

# 32\*31 Thermal Image User Manual



**Please read this manual before switching the unit on.  
Important safety information inside.**



## 32\*31 Thermal Image User Manual



**CONTENTS****PAGE**

|                                                         |    |
|---------------------------------------------------------|----|
| 1. Introduction.....                                    | 4  |
| 2. Features.....                                        | 4  |
| 3. Specifications.....                                  | 5  |
| 4. Front Panel and Button Description.....              | 6  |
| 5. Menu Overview.....                                   | 7  |
| 5-1. Image Blending.....                                | 8  |
| 5-2. Rechargeable Battery.....                          | 8  |
| 5-3. Capture and Save.....                              | 9  |
| 5-4. Menu Functions.....                                | 9  |
| 5-5. Adjust Emissivity.....                             | 9  |
| 5-6. Select the Temperature Unit.....                   | 10 |
| 5-7. Display max. value and min. Value.....             | 10 |
| 5-8. Select Color Palette.....                          | 11 |
| 5-9. Set Date and Time.....                             | 11 |
| 5-10. Adjust Background Temperature.....                | 12 |
| 5-11. Enable or Disable the high alarm , low alarm..... | 12 |
| 5-12. Adjust LCD Bightness.....                         | 13 |
| 5-13. Selet Image Blending Distance.....                | 13 |
| 6. Notes.....                                           | 14 |

### 1. Introduction

The device is a professional infrared 32\*31 pixels imager thermometer with 2.2" color TFT LCD display, 32\*31 pixels imager & a micro SD memory card for capturing images (BMP) for viewing on your pc ,providing fast ,easy and accurate reading for most surface temperature measurements. This produce combines the convenience of an infrared thermometer with the visual advantage of a thermal imager creating a brand new tool category—a troubleshooting camera with infrared heat map.

### 2. Features

- 2.2" 320\*240 TFT LCD display
- IR temperature measurement with resolution 32\*31 pixels
- Image capture frequency 9Hz
- Thermal sensitivity (NETD)  $\leq 150\text{mK}$
- Hot spot and cold spot tracking
- Visual camera & images capture (BMP)
- Micro SD memory card
- Date/time setup controls ,Adjustable emissivity & trigger lock
- Li-Ion rechargeable battery
- USB interface for charge and download image form SD memory

### 3. Specifications

#### Temperature

|                                  |                                |
|----------------------------------|--------------------------------|
| Temperature Measurement Range    | -20 °C to +300 °C              |
| Temperature Measurement Accuracy | ±2 %±2 °C as tested (at 25 °C) |
| On-Screen Emissivity Correction  | Yes                            |
| On-Screen Reflected Background   | Yes                            |
| Temperature Compensation         |                                |

#### Image Performance

|                            |                               |
|----------------------------|-------------------------------|
| Image Capture Frequency    | 9 Hz                          |
| Detector Type              | Uncooled pyroelectric ceramic |
| Thermal Sensitivity (NETD) | ≤150 mK                       |
| Infrared Spectral Band     | 6.5 μm to 14 μm               |
| Visual Camera              | 48608 pixels                  |
| Field of View              | 38° X 38°                     |
| Focus Mechanism            | Fixed Focus                   |

#### Image Presentation

|                                                                                                  |      |
|--------------------------------------------------------------------------------------------------|------|
| Palettes                                                                                         |      |
| Hot Metal, Ironbow, Rainbow,Rainbow High Contrast,Grayscale(white hot) and Grayscale (black hot) |      |
| Level and Span                                                                                   | Auto |

