

Quick Guide



Unicorn9
4G Full Frequency

Safety Instructions

Ordinary mobile phones can not meet the explosion-proof requirements in dangerous places, so they are not allowed to be used in dangerous places that may cause explosion. The areas that may cause explosion include: fuel area (such as under the deck of a ship, transportation and storage facilities for fuel or chemical products), places with chemical substances or particles (such as particles, dust or metal powder) in the air, such as gas stations, oil depots, etc.

The Industrial Intrinsically Safe Smartphone Unicorn9 produced by Beijing Dorland has been certified by the national explosion-proof certification authority, and meets the requirements of GB3836.1-2010 explosive environment Part 1: General requirements for equipment, GB3836.4-2010 explosive environment Part 4: equipment protected by intrinsically safe "i" and GB12476.1-2013 electrical equipment for combustible dust environment Part 1: General requirements and GB12476.4-2010 / IEC61241-11: 2005 electrical equipment for combustible dust environment Part 4: intrinsic safety "iD" standard requirements. It is suitable for zone 1, zone 2, zone 21 and zone 22 of explosion hazard field.

Basic parameters

Explosion-proof grade: Ex ib IIC T4 Gb / Ex ibD 21 T130°C
Certification No.: CCR1 21.2044
Protection grade: IP68

Safety Warning

Safety performance of Industrial Intrinsically Safe Smartphone Unicorn9 can be guaranteed only in strict accordance with the instructions in this section. Please read the instruction carefully before using. If you have any questions, please contact the manufacturer immediately.

Safety Rules

Safety performance of Industrial Intrinsically Safe Smartphone Unicorn9 base the users obey the following rules.

- The battery for Unicorn9 is made by the manufacturer specializing in the production of batteries. Only the original battery meets the intrinsically safe requirements. Any other non-original batteries will result in the loss of phone explosion-proof performance. Please make sure to use the original battery. For battery replacement, please contact Beijing Dorland System Control Technology Co., LTD.. The battery for Unicorn9 is Ex Battery 050 5000mAh explosion-proof polymer battery.
- Please use the original charger when recharge battery, and make sure in the safe areas. The maximum charge voltage is 4.35V.
- Don't replace battery for Unicorn9 in explosion hazardous areas.
- Unicorn9 can not be used in explosion danger zone 0.
- Don't use headset, data cable plug devices in the explosion hazardous areas.
- Don't use the flash function in explosion hazardous areas.
- Don't use the vibration function of the phone in explosion hazard areas.
- Please keep away the high-temperature region when using Unicorn9.

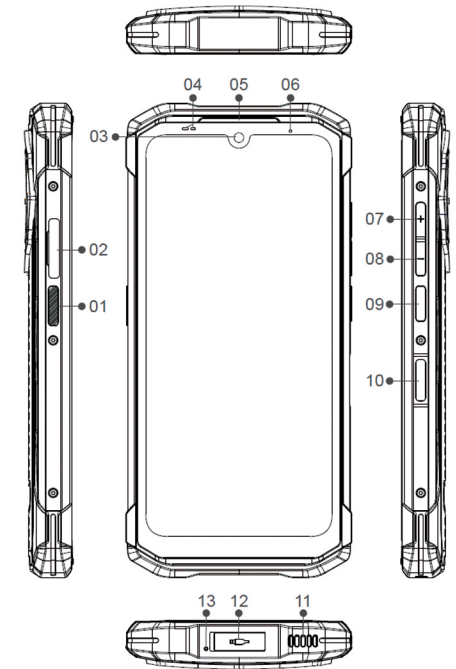
Failure and damage processing

If Unicorn9 has lost its safety performance, please stop using in explosion hazardous areas, and ship the failure phones back to the manufacturer for testing.

