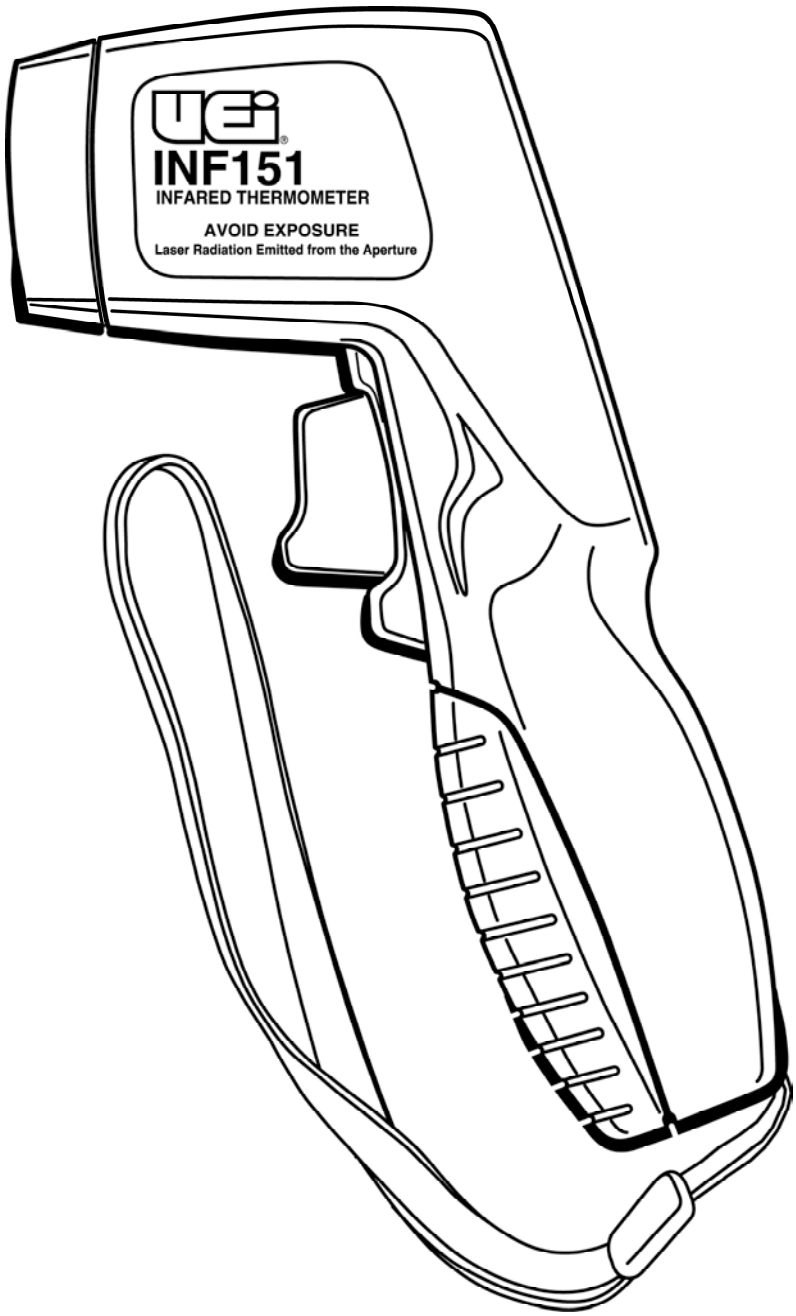
UEi Automotive

INSTRUCTION MANUAL

INF151

Infrared Thermometer



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Introduction

Congratulations on your purchase of the INF151 infrared thermometer. Like all UEi products, we selected the features and functions of this instrument to ensure that you're getting the highest value possible.

Use the INF151 to make temperature measurements the fast, safe and easy way. Its compact size lets you get into tight places while its convenient laser targeting and high distance-to-spot ratio gives you accurate readings on distant targets.

NOTE: *The INF151 is not recommended for use on shiny surfaces such as chrome, mirrors or polished metals.*

To avoid thermal shock do not store the meter below freezing

Features include

- Precise non-contact measurements
- Switchable ˚C/˚F temperature units
- Automatic Data Hold
- Laser target pointer

Safety Notes

Before using this infrared thermometer, read all safety information carefully. In this manual the word **"WARNING"** is used to indicate conditions or actions that may pose physical hazards to the user. The word **"CAUTION"** is used to indicate conditions or actions that may damage this instrument.

Laser Sight

The INF151 is classified as a "Class II Laser Product" and is regulated by the FDA

WARNING!

Using controls, making adjustments, or performing procedures in any manner other than that specified herein may result in hazardous radiation exposure.