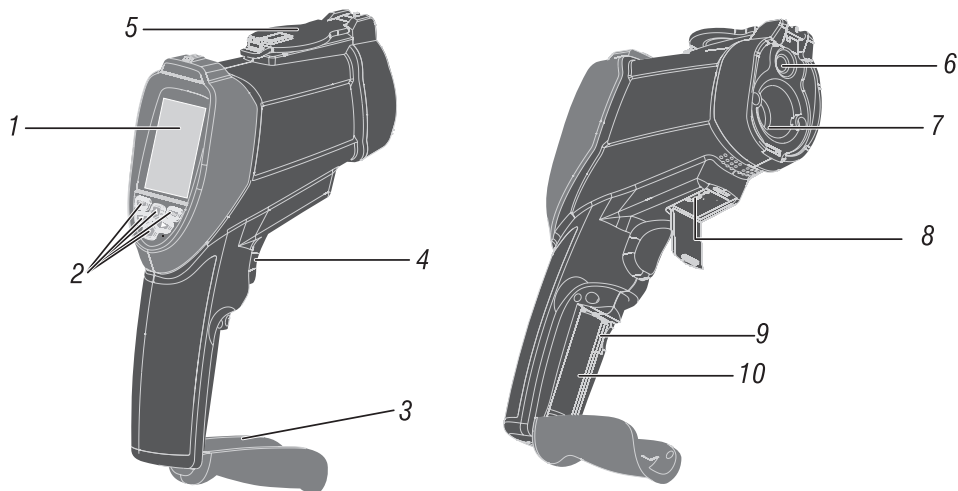
#### Blending Information

|                                               |                                                                                         |
|-----------------------------------------------|-----------------------------------------------------------------------------------------|
| Parallax Correction of Visual and IR Blending | 0.5m, 1.0m, 2.0m, 3.0m                                                                  |
| View Options                                  | Blending of the visual and the infrared from full infrared to full visual in 25 % steps |
| Hot Spot and Cold Spot Tracking               | Yes                                                                                     |

#### Image capture and data storage

|                       |                                                    |
|-----------------------|----------------------------------------------------|
| Image Capture         | Image available for review before a save           |
| Storage Medium        | Micro SD memory card, stores up to 6,000 images/GB |
| File Format           | .BMP                                               |
| Memory Review         | Scroll through all saved images and view on-screen |
| Operating Temperature | 0°C to +50 °C                                      |
| Storage Temperature   | -20 °C to +60 °C                                   |
| Relative Humidity     | 10 % to 90 % non-condensing                        |
| Display               | 2.2 in diagonal 320*240TFT LCD                     |
| Overload display      | ----                                               |

## 4. Front Panel and Button Description

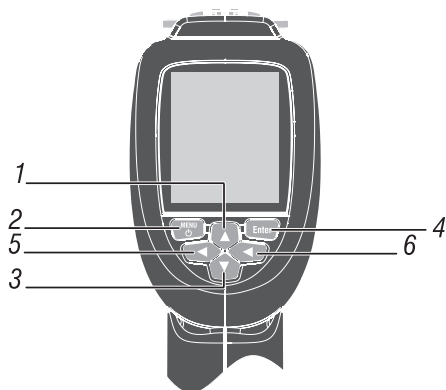


### Item-Description

- 1-LCD Display
- 2-BUTTONS
- 3-Battery Cover
- 4-Measurement Trigger
- 5-Retractable Lens Cover
- 6-Visual Camera
- 7-IR Sensor
- 8-USB Computer Interface Socket
- 9-Micro SD Memory Card
- 10-Battery

### Item-Description

- 1-UP Button(▲)
- 2-Menu Button
- 3-Down Button(▼)
- 4-ENTER Button
- 5-LEFT Button(◀)
- 6-RIGHT Button(▶)

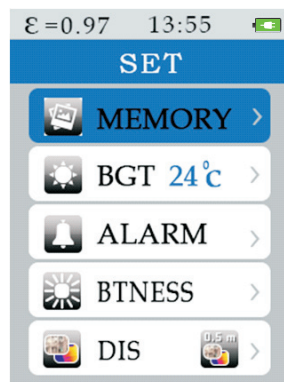


## 5. Menu Overview

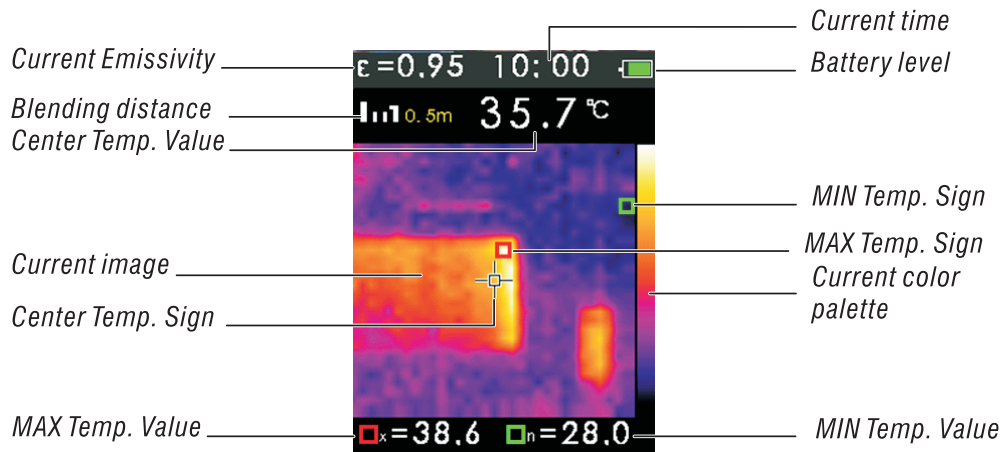
### Power On or Power Off

On the power off mode, press and hold Menu button, until the LCD is on, then the unit will power on.

