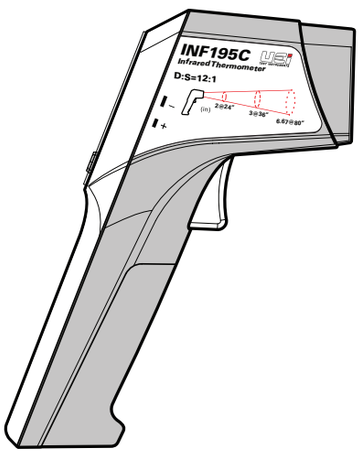
UEi TEST INSTRUMENTS

INSTRUCTION MANUAL

INF195C



Test Equipment Depot
1-800-517-8431

99 Washington Street
Melrose, MA 02176
Phone 781-665-1400
Toll Free 1-800-517-8431

Visit us at www.TestEquipmentDepot.com

Introduction

The INF195C is perfect for frequent use in advanced or specialty application environments, where wide temperature ranges and superior optics are essential for use on targets at greater distances. This full-featured IR Thermometer is the most comprehensive and best-valued Infrared Thermometer on the market.

The INF195C's increased features offer advanced trend analysis for professionals that require a greater quality of infrared optics, extended measurement and the versatility of a K-Type surface or contact probe and three level emissivity to simplify operation.

Features include:

- –76°~ 1022°F (-60˚~ 550˚C)
- Circular laser targeting
- 12:1 Distance to Spot Ratio
- MIN/MAX/Differential, Average
- 3 emissivity levels: (0.30, 0.70, 0.95)
- Hi/low Alarm (User adjustable)
- K-Type thermocouple input
- Carrying Case

Safety Notes

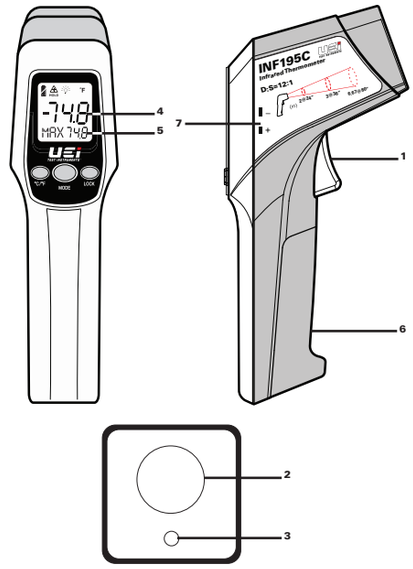
Before using this meter, read all safety information carefully. In this manual the word "***WARNING***" is used to indicate conditions or actions that may pose physical hazards to the user. The word "***CAUTION***" is used to indicate conditions or actions that may damage this instrument.

NOTE: *The INF195C is not recommended for use on shiny surfaces such as chrome, mirrors or polished metals.*

WARNING!
To avoid thermal shock, the instrument should be stored at room temperature between 32˚ to 122˚F (0˚ to +50˚C).

WARNING!
DO NOT look directly into the laser beam. Permanent eye damage may result.

Controls and Indicators



1. **Trigger: Initiates measurements.**
2. **IR Sensor**
3. **Laser Pointer Beam**
4. **LCD Display:** Temperature
5. **LCD Display:** Secondary (MIN, MAX, AVG, DIF, Alarm, Emissivity, Probe)
6. **Battery Compartment**
7. **Thermocouple Socket**

Displays and Indicators

1. **Mode -button**
2. **Lock and Backlight (▲) Push-button**
3. **˚F/˚C and Laser (▼) Push-button**
4. **Polarity**
5. **Main Display**
6. **Secondary Display**
7. **F˚ / C˚ Indicator**
8. **HOLD**
9. **Battery Life**

Operating Instructions

Taking Measurements
To take a temperature measurement using your INF195C, 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 60-second auto-hold initiates at the moment you release the trigger.

