

📑	If you want to use the LCD screen to film, play back the thermal images, and set the parameters of the menus, proceed as follows.

1	**Open the LCD screen in the direction shown by the arrow.**	
2	**Aim the IR camera at a subject.**	
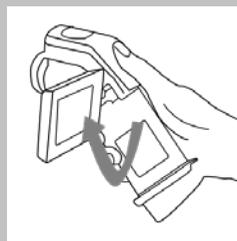
📑	• For a better temperature measurement, place the subject at the centre of the image displayed on the LCD screen. • The LCD screen is switched off when it is closed.

4.2 SELECTION OF THE MENUS AND PARAMETERS

You can select the parameters by pressing the MENU/ENTER key.

1 Press the *MENU/ENTER* key.

2 Press the *LEFT* or *RIGHT* arrow of the selector.

3 Press the *UP* or *DOWN* arrow of the selector.

4 Press the *MENU/ENTER* key.

1 **Menu**   →   *2* **Select a function using**

File menu

File ►
Analysis ►
Manual Adj ►
IR / Visible ►
< Iron >
< Lighting On >
System Setup ►

Analysis menu

File ►
Analysis ►
Manual Adj ►
IR / Visible ►
< Iron >
< Lighting On >
System Setup ►

Manual Adjust.

File ►
Analysis ►
Manual Adj ►
IR / Visible ►
< Iron >
< Lighting On >
System Setup ►

Setup Menu

File ►
Analysis ►
Manual Adj ►
IR / Visible ►
< Iron >
< Lighting On >
System Setup ►

3 **Select the values of the parameters using**

Open	Spot ►	Manual	Date & Time ►
Save	<Remove All >	Level :	Local Setup ►
Delete	Object Para. ►	Span :	Camera Setup ►
File Setup ►		Range :	System Info. ►
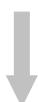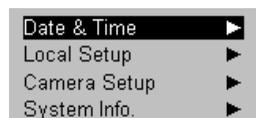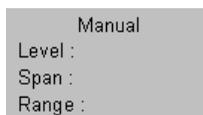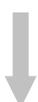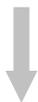
4 **Change the parameters using**

Exit

| | The choice of menus displayed will depend on the use and on the content of the parameters. |
| | The choice of menus depends on the type of camera. |

4.3 RESTORING THE DEFAULT PARAMETERS

You can reset the parameters of use of the menus and keys to their default values.

1	**Switch** 	**Switch the IR camera off.**
2	**Cancel** 	**Press both the switch and the C key for a few seconds.**

	The stored data will not be erased when you restore the operating parameters of the menus and keys to their default values.

5. TAKING SHOTS

5.1 ADJUSTING THE CAMERA

5.1.1   MANUAL FOCUSING
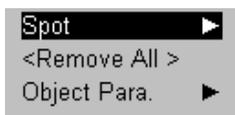
1		**Aim the IR camera at the subject.**
2		**Turn the focusing ring to adjust the sharpness of the subject.**
3		**Turn the ring until the image is clear.**
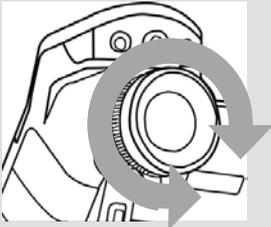
5.2 DISPLAY OF THERMAL IMAGES, VISUAL IMAGES, AND MIXVISION

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

1	**Press the MENU/ENTER key.**	
2	**Press the MENU/ENTER key, then the UP or DOWN arrow of the selector to choose the [IR/Visible menu].**	File ► Analysis ► Manual Adj. ► IR / Visible ► < Iron > < Lighting On > System Setup ►
3	**IR/Visible configuration.** • Press the UP or DOWN arrow of the selector to choose an item to modify. • Press the LEFT or RIGHT arrow of the selector to set the values.	IR / Visible Mode : Percentage :
4	**Press the UP or DOWN arrow of the selector to choose [Mode], then the RIGHT or LEFT arrow to select a display mode, and finally the MENU/ENTER key.**	

5.3 ADJUSTING THE IR CAMERA

In the **MixVision** display mode, you see the thermal images "merged" with the visual image.