On the power on mode, Press and hold the Menu button, until the LCD is off, then the unit will power off.



| Items  | Description                                                  |
|--------|--------------------------------------------------------------|
| EMS    | Adjust emissivity                                            |
| UNIT   | Select the temperature unit                                  |
| MXMN   | Display max. value and min. value                            |
| PLT    | Select color palette                                         |
| DATE   | Set date and time                                            |
| MEMORY | Display the saved picture                                    |
| BGT    | Adjust Background Temperature                                |
| ALARM  | Enable or disable the high alarm, low alarm and adjust value |
| BTNESS | Adjust LCD bightness                                         |
| DIS    | Selet Image Blending distance                                |



### 5-1. Image Blending

Image blending makes it easier to understand infrared heat maps through the use of an aligned visible image and infrared heat map. The Product captures a visible image with each infrared heat map to exactly show the target area and more effectively share it with others.

Please use the ▲ and ▼ button to adjust blending form 0% to 100%.

### 5-2. Rechargeable Battery

The **32\*31 Thermal Image** has a rechargeable Li-ion battery.

Before using the **device** for the first time, charge the battery:

1. Plug the ac power supply into an ac wall outlet.
2. Connect the mini-USB connector to the **device**.

While the battery is charging, 🔌 shows on the display

When charged, 🔌 shows on the display .

The typical charge time from 100 % discharged to 100 % charged is 3 to 4 hours.

#### Note

Make sure the Product is near room temperature before you connect it to the charger. See the charging temperature specification. Do not charge in hot or cold places. Charging in extreme temperatures reduces the battery pack's ability to hold a charge.

#### Note

The mini-USB cable is for battery charging and download images form micro SD memory card.



### 5-3. Capture and Save

The Product saves up to 6,000 images/GB on the micro SD memory card.

To capture the image and save it to memory:

1. Point the Product at the object or area of interest.
2. Pull the **trigger** to capture the image.
3. Press the **ENTER** button to save the image
4. Press the **Menu** button to cancel

#### Note

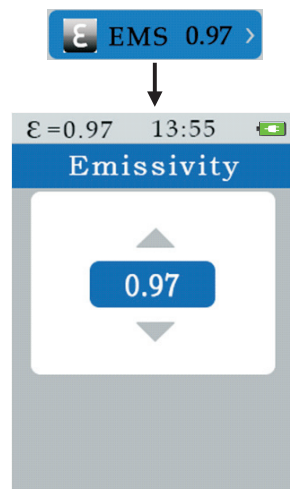
A routine file back-up procedure is recommended for the micro SD memory card to store these files in a safe location.

### 5-4. Menu Functions

To open the display menu, push the **Menu** button. The menu has options for emissivity, unit, background temperature, hot and cold markers, date, and time, memory.

### 5-5. Adjust Emissivity

1. Press the **Menu** button into Menu.
2. Press the **▲** and **▼** button to select **EMS**.
3. Press the **ENTER** button.
4. Press the **▲** and **▼** button to set **emissivity**.



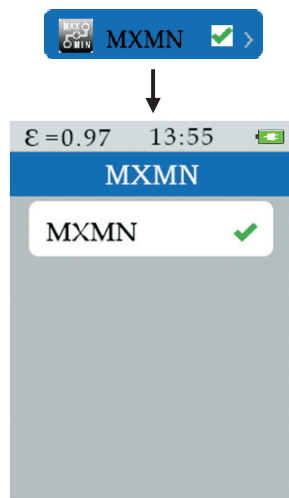
### 5-6. Select the Temperature Unit

1. Press the **Menu** button into Menu.
2. Press the ▲ and ▼ button to select **UNIT**.
3. Press the **ENTER** button.
4. Press the ▲ and ▼ button to select the °C or °F.