- *Class II laser products can cause injury if the beam makes prolonged eye contact*
- *Do not point the laser toward the eyes or face of a person or animal*
- *Laser's potential to cause damage is retained for hundreds of feet*
- *Refer to the maintenance section of this manual in the event of a laser failure*

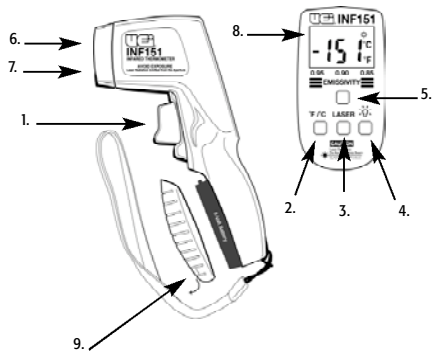
Safe Practices

This instrument is designed for professionals who know the hazards associated with their trade. While this instrument offers no foreseeable dangers beyond its laser sight, the equipment you are servicing, as well as the environment you're working in, can be hazardous. These are a few common safety practices for those working around temperature critical environments:

- Follow the manufacturer's maintenance procedures when servicing equipment
- Verify that an infrared thermometer is suitable for the type of material you are measuring
- Before using this instrument to determine if an area is safe to touch or enter, verify your readings are reasonably accurate by comparison with known measurements
- Properly maintain your INF151 and calibrate it regularly

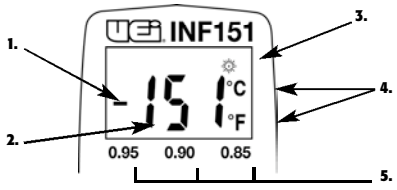
Controls and Indicators

Controls



1. **Trigger:** Initiates measurements.
2. **Scale Button:** Toggles between ˚F and ˚C.
3. **Laser Button:** Turns laser on or off.
4. **Back Light Button:** Turns LCD display back light on or off.
5. **Emissivity:** Select one of the three pre-set values.
6. **IR Sensor:**
7. **Laser Pointer Beam:**
8. **LCD Display:**
9. **Battery Compartment:**

Indicators



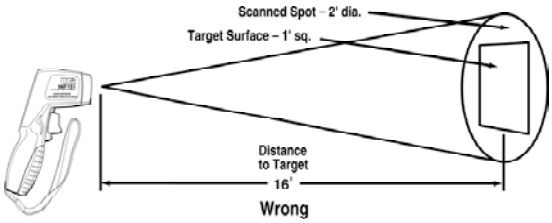
1. **Polarity Indicator:** Appears when measuring negative temperature.
2. **Numerical Display:** Indicates measured temperature value.
3. **Laser Splash:** Appears when laser is active.
4. **Scale Icons:** Indicate that either the Fahrenheit (˚F) or Celsius (˚C) scale is selected.
5. **Selectable Emissivity:** Use to choose 0.85, 0.90, or 0.95

Operating Instructions

Taking Measurements

To take a temperature measurement using your INF151, you simply point the aperture at an object (with or without using the laser sighting) and pull the trigger. The object's temperature will show up on the display and update at a rate of approximately 2 times per second.

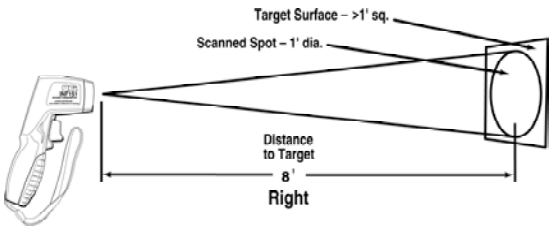
There will be a delay of approximately one-second between the time you initially pull the trigger and the time the display comes on. The 7-second auto-hold initiates at the moment you release the trigger.



Follow these general guidelines to ensure you get the most accurate readings possible:

- Be sure the measured object fills the "spot" seen by the aperture.

In this first figure, the two-foot diameter spot includes unwanted objects in the background that are not part of the one-foot square target. The temperature of the background objects will be figured in with the target's temperature and throw off your measurement.



This second figure shows the one-foot spot fitting within the one-foot target area. At this distance, and anything closer, the target's temperature will be accurately measured.

- When comparing temperatures of similar objects that are far away, take your measurements at the same distance and angle to the target each time.
- When looking for abnormally hot or cold targets it may be acceptable to include background objects so long as the temperatures in the background and your methods are consistent.
- Consider the emissivity of the objects you are measuring.

The INF151 has three levels of emissivity for your selection, 0.85, 0.90 and 0.95. They can be used to increase accuracy on selected targets. These will accommodate the majority of items measured without compensating for a higher or lower value. In most cases there will be little difference in measurement, even if an objects emissivity is higher or lower than these pre-set values. Compare and confirm with known values if in doubt.

- Prepare a surface for measurement. Infrared thermometers measure only the outer surface of an object. If emissivity is affecting the measurement, or you have difficulty putting the object in the sensors line-of-site, you may need to prepare a surface that's easy for the infrared thermometer to read. A piece of masking tape is a good target and it will rapidly take on the temperature of the object it is attached to.

- Be aware that you cannot measure the temperature of air between the Infrared thermometer and an object. Air vents (registers) are quick to take on the temperature of outlet air. However, you must aim directly at the vent if you are measuring outlet air temperature.

- Keep your infrared thermometer away from strong electrical fields. When working near a strong electrical field, like that under the hood of your car, watch for unusual readings or an "overload" indication. Often, you can move the thermometer just a few inches to escape the influence of the interference.

