

# Inspectron ITC-256 Handheld Thermal Imaging Camera Manual

---



## Table of Contents

- 1. Introduction
- 2. Product Overview & Specifications
- 3. Package Components
- 4. Setup & Operation
  - - Powering On/Off
  - - Live View
  - - Capturing & Accessing Media
  - -Targets
  - - Color Palettes
- 5. Settings
- 6. Battery Management
- 7. Firmware Updates
- 8. Media Management
- 9. Technical Specifications
- 10. Compliance & Maintenance
- 11. Troubleshooting
- 12. Warranty & Support

- 13. Safety

## 1. Introduction

Welcome to the Inspectron ITC-256 Handheld Thermal Imaging Camera product manual. This guide provides comprehensive instructions for using, maintaining, and troubleshooting the ITC-256

## 2. Product Overview

The Inspectron ITC-256 Handheld Thermal Imaging Camera is professional-grade, compact, thermal camera with high-end sensor. Precise, rugged, and priced for every technician's toolbox. Easily identify hidden problems then document and share internally or with customers.

## 3. Package Components

Included in the system kit:

- (1) ITC-256 handheld thermal imaging camera
- (1) USB-C Cable
  
- (1) SD Card
- (1) Case

## 4. Setup & Operation

### Powering On/Off

To power on the device, press the Power button for 2 seconds. The unit will display a splash screen and boot to live video within 15 seconds.

To power off, press and hold the Power button for 2 seconds. A shutdown splash screen will display briefly before the unit powers down.

### Live View

1. Temperature
  - a. Maximum temperature detected
  - b. Minimum temperature detected
  - c. Center of camera temperature detected
2. Temperature Range
  - a. Maximum top and minimum at bottom of scale
3. Location of **max** temperature target
4. Location of **min** temperature target
5. Location of center temperature target

6. Battery level
7. Memory (SD card) active
8. Time and date
9. Temperature unit
10. Emissivity value



### Capturing and Accessing Media

Use the Photo capture button to capture photos. Media is saved to the micro-SD card and displayed in a scrollable gallery. Access by pressing the Settings access button, then the gallery folder.



Photos are then categorized into folders, based on the date the photo was captured. Use the Up and Down navigation buttons to scroll to the desired folder. Press the Setting access button. Photos are then displayed based on the time stamp. Press the Settings access button to view media. Use the Up and Down buttons to scroll through media in each folder.

Delete media by pressing the Photo capture button, and navigating to YES. To confirm, press the Photo capture button again. Follow the same logic to delete entire albums.

## Targets

Press the settings access button and then navigate to the Targets icon. Press the settings access button to display the target options.



The target options will appear. Navigate to your desired target type.

1. No targets displayed
2. Target on the hottest area
3. Target on the coldest area
4. Target on the center area



Options 2-4 can be selected simultaneously, or by themselves. Press the settings button to select these options. Option 1 will clear the targets. To validate the targets have been selected, look at the image in the background to identify missing targets.

## Color Palettes

Press the settings access button and then navigate to the Color Palettes icon. Press the settings access button to display the target options.



The color palette options will appear. Navigate your desired color palette. Cataloged from left to right.

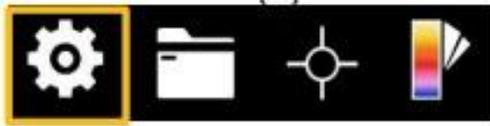


1. White Hot - monochrome palette that displays the hottest objects in white and the coldest objects in black.
2. Rainbow - displays the warmest part of the image in warm colors and the coldest parts in cool colors, but adds more colors to the mix. It is ideal for identifying environments with minimal differences in heat

3. Ironbow - versatile palette that allows you to quickly identify thermal anomalies. Hot objects are represented in lighter, warmer colors, while cold objects are represented in darker, cooler colors.
4. Red Hot – monochrome palette that displays the hottest objects in red and coldest in black
5. Fusion – hottest objects in white, coldest object in black

## 5. Settings

Press the settings access button twice to access settings.



Here you can adjust Temperature, Display, Date/Time, Auto Power-off, Format Gallery Albums and adjust Language.

In the Temperature you can adjust Emissivity, Distance, Temperature Range, Temperature Unit and the Ambient Temperature. Adjusting each setting will improve accuracy of the measurement.

Use the up and down arrows to navigate to the desired setting. Press settings access button and blue box will appear around the value. Then use arrows to adjust the setting. Then press back button to lock value.

### Temperature

1. **Emissivity** – this varies based on the material being observed. See chart below to set your emissivity. 0.95 is the default.