### 5-7. Display max. value and min. Value

1. Press the **Menu** button into Menu.
2. Press the ▲ and ▼ button to select **MXMN**
3. Press the **ENTER** button
4. Press the **ENTER** button to display max. Value and min. Value



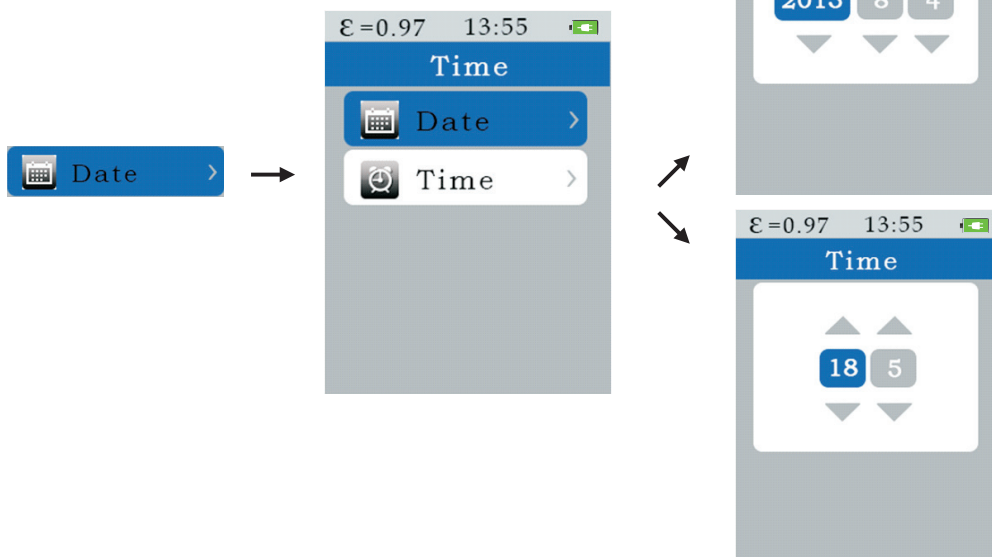
### 5-8. Select Color Palette

1. Press the **Menu** button into Menu.
2. Press the ▲ and ▼ button to select **PLT**
3. Press the **ENTER** button
4. Press the ▲ and ▼ button to select color palette



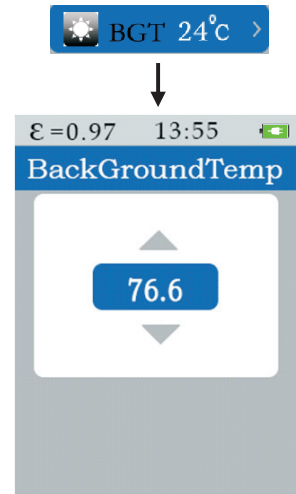
### 5-9. Set Date and Time

1. Press the **Menu** button into Menu.
2. Press the ▲ and ▼ button to select **DATE**
3. Press the **ENTER** button
4. Press the ▲ and ▼ button to select **Date or Time**
5. Press the **ENTER** button
6. Press the ▲ and ▼ button to set **Date or Time**



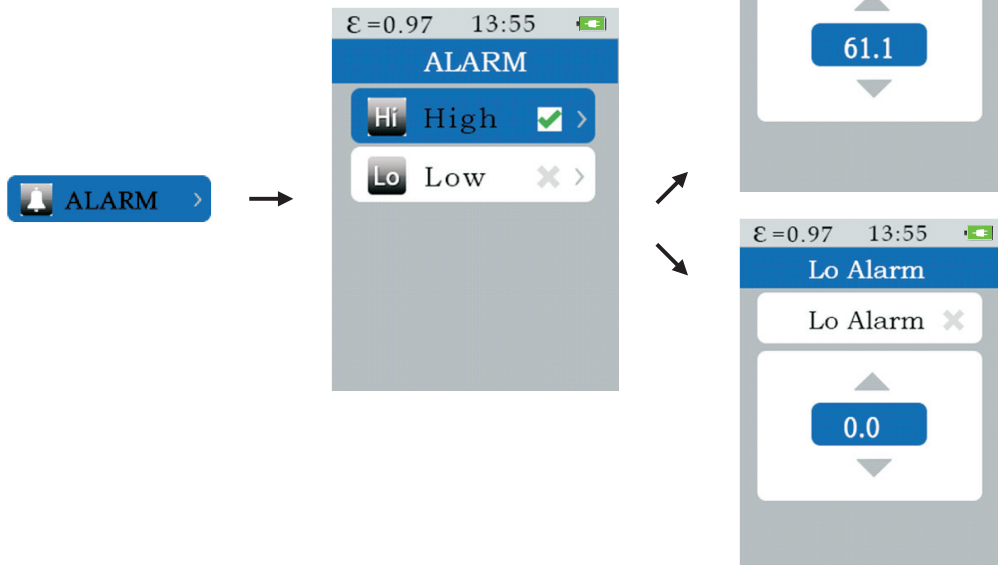
### 5-10. Adjust Background Temperature

1. Press the **Menu** button into Menu.
2. Press the **▲** and **▼** button to select **BGT**
3. Press the **ENTER** button
4. Press the **▲** and **▼** button to set Background Temperature