Situations that may cause failure of Unicorn9 explosion-proof performance include the following ones:

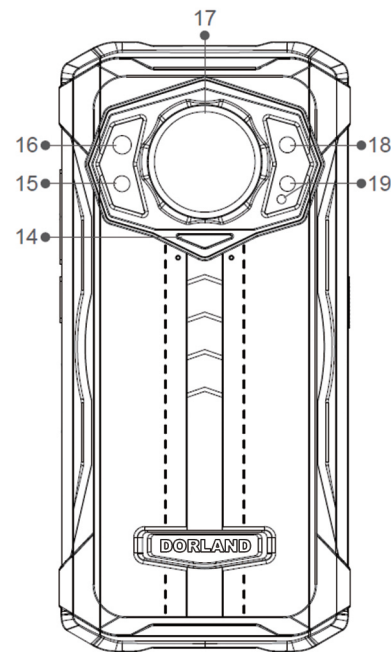
- The phone shell is damaged;
- Storage place does not meet the storage conditions;
- Damaged during transport;
- Explosion-Proof mark is unrecognized;
- Other functions fail.

Product view



- | | |
|-----------------------------------|--------------------|
| 1. User defined key function | 6. Indicator light |
| 2. SIM/TF card | 7. Volume+ |
| 3. Front camera | 8. Volume- |
| 4. Ambient light/proximity sensor | 9. Power key |
| 5. Receiver | 10. Fingerprint |

Product view

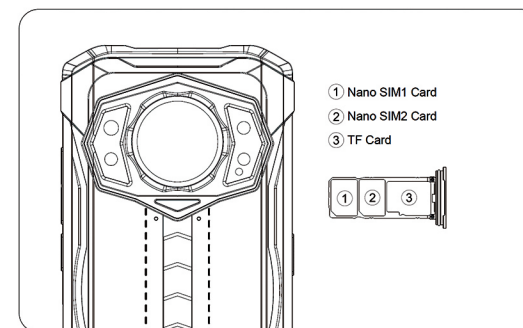


- | | |
|-----------------------|--------------------------------|
| 11. Horn | 16. Night vision camera |
| 12. Type-C interface | 17. Post display |
| 13. Microphone | 18. Main camera |
| 14. Rear flash | 19. Infrared night vision lamp |
| 15. Wide angle camera | |

Installing SIM and memory cards

You can install two Nano-SIM cards and a TF card.

- Ensure the device is power off.
- Open the waterproof plug.
- Unlock the card tray with a card pin and load the SIM card as below show.
- Lock it back and close the waterproof plug.



Caution

Only Nano SIM card or MicroSD card is supported by this device. Don't modify or alter your SIM card.

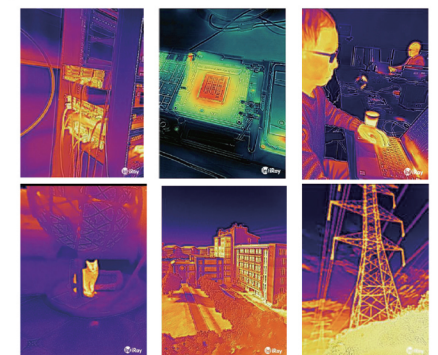
When inserting a card into the card slot, pay attention to the direction, Otherwise it will easily lead to the phone being unusable.

Do not splash water to the phone when SIM card slot, headphone jack or USB slot is open.

Thermal Imaging User Manual

Personal: kitchen and bathroom temperature measurement, electrical and plumbing service, underfloor heating maintenance, photo taking and entertainment, hotel peep-proof, health monitoring, animal searching, etc.

Industry: search and rescue, PCB repair, pipeline inspection, equipment repair, building defect diagnosis, husbandry, etc.



Specifications

Infrared Sensor	
Resolution	256*192
Pixel Pitch	12 μm
NETD	≤50mK@25°C, F#1.0
Spectral band	8~14 μm
Lens	
Focal Length	3.2mm
Aperture	F1.1
FOV	56.0° (H)×42.2° (V), 71.3° (D)
Temperature Measurement	
Measurement Range	-10°C~150°C / 50°C~550°C
Accuracy	±2°C / ±2% (typical value)
Correction	Distance, ambient temperature, and emissivity

Software Function

The app's home page includes upper and lower function areas and an image area in the middle.

The upper function area includes: (1) Menu, (2) Fill Light, (3) Radiometric Mode, (4) Image Mode, and (5) Calibration; the lower function area includes: (6) Gallery, (7) Record, (8) Camera and (9) Palette the image area is used to display information such as infrared imaging and temperature measurement results.



Radiometric Mode

The radiometric modes are divided into quick, professional, and thermometer modes (available in some versions).

7

Camera

Click Camera, you can save the infrared images, visible light images and temperature data of the display area to the Gallery.