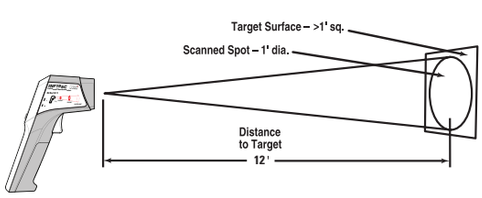
NOTE: *This thermometer will automatically shut off if left idle for more than 60 seconds, unless in PRB mode. When in PRB mode, instrument will shut off if left idle for more than 12 minutes.*

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

- Be sure the measured object fills the "spot" seen by the laser targeting. The distance to spot ratio for the INF195C is 12:1.

This 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.

NOTE: *If 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.*



- 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.
- 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 "over load" indication. Often, you can move the thermometer just a few inches to escape the influence of the interference.
- Keep your INF195C 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.

Emissivity

Not all surfaces emit infrared energy at the same level. A shiny surface will emit much less infrared energy at a given temperature when compared to a flat black surface. The INF195C has three preset emissivity levels used to compensate for variances in your target.

High (0.95) will work for most common surfaces and is set as default for many infrared thermometers. Medium (070) is best for oxidized copper or rusty iron. Use Low (0.30) for surfaces that emit less energy such as aluminum or brass.

Mode and Functions
Press the "**MODE**" push-button will scroll through the following options:

E : Emissivity data. (The default emissivity is 0.95)

AEW: Press the "**MODE**" push-button, then press "▲" or "▼" push-buttons to set the emissivity, then press the "MODE" push-button again to confirm it. The emissivity can be changed between 0.30, 0.70 and 0.95.

MAX / MIN / dIF / AVG: Press the "**MODE**" push-button for the maximum (**MAX**), minimum (**MIN**), differential between MAX and MIN (**DIF**) and average (**AVG**) modes. During the measurement, the special modes reading will be displayed at the bottom of the display near the mode icon.

HAL / LAL: Press the "▲" or "▼" push-buttons to change the "High Alarm" (**HAL**) or "Lo Alarm" (**LAL**), then press the trigger to confirm it. For example: when the reading 81˚F < LAL 81.1˚F, the low "Lo Alarm" icon will flash and you will hear a beep sound.

PRB: Connect the thermocouple to the thermocouple socket and apply the probes to the target being measured. The thermometer will display the temperature automatically without pressing any buttons. To see the minimum or maximum data during the probe measurement, please hold down the "▲" or "▼" push-buttons.

WARNING!
After measurement of high temperature, the probe may be hot for a while.

Additional Features

Perform this first	Verify that the meter is in one of these modes	Press to activate the following
Press and release the trigger to activate display first	In MIN, MAX, DIF, AVG mode	**LOCK** - Press the "▲" push-button for LOCK mode ON/OFF - This locks the IR measurement for up to 60 minutes
		SCALE - Press "▼" push-button to select °C or °F
Press and hold the trigger to use these functions	In all modes except PRB (Probe)	**BACKLIGHT/WORKLIGHT** - Press the "▲" push-button for backlight function ON/OFF
		LASER - Press the "▼" push-button for laser function ON/OFF

Changing Scales
To change scales between degrees Fahrenheit and degrees Celsius, press the button on the panel, (marked °F / °C), while the display is active. Even if the trigger is released and the display is in its 60-second automatic hold, you can convert the reading between scales. Each time you press the scale button, the 60-second hold will reset. The INF195C will default to the scale last used the next time it is turned on.

Using the Laser Sight
The INF195C 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.

LCD Error Messages
The thermometer incorporates visual diagnostic messages as follows:

HI / LOW : "**Hi**" or "**Lo**" is displayed when the temperature being measured is outside the settings of HAL and LAL.

Er2 : "**Er2**" is displayed when the thermometer is exposed to rapid changes in the ambient temperature.

Er3 : "**Er3**" is displayed when the ambient temperature exceeds the operation range of 32˚ to 122˚F (0˚ to 50˚C). The thermometer should be allowed plenty of time (minimum 30 minutes) to stabilize to the working/room temperature.

Er : For all other error messages it is necessary to reset the thermometer.

To reset the thermometer, turn the instrument off, remove the battery and wait for a minimum of one minute. Reinsert the battery and turn it on. If the error message remains please contact UEi service department for further assistance.

Battery Indicators
The thermometer incorporates visual low battery indications.