IR
In this mode, only the IR image is displayed on the screen.
All the analysis tools are available in this mode.

Visible
In this mode, only the visual image is displayed on the screen.
The analysis tools are not all available in this mode.

MixVision
In this mode, the visual image is in the background and the central window is the merge zone. You can apply all the analysis tools to this zone. You can also adjust the relative proportions of the visual and thermal images using the "Percentage" option.

In the IR and MixVision modes, you can press the UP or DOWN arrow to change the contrast of the IR image and press the LEFT or RIGHT key to change the brightness.

In the **MixVision** display mode, you can move the merge window using combinations of keys.

Moving the merge window.
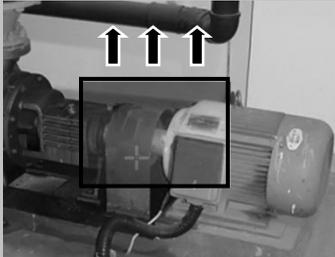
Move the window up.
C + UP arrow
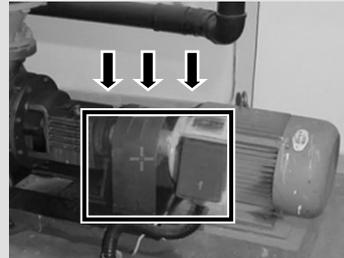
Move the window down.
C + DOWN arrow

Move the window to the left.
C + LEFT arrow
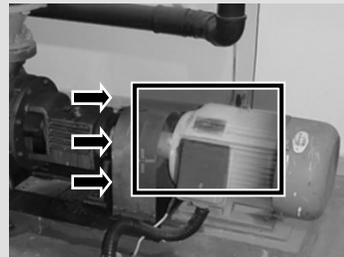
Move the window to the right.
C + RIGHT arrow

	About the operating indicator Percentage: • Adjust the overlay ratio between the thermal image and the visual image. The value is between 1 and 100%.

These elements are activated in [MixVision] mode only.

5.4 ADJUSTING THE IR CAMERA

5.4.1   ADJUSTING THE IMAGE
You can set the brightness and contrast of the image captured by the IR camera manually or automatically.

5.4.1.1   Automatic adjument
The IR camera automatically adjusts the brightness and/or the contrast of the image when you press the *A* key.

	You can define the adjustment mode.

5.4.2   MANUAL ADJUSMENT
You can adjust the brightness and the contrast manually in the integrated menu system or by pressing the arrows of the selector. Press the UP or DOWN key to change the contrast, the LEFT or RIGHT arrow to change the brightness.

5.4.2.1   Manual adjustment in the menu

1	**Press the MENU/ENTER key.**	
2	**Press the UP or DOWN arrow of the selector to choose the [Manual Adj.] menu.**	File ► Analysis ► Manual Adj ► IR / Visible ► < Iron > < Lighting On > System Setup ►
3	**Adjusting Level and Span.** • Press the UP or DOWN arrow of the selector to choose an item to modify. • Press the RIGHT or LEFT arrow of the selector to adjust the values.	Manual Level : Span : Range :
4	**After this operation, press the MENU/ENTER key to save the changes or the C key to return to the main menu without saving.**	

5.4.3 ADJUSTMENT OF THE PALETTE

1	Press the MENU/ENTER key.	
2	Press the UP or DOWN arrow of the selector to choose the current element and on LEFT or RIGHT arrow to choose the palette.	File ▶ Analysis ▶ Manual Adj. ▶ IR / Visible ▶ < Iron > < Lighting On > System Setup ▶
3	After this operation, press the MENU/ENTER key to save the changes or the C key to close the menu without saving.	

