SKYRC

# Instruction Manual

v. 21

Mini **HeatVision**

ITV500

Introduction

The SkyRC ITV500 is a compact and portable Mini HeatVision designed for fast and accurate surface temperature measurements. Specifically developed for RC model enthusiasts, it can measure temperatures of motors, engines, ESCs, battery packs, and more.

Featuring a responsive 1.83-inch capacitive touchscreen with HD display, the ITV500 provides real-time detection and displays maximum, minimum, and custom spot temperatures. With multiple emissivity options, it offers versatile application scenarios.

Note: This Mini HeatVision is intended for RC hobbyists only with its customized structure and sensitivity. It is not recommended for use as a medical thermometer (also known as a clinical thermometer) to measure human or animal body temperatures.

Power Button

Capture / Back Key

1.83-inch Capacitive Touch Screen
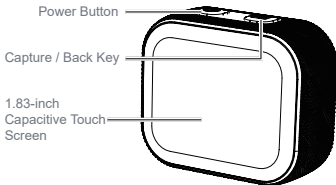
Features

- High-precision far-infrared thermal sensor
- High-resolution capacitive touch screen
- Wide temperature measurement range from -20°C(-4°F) ~ 300°C(572°F)Easy switching between Celsius, Fahrenheit and Kelvin scales
- Automatic marking of maximum and minimum temperatures
- Battery level indicator
- Multiple emissivity options
- Multiple palettes modes

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Far Infrared Array Sensor

USB-C Charging/Upgrade Port
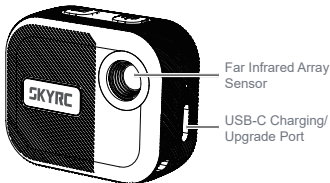
Warning

The ITV500 Mini HeatVision is a high-precision instrument. Please observe the following precautions before use:

- This product contains a built-in lithium battery. Keep it away from heat sources, open flames, and direct sunlight to prevent potential hazards.
- For long-term storage, it is recommended to perform a power-on check every six months, with each session lasting no less than 3 hours.
- Direct or reflected sunlight may cause incorrect readings and interfere with the measurement.
- Handle with care. Avoid dropping or subjecting the device to strong impacts or vibrations, and keep it away from environments with strong magnetic interference.
- Do not use the product in extremely hot, cold, dusty, highly humid, saline-alkali, or corrosive environments.
- Never aim the device at strong radiation sources such as welding arcs, sunlight, lasers, or highly ionized environments, as this may cause irreversible damage to the sensor.
- Emissivity settings significantly affect temperature measurement accuracy. Generally, the higher the emissivity of the target object, the more accurate the temperature reading. Actual emissivity can vary from reference values due to material type, surface roughness, oxidation, and other factors.
- When measuring the surface temperature of low-emissivity objects such as metals or glass, it is recommended to apply black tape or black paint to increase emissivity for more accurate results.
- The device's ability to detect an object at a specific distance depends on the object's size and contrast. The greater the temperature difference between a hot spot and its surroundings, the farther it can be detected. For accurate temperature readings, maintain a distance of no more than 20 cm from the target.
- The device can store up to 100 photos locally. If the storage space is full, please delete photos to free up memory.

Palette

White Hot

The most commonly used color palette. White represents the highest temperature and black the lowest. It offers strong applicability, aligns with human visual habits, and is primarily used for general observation.

Ironbow

Ideal for quickly identifying abnormal heat. It displays heat distribution and fine details through color, with hotter objects appearing in light warm tones and colder objects in dark cool tones. It is primarily applied in temperature measurement.

Rainbow

This palette uses distinct colors to display slight temperature differences, making it suitable for scenes with minimal thermal variation. It can effectively detect temperature changes in objects even under low-contrast conditions.

Operations

1. Power On: Press and hold the Power button for 3 seconds to turn on the device.

2. Access Menu: Press and hold the Photo button for 3 seconds, or swipe down from the top of the screen.

3. Menu Options:
   - Palette: Select palette.
   - Spot Meter: Enable/disable the maximum spot, minimum spot, or custom spot temperature markers. Red plus icon represents the highest temperature, blue the lowest, and black the custom spot.
   - Temp. Unit: Switch between Celsius, Fahrenheit, or Kelvin.
   - Display: Adjust brightness
   - Auto Power-off: Adjust auto-shutdown timer.
   - Emissivity: Set the appropriate emissivity value for the target material.
   - Language : Set the system language.
   - Gallery: Store up to 100 pictures.
   - Reset: Reset the device.
   - About: Check the system and regulatory infomation.

4. Measurement:
   - Point the Mini HeatVision at the target surface - it will automatically detect and mark the maximum spot, minimum spot, or custom spot temperatures.
   - For spot measurements, tap the desired location on the touchscreen.