Record

Click Record to record the currently displayed area and save it in the Gallery.

Gallery

You can share or delete any photo(s) and video(s) in the app's Gallery and view their information. If the photo is an image taken by this product, secondary palette and temperature measurement editing can be performed in the Gallery, and the operation is similar to the preview interface.



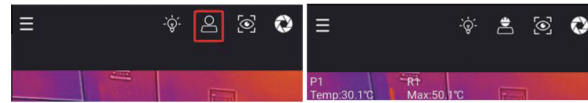
Preventive measure

1. The product uses very sensitive infrared detectors, so under no circumstances (APP on or off, product on or off) should the lens be directly aimed at a strong radiation source (such as the sun and laser beams) otherwise the infrared detector will be permanently damaged. The Company will not be responsible for any improper storage or use of the product.
2. The product is not designed as a medical device, nor is it intended to diagnose, treat, cure or prevent any disease. All data and measurements are for personal reference only.
3. Do not use the product for a long time at high temperatures above +40°C.
4. After the app is turned on, it may take about 1-3 minutes to warm up before accurately reading the data.
5. Infrared thermal imaging images taken by this APP may not be opened normally in this APP after being edited by a third-party APP.

11

Quick mode

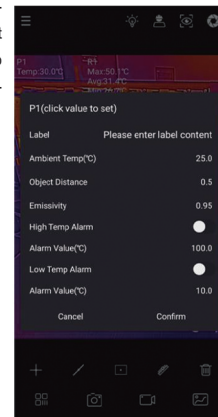
The quick mode requires no additional action and displays the highest, lowest, and center temperatures by default. To view the real-time highest and lowest temperatures in the measurement frame, drag the frame. The measurement frame can be dragged and stretched. To delete the measurement frame, tap anywhere in the frame.



Professional mode

The professional mode supports temperature measurement by three points, three lines, and three frames. For frames and lines, the highest, lowest, and average temperatures are displayed.

Point-based temperature measurement supports adding or dragging measurement points. To delete a measurement point, tap the point. This is also the case for other controls.



8

FAQs

1. Q: What should I do in the event of a blurry screen or inaccurate temperature measurement?

A: Given the operating characteristics of uncooled infrared detectors, you need to refresh the screen using the shutter, that is tapping the calibration icon in the upper right corner. This helps produce clearer images and more accurate temperatures.

2. Q: Can I use it to observe objects under water, outside glass windows, under clothes, or under the skin?

A: The product mainly detects an infrared wavelength range of 8~14 μm. So it cannot observe through water or ordinary glass and can only measure temperatures on the surfaces of clothes and skin.

3. Q: Why is the measured body temperature not 36°C?

A: Different parts of the human body have different temperatures. Skins on the forehead, cheek, and limbs are often exposed. Temperatures at these parts are largely affected by the ambient temperature, ambient humidity, and the grease and sweat on skins. In normal cases, they will not be higher than 36°C. For a person staying in a cool outdoor environment for a long time, a body temperature measured below 10°C is also normal. The temperature of skins exposed to the sunlight for some time is often higher than 36°C and can even reach 40°C. The thermometer mode is available in some versions of the app. In this mode, the forehead and other body surface temperatures are converted to body temperature display based on empirical data. Measurements of this function are for personal reference only.

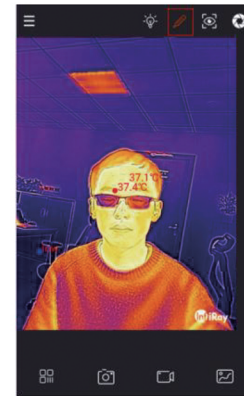
12

The isotherm scale is used for palettes other than white-hot or black-hot to highlight the temperature range requiring special attention. The selected zone is displayed in the form of a palette while others are white-hot. When the isotherm scale is in "Unlock" status (see the status indicators), adjust the yellow slide on the left to select a temperature range to display in the form of a palette. When it is in "Lock" status, the corresponding highest or lowest temperature is adjusted depending on the actual temperatures in the image.

To clear all the points, lines, and frames, tap the dustbin-shaped control rightmost.

Thermometer mode

The person to be tested is facing the camera, about 0.5m away, and the center cross cursor is directed at the forehead area for reading. The measurement results are for reference only.