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

5.4.4 ADJUSTING THE IMAGE

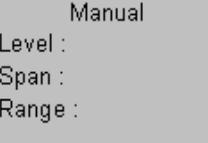| 1	Press the MENU/ENTER key.	
2	Press the UP or DOWN arrow of the selector to choose the [System Setup] menu. Press the MENU/ENTER key.	File ▶ Analysis ▶ Manual Adj ▶ IR / Visible ▶ < Iron > < Lighting On > System Setup ▶
3	Press the UP or DOWN arrow of the selector to choose [Camera Setup], then press the MENU/ENTER key.	Date & Time ▶ Local Setup ▶ Camera Setup ▶ System Info. ▶

			Camera Setup
4	**Adjustment of the image parameters.** • Press the UP or DOWN arrow of the selector to choose an item to modify. • Press the RIGHT or LEFT arrow of the selector to adjust the values.		Auto Adjust: Continuous Adj.: Shutter Period: LCD Display: Shut Down: Laser Adjust: Menu Style :
5	**After this operation, press the MENU/ENTER key to save the changes or the C key to return to the main menu without saving.**		

	About the image parameters:	
Auto Adjust	Defines the function of the *A* key**.** <table><tr><td>**Level and Span**</td><td>The camera automatically optimizes the span (contrast) and level (brightness).</td></tr><tr><td>**Level**</td><td>The camera automatically adjusts the brightness of the image.</td></tr><tr><td>**Span**</td><td>The camera automatically adjusts the contrast of the image.</td></tr></table>	
Continuous Adjust	Determines whether or not the brightness and contrast of the image displayed on the screen will be adjusted automatically. <table><tr><td>**Level and Span**</td><td>The brightness and contrast are adjusted automatically.</td></tr><tr><td>**Level**</td><td>The brightness is adjusted automatically.</td></tr><tr><td>**None**</td><td>The brightness and contrast will not be adjusted automatically.</td></tr></table>	
Shutter period	Defines the automatic adjustment period.	
LCD display	Defines the time to switching off of the LCD screen.	
Shut Down	Defines the time to switching off of the camera.	
Laser Adjust.	Adjusts the Laser point of the LCD screen.	
Menu Style	Determines the style of the menus.	

5.4.5 MEASUREMENT RANGE

Follow the steps below to change the measurement range.

1	**Press the MENU/ENTER key.**
2	**Press the UP or DOWN arrow of the selector to choose [Manual Adjust.], then press the MENU/ENTER key.**
3	**After selecting the [Range] field, press the UP and DOWN arrows of the selector simultaneously to change the measurement range for different lenses**
4	**After this operation, press the MENU/ENTER key to save the changes or the C key to return to the main menu without saving.**

For step 2:

```
File          ►
Analysis      ►
Manual Adj    ►
IR / Visible  ►
< Iron >
< Lighting On >
System Setup  ►
```

For step 3:

```
        Manual
Level :
Span :
Range :
```

5.4.6 FREEZE/ACTIVATE AN IMAGE

1	**Check that the IR camera is in NULL mode.**
2	**Press the S key. This freezes the image.**
3	**Press the S key. The image is reactivated.**

5.5 PRESENTATION OF THE ANALYSIS FUNCTIONS

5.5.1   ADJUSTMENT OF THE OBJECT/GLOBAL PARAMETERS

1	**Press the MENU/ENTER key.**	
2	**Press the UP or DOWN arrow of the selector to choose [Analysis]. Then press the MENU/ENTER key.**	File ► Analysis ► Manual Adj. ► IR / Visible ► < Iron > < Lighting On > System Setup ►
3	**Press the UP or DOWN arrow of the selector to choose [Object Para.]. Then press the MENU/ENTER key.**	Spot ► <Remove All > Object Para. ►
4	**Adjustment of the analysis parameters.** • Press the UP or DOWN arrow of the selector to choose an item to modify. • Press the RIGHT or LEFT arrow of the selector to adjust the values.	Object Setup Emiss : 0.95 Distance : 5m Global Setup Amb. Temp. : 25.0°C Humidity : 50% Ref. Temp. : 25.0°C
5	**After this operation, press the MENU/ENTER key to save the changes or the C key to return to the main menu without saving.**	

	About the analysis parameters:
Emiss	Property of the material essential to a correct determination of the temperature of the target sighted. Parameter ranging from 0 to 1 in steps of 0.01.
Distance	Distance between the thermography operator and the target sighted. Parameter ranging in steps of 1m.
Amb Temp	Enter the ambient temperature.
Humidity	Enter the ambient relative humidity.
Ref. Temp.	Defines a reference temperature to be compared using the spot/zone/profile tool.