Material	Emissivity Min	Emissivity Max
Aluminum commercial sheet	0.09	0.09
Aluminum foil	0.04	0.04
Aluminum heavily oxidized	0.2	0.31
Aluminum highly polished	0.039	0.057
Aluminum anodized	0.77	0.77
Aluminum rough	0.07	0.07
Aluminum paint	0.27	0.67
Asbestos board	0.96	0.96
Asbestos paper	0.93	0.945
Asphalt	0.93	0.93
Black body matte	1	1

Black lacquer on iron	0.875	0.875
Black silicone paint	0.93	0.93
Black epoxy paint	0.89	0.89
Black enamel paint	0.8	0.8
Brass dull plate	0.22	0.22
Brass rolled plate	0.06	0.06
Brass polished	0.03	0.03
Brass oxidized (600°C)	0.6	0.6
Iron polished	0.14	0.38
Iron rusted	0.61	0.61
Iron dark gray surface	0.31	0.31
Iron rough ingot	0.87	0.95
Limestone	0.9	0.93
Marble white	0.95	0.95
Masonry plastered	0.93	0.93
Mild steel	0.2	0.32
Nickel electroplated	0.03	0.03
Nickel polished	0.072	0.072
Nickel oxidized	0.59	0.86
Oak planed	0.89	0.89
Oil paints (all colors)	0.92	0.96
Plaster	0.98	0.98
Plaster rough	0.91	0.91
Porcelain glazed	0.92	0.93
Plastics	0.91	0.91
Quartz glass	0.93	0.93
Roofing paper	0.91	0.91
Rubber	0.95	0.95
Sand	0.9	0.9
Soil	0.9	0.98
Steel oxidized	0.6	0.85
Steel polished	0.07	0.07
Stainless steel brushed	0.45	0.45
Stainless steel polished	0.075	0.075
Stone	0.8	0.9
Water	0.93	0.96
Wood	0.8	0.95
Glass	0.85	0.95

2. **Distance** – adjust the range from 0.3 to 3m. 0.6m is the default
3. **Temperature Range** – adjusts from -4 – 302 Degrees Fahrenheit and zero to 752 Degrees Fahrenheit. For higher temperature readings, adjust to the higher setting.

4. **Temperature Unit** – select between Fahrenheit, Celsius or Kelvin
5. **Ambient Temperature** – adjusting the environment (or room) temperature improves accuracy of the reading. This is always set in Celsius, and defaults to 25 degrees (77 degrees Fahrenheit).

### Display

1. **Parameter** toggles the temperature unit and emissivity value on screen.
2. **Time** toggles the date and time on screen.

### Date/Time

Adjust the date, time and formatting of date/time display.

### Auto Power-off

Select the desired state the unit will shut off with inactivity.

### Format Albums

Select 'Yes' to delete all media in the gallery.

### Language

Select your display language

## 6. Battery Management

The thermal camera has a built-in battery. It is recommended to charge the thermal camera using the USB-C cable provided in the fabric case. When the battery is low, a message stating 'Low Battery' appears on the screen indicating a recharge is needed.

When you plug in the thermal camera, an LED light will turn on next to the USB-C cable port (8):

- **Red LED**: charging in progress
- **Green LED**: charging complete

Note – the battery is not field replaceable.

It's recommended to store the unit at moderate temperatures, roughly 25°C (77°F), to maximize battery life.

## 7. Firmware Updates

Firmware can be updated via [www.inspectrontools.com/service](http://www.inspectrontools.com/service) page using the provided USB-C cable. Minimum 25% battery is required to initiate updates.

## 8. Media Management

To export photos or entire albums, you can:

1. Use supplied USB-C cable to connect your camera to a PC. Upon connection, 'MASS STORAGE' will appear on screen. Navigate to 'YES' option and press Setting access button. A USB icon will appear on screen, the transfer will start and folders will appear on your PC. When complete, 'eject' the device from your PC, and then unplug your device.
  - a. Moving media to your PC will NOT delete from your device.
2. Remove the SD card from the camera. Insert into PC or SD card reader and remove files.

You can delete all media by navigating to 'Format Albums' tab in Settings. Then select 'Yes'.

NOTE: Do not delete media on the memory card while plugged into a PC. It's recommended to move media files to the PC before viewing. Inspecatron is not held liable for consequences resulting from such operations via the computer.

## 9. Technical Specifications

Category	Inspecatron
IR Resolution	256 × 192
Field of view (FOV)	50° × 37.2°
Display Size	3.5"
Display Resolution	320 × 240
Color Palettes	Fusion, Ironbow, Rainbow, Redhot, Whitehot
Thermal Sensitivity/NETD	≤40mK
Object Temperature Range	-10°C-400°C (14 °F-752°F)
Accuracy	±2% OR±2°C
Spectral Range	8 μm to 14 μm
Image Frequency	9 Hz
Adjustable Emissivity	Yes
Adjustable Ambient Temp	Yes
Media Storage Capacity	4 GB
Media Storage Type	SD Card
Physical Buttons	Yes
Camera size (L x W x H)	131mm*90mm*29mm (5.1 × 3.5 × 1.1 in)
Camera weight incl battery	400 g (0.6 lb)
Battery operating time	4 hours
Battery Type	Rechargeable Li-ion Battery
Battery voltage	3.7V
Charging Time	~2 Hours
Operating Temperature Range	0°C to 50°C (32°F to 122°F)
Storage Temperature Range	-40°C to 70°C (-40°F to 158°F)

Certifications	CE, ROHS, REACH, EMC, UN38.3, MSDS, FCC, ICES, CP65
Drop test	2 Meter
Encapsulation	IP54

## 10. Safety, Compliance & Maintenance

Complies with CE, FCC, IC, RoHS, REACH, CP65, abd UKCA, DECA-BDE standards. Device materials are UL rated and designed for chemical and impact resistance. Clean with approved workshop cleaners.