9

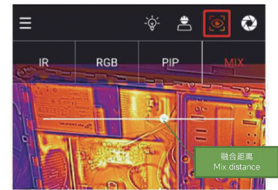
Precautions

- Please keep the product away from the magnetic equipment. The radiation of the product may erase the information stored on the magnetic equipment.
- Please do not place the product, battery and charger in appliances with strong electromagnetic field, such as induction cooker and microwave oven, otherwise it may cause circuit failure, fire or explosion.
- Do not place the product, battery and charger in high temperature area or low temperature area, otherwise it may cause the product, battery and charger failure, fire or explosion.
- When charging the battery, try to keep the ambient temperature between 0 °C and 40 °C. The working temperature of the battery is kept between - 20 °C and 60 °C. If the battery is placed in an overheated or supercooled area, the capacity and service life of the battery may be reduced. When the temperature is lower than 0 °C, the performance of the battery is especially limited.
- When the product touches the ear, please do not turn it on or off, so as not to affect human health.
- In order to comply with the RF leakage regulations, when you wear the product or use its data function, please keep the distance between the antenna and your body at least 1 inch (2.5cm).
- The signal interference of the product may affect the adjacent TV, radio or computer.
- Please comply with the international specification of RF radiation and use the product accessories specified by our company.
- When using this product, please abide by the relevant laws and regulations, and respect the privacy and legitimate rights of others.
- Before cleaning and maintenance, please turn it off. If it is still connected to the charger, you should unplug the charger from the power outlet, and disconnect charger and phone to avoid electric shock, short-circuit of battery or charger.
- Do not disassemble the phone. Only authorized institutions are allowed to repair this product.

13

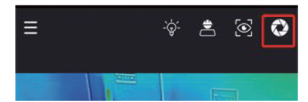
Image mode

There are four image modes: IR-only infrared image, RGB-only visible image, PIP-Picture in Picture, MIX-fusion mode. In MIX fusion mode, the system uses visible light data to enhance the detailed outline of infrared image. For scenes at different distances, the overlap degree of detail outline and the infrared image will be different. The "Mix Distance" slider needs to be adjusted to make the detailed outline of your concerned object overlap with the infrared image.



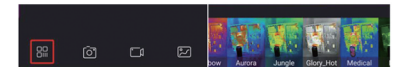
Calibration

If the infrared picture is not well displayed or if there is a significant deviation in temperature measurement, you can click the calibration icon to complete the calibration. Under the preset conditions of the system, the device may also automatically turn on the shutter to increase the image quality.



Palette

By default, the app has white-hot, black-hot, and other palette modes. Select different palettes as you prefer or as required. The palette mode does not affect temperature measurement. However, the isotherm scale only applies to palettes other than white-hot and black-hot.



10

Safety warning

- Please turn it off before the phone is close high-precision control electronic equipment, or it may cause electronic equipment failure.
- Equipments will be influenced by the phone include: audiphones, pacemakers, fire alarms, automatic doors and other automatic control equipments. Users who are using electronic medical auxiliary equipment should confirm whether the radio wave will influence it or not with service center of the equipment.
- Pacemaker manufacturers recommend that the distance between the phone and a pacemaker should be kept at least 15 cm to avoid potential interference. Please do not carry the phone in your breast pocket; Please use the different side ear with pacemaker to answer calls to minimize the potential interference.
- Please do not bring the phone into the operating room, intensive care unit (ICU) or coronary care unit (CCU).
- In medical facilities where using mobile phones is prohibitive, please follow their instructions and regulations.
- Please pay attention to tone, volume, vibrate settings of the phone, so as not to influence heart disease patients.
- In inflammable and explosive areas, do not remove, install or charge the battery, so as not to cause explosion or fire.

Beijing Dorland System Control Technology Co., Ltd.
 Add: Room 1107, Tower B, Tsinghua Tongfang Technology Square,
 No.1 Wangzhuang Road, Haidian District, Beijing, P.R.China
 Sales Hotline: +86-10-62164681 / 62198496
 Service Hotline: +86-10-62985217
 Mobilephone: +8613910650041
 Website: www.dorland-tech.cn
 E-mail: tian@dorland.com.cn
 PostCode: 100083



Enterprise Website

14