5.5.2 ADJUSTMENT OF THE ANALYSIS TOOLS

This item briefly explains how to adjust the thermal image analysis tools.

5.5.3 CURSOR ANALYSIS

1	**Press the MENU/ENTER key.**	
2	**Press the UP or DOWN arrow of the selector to choose [Analysis].**	File ► Analysis ► Manual Adj. ► IR / Visible ► < Iron > < Lighting On > System Setup ►
3	**Press the UP or DOWN arrow of the selector to choose the [Spot] menu.**	Spot ► <Remove All > Object Para. ►
4	**Adjustment of the analysis cursor.** • Press the UP or DOWN arrow of the selector to choose a cursor, then press the MENU/ENTER key. • Cursor 2 will automatically track the hottest or coldest point according to the user's choice. Press the LEFT or RIGHT arrow to select automatic detection of the hottest or coldest point.	Spot 1 <Maximum >
5	**Moving the cursor.** • Start from step 1 to select the cursor. • Press the UP, DOWN, LEFT, RIGHT arrows of the selector to move the cursor. • Press the Menu/Enter key to fix the position of the cursor. The cursor temperature reading changes in real time.	**Cursor no.** 1: 38.7 **Temperature reading**
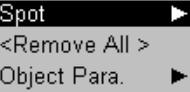
6	**Removing the cursor;** • Start from step 1 to define or select the cursor to be analyzed. • Press the C key to delete the cursor.

5.5.4 REMOVING THE ANALYSIS TOOLS

This item briefly explains how to remove the analysis tools you have placed on the screen.

1	**Press the MENU/ENTER key.**	
2	**Press the UP or DOWN arrow of the selector to choose the [Analysis] menu.**	File ► Analysis ► Manual Adj. ► IR / Visible ► < Iron > < Lighting On > System Setup ►
3	**Press the UP or DOWN arrow of the selector to choose [Remove all].**	Spot ► <Remove All > Object Para. ►
5	**Press the MENU/ENTER key to delete all of the cursors.**	

	You can also delete only one analysis tool by selecting it and pressing the C key;

5.6 RECORDING THE IMAGE

You can save the image in the menu system after freezing the image, or save it directly, without freezing it, by pressing the *S* key of the selector for 3 seconds.

1	**Press the MENU/ENTER key.**
2	**Press the UP or DOWN arrow of the selector to choose the [File] menu.** File ▶ Analysis ▶ Manual Adj ▶ IR / Visible ▶ < Iron > < Lighting On > System Setup ▶
3	**Press the UP or DOWN arrow of the selector to choose [Save], then press the Menu/Enter key to save the image.** The display mode determines the type of image to be saved. Open Save Delete File Setup ▶
4	**The name of the image saved will be displayed on the screen.**

	The image will be saved in the current folder.

5.7 CONFIGURING THE TRIGGER

You can configure the Trigger for use to save an image, to activate the torch light or the laser, or for automatic adjustment of the contrast and brightness.
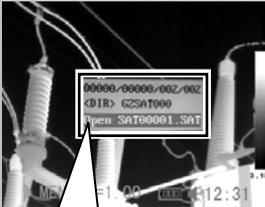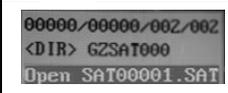
5.7.1   CONFIGURING THE TRIGGER