Specification

Sensor	Far Infrared Array Sensor
IR Resolution	32 × 24 pixels
Thermal Sensitivity	100mK @ 1Hz
Field of View	55° × 35°
Frame Rate	8 FPS
LCD Display	240 × 284 pixels
Battery	600 mAh rechargeable lithium battery
Charging Interface	USB Type-C
Charging Input Voltage	DC 5V
Temperature Measurement Range	-20°C(-4°F) ~ 300°C(572°F)
Measuring Distance	<5 m (for high accuracy, within <20 cm)
Measurement Accuracy	±2.0°C(3.6°F)
Working Temperature	-5°C ~ 60°C
Working Humidity	≤85%RH
Storage Temperature	0°C ~ 35°C
Storage Humidity	≤65%RH
Dimensions	46x38x20.1mm
Weight	Approx. 38g

Button Functions

Power Button

- Long press 3 seconds: Turn on/off
- Short press: Enable/disable the custom spot temperature reading

Capture / Back Key

- Long press 3 seconds: Enter menu
- Short press in measurement screen: Take photo
- Short press in menu screen: Return/back

Status LED Explained

LED Status	Explanation
Flashing white	Charging
Solid white	Charging complete
Off	Not charging

Measurement Tips

Measuring Metallic Target

Generally, the Mini HeatVision can easily measure non-metallic surfaces as they emit most of their potential heat. However, metallic surfaces have poor thermal emissivity and require special treatment before measurement.

Fortunately, this special treatment is quite simple - just mark the target metallic surface with a non-metallic substance (such as a paint marker) before taking measurements.

Measuring Transparent Materials

Although transparent materials transmit visible light, many visibly transparent materials are opaque to infrared radiation and can be measured directly using the ITV500 Mini HeatVision.

To test infrared transparency, point the ITV500 against the target surface while passing a heat source (such as your hand) through the sensor's field of view on the opposite side of the material. If the ITV500 detects the heat source, the material is infrared-transparent and requires surface marking for accurate measurement.

Measurement solutions:

1. Mark the surface with an opaque non-metallic coating (e.g., paint).
2. Alternatively, place a reflective metallic object (such as aluminum foil) behind the transparent material.

Measurement Tips

Measuring Moist or Cold Surfaces

Moist or cold surfaces may interfere with the ITV500's readings.

While water and other liquids are normally good measurement targets, evaporation lowers their surface temperature. At freezing point, water forms frost on its surface.

In some cases, frozen food or similar targets may develop frost. When frost is present, the ITV500 will measure the frost's temperature rather than the actual target.

Note that melting ice generates slight heat through condensation, causing readings to be slightly above 32°F (0°C). The ITV500 can accurately measure temperature as long as the ice remains unmelted.

For accurate measurements, always remove any ice or moisture from the surface before measuring.

Firmware Update

To update the device, connect it to a computer and transfer the firmware file.

1. Download the latest firmware from SkyRC website.
2. Turn off the device, hold the camera button while connecting the device to the computer via USB cable.
3. Wait until the removable disk icon appears on the computer.
4. Open the disk, and copy the .uf2 file to its root directory.
5. The device will update automatically. The disk icon will eject once the update is complete.

Liability Exclusion

This device is designed and approved exclusively for use stated in this Instruction Manual. SkyRC accepts no liability of any kind if it is used for any purpose other than that stated. We are unable to ensure that you follow the instructions supplied with the charger, and we have no control over the methods you employ for using, operating and maintaining the device.

For this reason we are obliged to deny all liability for loss, damage or costs which are incurred due to the incompetent or incorrect use and operation of our products, or which are connected with such operation in any way. Unless otherwise prescribed by law, our obligation to pay compensation, regardless of the legal argument employed, is limited to the invoice value of those SkyRC products that were immediately and directly involved in the event in which the damage occurred.

Warranty and Service

We guarantee this product to be free of manufacturing and assembly defects for one year from the time of purchase. The warranty only applies to material or operational defects, which are present at the time of purchase. During that period, we will repair or replace free of service charge for products deemed defective due to those causes. This warranty is not valid for any damage or subsequent damage arising as a result of misuse, modification, or as a result of failure to observe the procedures outlined in this manual.

Note

The warranty service is valid in China only.

If you need warranty service overseas, please contact your dealer in the first instance, who is responsible for processing guarantee claims overseas. Due to high shipping cost, complicated custom clearance procedures to send back to China. Please understand SkyRC can't provide warranty service to overseas end users directly. If you have any questions which are not mentioned in the manual, please feel free to send email to support@skyrc.com

The manual is subject to change without notice; please refer to our website for the latest version!

SKYRC

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