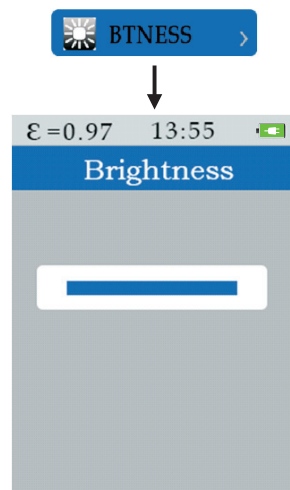
### 5-11. Enable or Disable the high alarm , low alarm

1. Press the **Menu** button into Menu.
2. Press the **▲** and **▼** button to select **ALARM**
3. Press the **ENTER** button
4. Press the **▲** and **▼** button to select **High or Low**.
5. Press the **ENTER** button
6. Press the **▲** and **▼** button to set **High or Low alarm vlaue**.
7. Press the **ENTER** button to **enable or disable**.



### 5-12. Adjust LCD Bightness

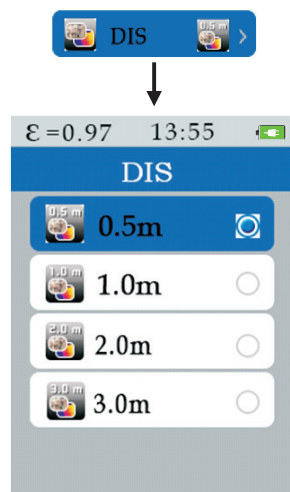
1. Press the **Menu** button into Menu.
2. Press the **▲** and **▼** button to select **BTNESS**
3. Press the **ENTER** button
4. Press the **▲** and **▼** button to Adjust **LCD bightness**



### 5-13. Selet Image Blending Distance

1. Press the **Menu** button into Menu.
2. Press the **▲** and **▼** button to select **DIS**
3. Press the **ENTER** button
4. Press the **▲** and **▼** button to Selet Image Blending distance

In the measure mode ,also you can LEFT button and RIGHT button to adjust image blending distance.



## 6. Notes

### • Emissivity

Emissivity is a term used to describe the energy-emitting characteristics of materials.

Most (90% of typical applications) organic materials and painted or oxidized surfaces have an emissivity of 0.95 (pre-set in the unit). Inaccurate readings will result from measuring shiny or polished metal surfaces. To compensate, cover the surface to be measured with masking tape or flat black paint. Allow time for the tape to reach the same temperature as the material underneath it. Measure the temperature of the tape or painted surface.

### • Emissivity Values

| Substance | Thermal emissivity | Substance         | Thermal emissivity |
|-----------|--------------------|-------------------|--------------------|
| Asphalt   | 0.90 to 0.98       | Cloth (black)     | 0.98               |
| Concrete  | 0.94               | Human skin        | 0.98               |
| Cement    | 0.96               | Lather            | 0.75 to 0.80       |
| Sand      | 0.90               | Charcoal (powder) | 0.96               |
| Earth     | 0.92 to 0.96       | Lacquer           | 0.80 to 0.95       |
| Water     | 0.92 to 0.96       | Lacquer (matt)    | 0.97               |
| Ice       | 0.96 to 0.98       | Rubber (black)    | 0.94               |
| Snow      | 0.83               | Plastic           | 0.85 to 0.95       |
| Glass     | 0.90 to 0.95       | Timber            | 0.90               |
| Ceramic   | 0.90 to 0.94       | Paper             | 0.70 to 0.94       |
| Marble    | 0.94               | Chromium oxides   | 0.81               |
| Plaster   | 0.80 to 0.90       | Copper oxides     | 0.78               |
| Mortar    | 0.89 to 0.91       | Iron oxides       | 0.78 to 0.82       |
| Brick     | 0.93 to 0.96       | Textiles          | 0.90               |



**Rev.150528**