1	Press the MENU/ENTER key.	
2	**Press the UP or DOWN arrow of the selector to choose the current element.** • Press the LEFT or RIGHT key of the selector to choose Torch light active/Save/Laser Active/Freeze-Unfreeze/Auto. adjust.	File ► Analysis ► Manual Adj. ► IR / Visible ► < Iron > < Lighting On > System Setup ►

	About the configurable function of the trigger:
*Lighting On	You can activate the torch light by pressing the trigger. ⚠ You can obtain sharp visible-light images in darkness when you activate the torch light.
Save File	Record the image by pressing the trigger for 3 seconds.
*Laser On	You can activate the laser pointer by pressing the trigger. ⚠ Do not aim the laser pointer into the eyes of people or animals. Exposure to the laser beam from the pointer can cause impaired vision.
Freeze/Live	Freeze or activate an image.
Auto Adjust	Adjust the brightness and contrast automatically.

6. READING AND ERASING

6.1 OPENING THE IMAGES

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

1	**Press the MENU/ENTER key.**
2	**Press the UP or DOWN arrow of the selector to choose the [File] menu.**
3	**Press the UP or DOWN arrow of the selector to choose [Open], then press the MENU/ENTER key.**
4	**Press the LEFT or RIGHT key of the selector to choose an image, then press the MENU/ENTER key to open it.**

	How to select an image.
1	**When the [Open] or [Delete] option has been selected in the [File] menu, a message similar to the one shown below is displayed on the screen.** **Number of files in current folder** **Current file number** **Current folder number** **00001/00003/002/003** — **Number of folders** **<DIR> GZSAT001** **Open SAT00001.SAT** **File name**
2	**If the image you want to open or delete is not in the current folder, press the [LEFT] or [RIGHT] arrow of the selector several times to select the image.**
3	**Press the *S* key to activate the image.**
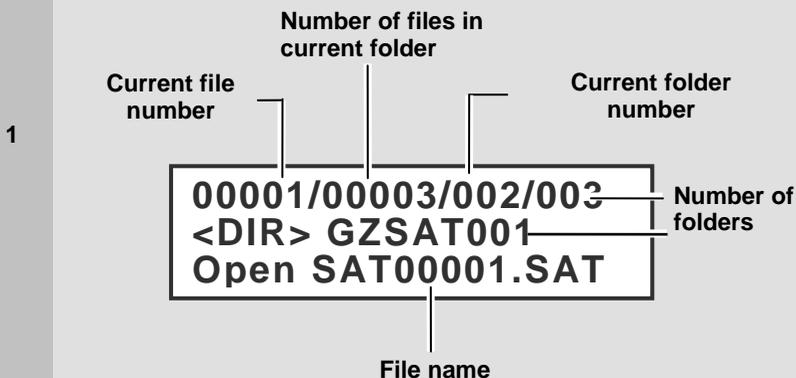
	Selection of the folder and file name.
1	**Press the MENU/ENTER key.**
2	**Press the UP or DOWN arrow of the selector to choose the [File] menu, then press the MENU/ENTER key.**	File ▶ Analysis ▶ Manual Adj ▶ IR / Visible ▶ < Iron > < Lighting On > System Setup ▶
3	**Press the UP or DOWN arrow of the selector to choose the [File Setup] menu, then press the MENU/ENTER key.**	Open Save Delete File Setup ▶
4	**Press the UP or DOWN arrow of the selector to choose the [Directory Name] menu, then on the LEFT or RIGHT arrow to select the folder. [File Number] is the file number in the current folder.**	File Setup Directory Name: File Number: File Name:
5	**Press the UP or DOWN arrow of the selector to choose the [File Name] menu, then the LEFT or RIGHT arrow to select the file name.**

6.1.1   ERASING THE IMAGES

⚠	**Note that images once erased cannot be recovered.** **Take all useful precautions before erasing an image.**

1	**Press the MENU/ENTER key, then the UP or DOWN arrow of the selector to choose the [File] menu.**	File ▶ Analysis ▶ Manual Adj ▶ IR / Visible ▶ < Iron > < Lighting On > System Setup ▶
2	**Press the UP or DOWN arrow of the selector to choose [Delete], then press the MENU/ENTER key.**	Open Save Delete File Setup ▶
3	**Select an image, then press the MENU/ENTER key to erase the image selected.**	
4	**Press the *C* key to exit.**	

7. DOWNLOADING IMAGES

7.1 DOWNLOADING IMAGES USING THE SD CARD

You can withdraw the SD card from the camera and download the images to a computer using the SD card reader provided.