Avoid aggressively bending the reel camera and pulling the reel camera over sharp edges as it may damager the camera.

Avoid exposing the tablet to water. The camera head and reel cable may come in contact with water.



## 11. Troubleshooting

- Unit won't power on: Ensure battery is charged or replace if necessary
- Video won't save: Check SD card space
- Unit shuts down early or won't charge: Battery may be below 5%; recharge fully with supplied cable
- Blurry image: ensure camera is clean
- Frozen image: power cycle the unit

## 12. Warranty & Support

This product is covered under a limited 2-year warranty. For warranty claims, repairs, or technical support, visit: [www.inspectron.com/support](http://www.inspectron.com/support) or contact [support@inspectron.com](mailto:support@inspectron.com).

Please retain your purchase receipt and serial number for warranty validation.

## 13. Safety



This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**WARNING:** Only peripherals complying with the FCC class B limits may be attached to this equipment.

Changes or modifications made to this equipment, not expressly approved by us or parties authorized by us could void the user's authority to operate the equipment. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

#### 1.1 Intended use

The user bears sole responsibility for any damage caused by improper use.

Generally accepted accident prevention regulations and the enclosed safety information must be observed.

#### 1.2 General Tool Safety Warnings

**WARNING!** Read all safety warnings, instructions, illustrations and specifications provided with this tool.

Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.



## 1) Work area safety

- a) **Keep work area clean and well lit.** Cluttered and dark areas invite accidents.
- b) **Do not operate tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Tools create sparks which may ignite the dust or fumes.
- c) **Keep children and bystanders away while operating a tool.** Distractions can cause you to lose control.

## 2) Electrical safety

- a) **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- b) **Limit tool exposure to rain or wet conditions.** Water entering a tool will increase the risk of electric shock.
- c) **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the tool. Keep cord away from heat, oil, sharp edges and moving parts.** Damaged or entangled cords increase the risk of electric shock.

## 3) Personal safety

- a) **Stay alert, watch what you are doing and use common sense when operating a tool. Do not use a tool while you are tired or under the influence of drugs, alcohol or medication.** A momentary lack of attention while operating tools may result in serious personal injury.
- b) **Use personal protective equipment. Always wear eye protection.** Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
- c) **Do not overreach. Keep proper footing and always balance.** This enables better control of the tool in unexpected situations.

## 4) Tool use and care

- a) **Do not force the tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it was designed.
- b) **Store idle tools out of the reach of children and do not allow people unfamiliar with the tool or these instructions to operate the tool.** Tools are dangerous in the hands of untrained users.
- c) **Keep handles and grasping surfaces dry, clean and free from oil and grease.** Slippery handles and grasping surfaces do not allow for safe handling and control of the tool in unexpected situations.

## 5) Battery tool use and care

- a) **Recharge only with the OEM supplied charging cable.**
- b) **Do not use a damaged or modified battery.** Damaged or modified batteries can behave unexpectedly and lead to fires, explosions or injuries.
- c) **Do not expose a tool to high temperatures.** Fire or temperatures above 130°C (265°F) can cause an explosion.
- d) **Follow all the instructions for charging and never charge the battery outside the temperature range specified in the operating instructions.** Incorrect charging or charging outside the permitted temperature range can destroy the battery and increase the fire risk.
- 6) **Do not open the battery.** There is a risk of short-circuiting.
- 7) **The battery can be damaged by pointed objects such as nails or screwdrivers or by force applied externally.** An internal short circuit may occur, causing the battery to burn, smoke, explode or overheat.
- 8) **Only use the battery in the manufacturer's products.** This is the only way in which you can protect the battery against dangerous overload.
- 9) **Protect the battery against heat, e.g. against continuous intense sunlight, fire, dirt, water and moisture.** There is a risk of explosion and short-circuiting!



## 10) Service

- a) **Have your tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the tool is maintained.
- b) **Never service damaged batteries.** All maintenance of batteries should only be carried out by the manufacturer or authorized customer service points.

### 1.3 Special safety instructions

Wear proper work clothes, work gloves, safety glasses and safety shoes.

Do not perform any work inside the device! Only trained technical personnel (customer service) are allowed to work in this area!

Keep a firm footing.

**Transporting li-ion battery packs:** The contained lithium-ion batteries are subject to the Dangerous Goods Legislation requirements. The user can transport the batteries by road without further requirements. When transported by third parties (e.g.: air transport or forwarding agency), special requirements on packaging and labelling must be observed. For preparation of the item being shipped, consulting an expert for hazardous material is required. Only send the battery pack if the housing is intact and no fluid is leaking. Remove the battery pack from the machine for sending. Prevent the contacts from short circuiting (e.g. by protecting them with adhesive tape).

Dispatch batteries only when the housing is undamaged. Tape or mask off open contacts and pack up the battery in such a manner that it cannot move around in the packaging. Please also observe possibly more detailed national regulations.