- Keep your INF151 within its use and storage temperature range. Excessive heat or cold will adversely affect the accuracy of your readings. When the trigger is pulled the target's temperature will be displayed in a near real-time mode (less than 1/2 second between measurements). The temperature will remain on the display for seven seconds after the trigger is released.

Changing Scales

To change scales between degrees Fahrenheit and degrees Celsius, press the button on the far left panel, (marked °F / °C), while the display is active. Even if the trigger is released and the display is in its seven-second automatic hold, you can convert the reading between scales. Each time you press the scale button, the 7-second hold will reset. The INF151 will default to the scale last used the next time it is turned on.

Using the Back Light

To use the back light press the button on the far right (marked with a light bulb) while the display is active. Even if the trigger is released, and the display is in its automatic hold, you can turn the back light on and off. Each time you press the back light button, the 7-second hold will reset. The back light will remain on whenever the display is active. It will come on for subsequent measurements until it is deselected. Use of the back light reduces battery life and is recommended for use on an "as-needed" basis only.

Using the Laser Sight
The INF151 is classified as a "Laser Product", and is regulated by the FDA.

CAUTION!
Using controls, making adjustments, or performing procedures in any manner other than that specified herein may result in hazardous radiation exposure.

To select or deselect the laser-sighting feature, press the button in the middle (marked "LASER") while the trigger is pulled. When the laser mode is active, a "laser splash" will be displayed in the upper right portion of the LCD screen. The laser will activate on subsequent measurements until it is deselected using the middle button. Use of the laser reduces battery life and is recommended for use on an "as-needed" basis only. The laser will remain on for approximately 1/2 second after the trigger is released.

Maintenance

Cleaning
Prevent contact with excessive dust, dirt and liquid contamination. Foreign substances can interfere with trigger operation and infrared lens performance.

When the housing becomes soiled, use a mild detergent and a damp cloth to clean the surface. Use caution to ensure no water or soap is allowed inside the unit or on the infrared lens.

If the infrared lens becomes contaminated try removing any debris with low-pressure compressed air, such as that used on computer keyboards. If the contaminant can not be removed with air, use a residue free glass cleaning solution on the end of a soft cotton swab. The swab should be slightly damp and very light pressure should be applied to the lens.

Battery Replacement
To replace the battery:

1. Slide the battery cover straight down then away from the INF151.
2. Remove the battery clip from the old battery - a screwdriver may help in removing clips from battery posts.
3. Replace with a fresh 9-volt battery.
4. Replace cover.

Always dispose of expired batteries in a manner consistent with local land use regulations

WARNING!
Do Not expose batteries to high temperatures of flame.

Service
This instrument contains no user serviceable parts. If service becomes necessary, call UEi and ask for the service department. See the warranty section of this manual for additional details.

Qualified maintenance or service facilities may request procedures from UEi for maintaining the INF151 laser at FDA regulated, factory specification. Contact UEi's service department at the address, phone number or web-site listed on the back cover.

Troubleshooting

Malfunction	Check	Corrective Action
Instrument does not turn on	Battery check	Replace low battery
	Time delay	Allow 1 second for data to appear on-screen
	Battery clip	Ensure clip grips battery posts tightly
Data flashes on screen	Battery voltage	Replace low battery
Laser comes on but no data appears	Battery voltage	Replace low battery
Temperature drifts from known value in a controlled environment	Object emissivity	Prepare surface for infrared measurement (e.g. - tape)
	Moisture, corrosion or debris on sensor	Clean sensor and allow to air dry
	Excessive EMF	Move thermometer away from interfering field
Dashes appear during measurement	Extreme temperature	Measure surrounding area to see if the target exceeds the limit

Specification Table

Range	Resolution	Accuracy
-40 to 700˚F (-20 to 370˚C)	0.1 -40 to 230˚F (-40 to 110˚C) 1˚ 231 to 788˚F (111˚ to 420˚C)	-40 ±2% or 2˚F to 382˚F whichever greater 393 to788˚F ±3% or 3˚F whichever greater
Repeatability	±1˚F/C	
Response time	<500 miliseconds	
Operating Temperature	41 to 104˚F (5 to 40˚C)	
Minimum spot diameter	1"	
Emissivity	0.85, 0.90, 0.95	
Distance to spot ratio	8:1	

INF151
Infrared Thermometer

Limited Warranty

The INF151 is warranted to be free from defects in materials and workmanship for a period of three years from the date of purchase. If within the warranty period your instrument should become inoperative from such defects, the unit will be repaired or replaced at UEi's option. This warranty covers normal use and does not cover damage which occurs in shipment or failure which results from alteration, tampering, accident, misuse, abuse, neglect or improper maintenance. Batteries and consequential damage resulting from failed batteries are not covered by warranty.

Any implied warranties, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the express warranty. UEi shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expenses or economic loss. A purchase receipt or other proof of original purchase date will be required before warranty repairs will be rendered. Instruments out of warranty will be repaired (when repairable) for a service charge. Return the unit postage paid and insured to:

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This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

PLEASE
RECYCLE