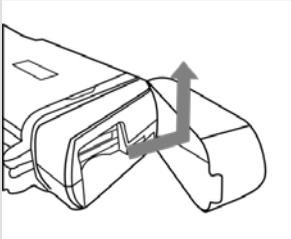|		
1	**Open the cover of the battery/SD card compartment.**	
2	**Press gently on the SD card, which will then be ejected automatically.**	
3	**You can download the IR images using the SD card reader provided.**	
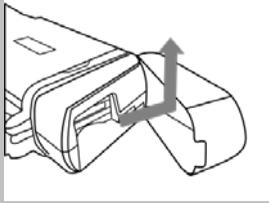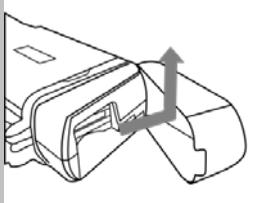
8. CONNECTIONS AND DOWNLOADING

8.1 CONNECTING THE DOCKING STATION

The docking station lets you use a video screen connected by a video cable (provided) to display and analyze the images you have taken. The multi-function docking station is also used to charge the battery once the IR camera has been connected.

1		**Open the battery/SD card compartment (direction shown by the arrow).**
2		**Place the docking station on a level surface, then place the camera on the docking station (in the direction shown by the arrow).**
		⚠ **Press gently downward on the camera, in the direction of the docking station slide.**
3	**You can now use the multi-function docking station.**	

8.2 CONNECTION TO A MONITOR

A compatible video monitor connected using the video cable (option) can be used to view and analyze the images you have taken.

1		**Connect the video cable to the video output connector of the multi-function docking station.**
2	**To the video input connector**	**Connect the other end of the video cable to the video input connector of the monitor.**
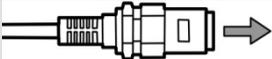
9. ACCESSORIES

9.1 USING THE SUN SHADE

When you film outdoors in sunlight, the sun shade will make it easier to see the screen clearly.
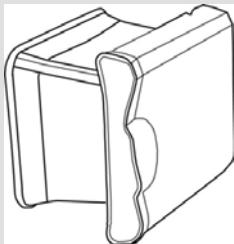
1		**Install the sun shade in the direction shown by the arrow, following the instructions below.**
2		

10. TROUBLESHOOTING

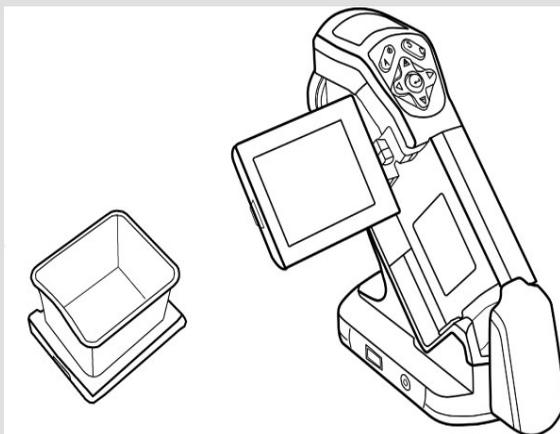| Problem	Cause	Solution
The camera fails to operate	No power supply	• Switch the camera on. See *Powering up the camera*
	Battery voltage too low	• Completely recharge the battery.
	Bad contact between the camera and battery terminals	• Wipe the terminals with a clean, dry cloth.
The camera fails to record	Internal memory full	• If possible, load the images onto a computer and erase them from the camera to make room.
	Internal memory incorrectly formatted	• Format the internal memory to FAT32 format.
Battery discharges rapidly	Battery capacity reduced because of a year or more without use since the last full charge.	• Replace the battery with a new one.
	Battery life span exceeded.	• Replace the battery with a new one.
The battery fails to recharge	Bad contact between the battery and the charger.	• Wipe the terminals with a clean, dry cloth. • Connect the power cord to the charger and insert its plug firmly into a wall outlet.
	Battery life span exceeded.	• Replace the battery with a new one.

11. MAINTENANCE

For maintenance, use only the spare parts specified. The manufacturer cannot be held liable for any accident following a repair not done by its own customer service department or an approved repairer.

11.1 SERVICING AND MAINTAINING THE CAMERA

Proceed as follows to clean the body of the camera, the lens, the LCD screen, and the other parts.

BODY OF THE CAMERA
Wipe the body of the camera with a soft cloth or lens cleaning cloth.

LENS
Remove dust and dirt using a lens blowing brush and then any remaining dirt by wiping the lens gently with a soft cloth.
- Never use synthetic cleaners on the body of the camera or on the lens.

LCD SCREEN
Use a blow brush to eliminate dust and dirt. If necessary, wipe the screen gently with a soft cloth or a lens cleaning cloth to remove persistent dirt.
- Never rub the LCD screen and never press hard on its surface, since this might damage it or cause other problems.

⚠ Never use thinners, benzene, synthetic cleaners, or water to clean the camera, since these substances might damage the equipment or alter its performance.

11.2 METROLOGICAL CHECK

Like all measuring or testing devices, the instrument must be checked regularly.

We recommend checking this instrument yearly. For checks and calibrations, contact one of our accredited metrology laboratories (information and contact details available on request), our Chauvin Arnoux subsidiary or the branch in your country.

11.3 REPAIR

For all repairs before or after expiry of warranty, please return the device to your distributor.

12. WARRANTY

Except as otherwise stated, our warranty is valid for twelve months starting from the date on which the equipment was sold. Extract from our General Conditions of Sale provided on request.

The warranty does not apply in the following cases:
- Inappropriate use of the equipment or use with incompatible equipment,
- Modifications made to the equipment without the explicit permission of the manufacturer's technical staff,
- Work done on the device by a person not approved by the manufacturer,
- Adaptation to a particular application not anticipated in the definition of the equipment or not indicated in the user's manual,
- Damage caused by shocks, falls, or floods.

13. APPENDIX

13.1 TABLE OF EMISSIVITIES

Material	Temperature (°C)	Approximate emissivity
Metals		
Aluminium		
Polished aluminium	100	0.09
Commercial aluminium sheet	100	0.09
Oxidized chrome-anodized aluminium	25～600	0.55
Slightly oxidized aluminium	25～600	0.10～0.20
Highly oxidized aluminium	25～600	0.30～0.40
Brass		
Shiny brass (extreme polishing)	28	0.03
Oxidized brass	200～600	0.61～0.59
Chromium		
Polished chromium	40～1090	0.08～0.36
Copper		
Shiny copper	100	0.05
Highly oxidized copper	25	0.078
Copper oxide	800～1100	0.66～0.54
Molten copper	1080～1280	0.16～0.13
Gold		
Shiny gold	230～630	0.02
Lead		
Pure lead (no oxidation)	125～225	0.06～0.08
Slightly oxidized	25～300	0.20～0.45
Magnesium		
Magnesia	275～825	0.55～0.20
Magnesia	900～1670	0.20
Mercury	0～100	0.09～0.12
Nickel		
Polished by anodizing	25	0.05
Electrolysed	20	0.01

Unpolished		
Nickel wire	185～1010	0.09～0.19
Nickel sheet (oxidized)	198～600	0.37～0.48
Nickel oxide	650～1255	0.59～0.86
Nickel alloy		
Nickel-chromium alloy wire (shiny) (refractory)	50～1000	0.65～0.79
Nickel-chromium alloy	50～1040	0.64～0.76
Refractory nickel-chromium	50～500	0.95～0.98
Nickel-silver alloy	100	0.14
Stainless steel		
18-8	25	0.16
304(8Cr, 18Ni)	215～490	0.44～0.36
310(25Cr, 20Ni)	215～520	0.90～0.97
Tin		
Commercial tinplate	100	0.07
Highly oxidized	0～200	0.60
Zinc		
Oxidation at 400°C	400	0.01
Shiny galvanized iron plate	28	0.23
Oxidized zinc powder	25	0.28
Non-metallic materials		
Brick	1100	0.75
Refractory brick	1100	0.75
Graphite (carbon black)	96～225	0.95
Enamel (white)	18	0.90
Asphalt	0～200	0.85
Glass (surface)	23	0.94
Refractory glass	200～540	0.85～0.95
Calcimine (whitewash)	20	0.90
Oak	20	0.90

14. TECHNICAL SPECIFICATIONS

Description	Characteristic	C.A 1882
Imaging performance	Field of view/Minimum focal distance	38 x 28/0.1 m
	Thermal sensitivity (NETD)	0.08 °C to 30 °C
	Type of detector	Focal-plane network, uncooled micro-bolometer.
	Frequency	50 Hz (9 Hz outside EU area, model : P01651215E)
	IR resolution	160 x 120
	Spectral band	8-14 µm
	Focusing mechanism	Manual focusing.
	I.F.O.V. (with standard objective lens)	4.4mrad
Presentation of image	Image modes	Thermal/Visible/MixVision
	Merge	Yes
	Image annotation	No
	Screen	2.5" TFT screen
	Resolution of the camera in visible-light image mode	640 x 480 pixels
Measurement	Temperature range	-20 °C~250 °C
	Precision	±2°C or ±2% of reading
	Measurement modes/Analysis tools	1 mobile cursor/automatic hot-cold cursor
	Temperature alarms	No
	Configuration controls	Language/Date/time format/Palettes/Units
	Measurement corrections	Ambient temperature/Emissivity correction/Distance/Humidity
Memory	Type/Memory capacity	SD card/2GB removable, up to 16GB
	Formats	.SAT/.CCD

Laser pointer/Torch light	Classification/Type	Class 2.1mW / 635nm (red) EN 60825-1
	Torch light	Yes
Conformities	Electromagnetic compatibility	EN 61326-1
	Safety	EN 61010-1
Power supply	Type of battery: Operating time	Rechargeable lithium battery / approximately 3 hours
	Mains adapter	8V-11V output to the camera
	Power management	Standby mode
Environmental conditions	Operating temperature	-15 °C to +50 °C (5 °F to 122 °F)
	Storage temperature range	-40 °C to +70 °C (-40 °F to + 158 °F)
	Humidity	Relative humidity 95% from +25°C to +40°C (+77°F to +104°F), without condensation.
	Protection	IP54
	Shock/Vibration	25 G/2 G
Physical characteristics	Weight	Less than 500 g (with the battery)
	Dimensions	172 mm x 80 mm x 162 mm
Interfaces	USB (cable included)	No
	Video output	NTSC/PAL
	Bluetooth headset	No
Software	RayCAm Preview Software	

15. STATE AT DELIVERY

C.A 1882 IR thermography camera P01651215

Delivered with:
- 1 plain cardboard box for transport
- 1 battery charger
- 1 docking station
- 1 battery
- 1 2GB miniSD card
- 1 card reader
- 1 video cable
- RayCam Preview software on CD ROM
- 1 DiaCAm user manual on CD ROM
- 1 Preview software user manual on CD ROM

ACCESSORIES & SPARES

C.A 1875 training bench.. P01651620
Mains power unit.. P01651527
Station for C.A 1882.. P01651528
Sun shade for C.A 1882.. P01651532
Battery for C.A 1882 .... P01296045
Battery charger for C.A 1882 .... P01296046
Cigar lighter adapter HX0061
Introduction to thermography .... Contact us

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