: "Battery OK" measurements are possible

: "Battery Low" battery needs to be replaced, measurements are still possible

: "Battery Exhausted" measurements are not possible

Maintenance

Periodic Service

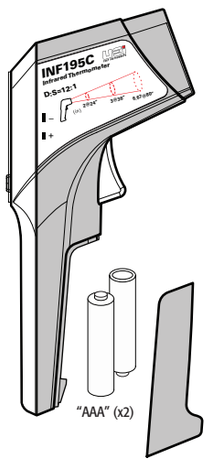
WARNING!
Repair and service of this instrument is to be performed by qualified personnel only. Improper repair or service could result in physical degradation of the instrument. This could alter the protection from electrical shock and personal injury this instrument provides to the operator.

Cleaning
Periodically clean your instrument's case using a damp cloth. DO NOT use abrasive, flammable liquids, cleaning solvents, or strong detergents as they may damage the finish, impair safety, or affect the reliability of the structural components.

Battery Replacement
Always use a fresh replacement battery of the specified size and type. Immediately remove the old or weak battery from the meter and dispose of it in accordance with your local disposal regulations. Old or defective batteries can leak chemicals that corrode electronic circuits.

To replace the battery:

1. Slide the battery cover straight down then away from the INF195C.
2. Replace with fresh "AAA" (2x) batteries.
3. Replace cover.



Lens Care
The sensor lens is the most delicate part of the thermometer. The lens should be kept clean at all times. Care should be taken when cleaning the lens using only a soft cloth or cotton swab with water or medical alcohol. Allowing the lens to fully dry before using the thermometer. Do not submerge any part of the thermometer in liquids.

WARNING!
Under NO circumstance should you expose batteries to extreme heat or fire as they may explode and cause injury.

NOTE: *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.*

Specifications

INF195C

Item	Non-contact Infrared Scan	Thermocouple Probe Scan
Measurement range	-76˚ to 1022˚F (-60˚ to +550˚C)	-83.2˚ to +1999˚F (-64˚ to ≠1400˚C)
Operating range	32˚ to 122˚F (0˚ to +50˚C)	
Accuracy (Tobj= 0~550˚C)	±2% RDG or 2˚C (4˚F) whichever is greater	±1% of reading or 1.8˚F (1.0˚C) whichever is greater (Test under Tamb=73±6˚F)
(Tobj= -60 ~ 0˚C)	((±2˚C (4˚F) + 0.05˚/per degree)	
Resolution (-83.2-999.9˚F)	0.1˚F / 0.1˚C	
Response time (90%)	1 second	
Distance: Spot	12 : 1	
Battery life	Standard "AAA" (x2), 14 hours continuous	
Dimensions	6.9" x 1.5" x 2.8" (175.2 x 39.0 x 71.9mm)	
Weight	6.7 oz	

NOTE: *Under the electromagnetic field of 3V/m from 200 to 600 MHz, the maximum error is 18˚F (10˚C).*

EMC/RFI
Readings may be affected if the unit is operated within radio frequency electromagnetic field strength of approximately 3 volts per meter, but the performance of the instrument will not be permanently affected.

IR Thermometers
Infrared Thermometers measure the amount of thermal radiation emitted from an objects surface. To take a measurement, the object must be within the field of view of the infrared thermometer, or the reading may include objects surrounding your target. This target size is determined in the distance to spot ratio stated on the instrument specifications. At a ratio of 9:1, a distance from your target of nine feet will give you a circle with one foot diameter. At 20:1 ratio gives the same one foot target now at 20 feet, so you can see that higher is better, but typically more expensive due to the cost of the optics involved.

The other common question is regarding emissivity. In simple terms emissivity is a percentage of energy emitted from a surface compared to the energy emitted from a black body source. If a surface emits one half (1/2 or 0.5) the amount of energy at a given temperature and wavelength as a black body, it is said to have an emissivity of 0.5.

Surfaces closest to the black body level would be flat black, and those farthest from it would be mirror or chrome surfaces. With a set emissivity level some surfaces may measure lower than actual, because their surface is emitting less thermal radiation at a given temperature. Although you may have a fixed emissivity of 0.95, most items measured will provide a reasonably accurate result. Having a fully adjustable emissivity will give you the ability to fine tune your instrument to a specific application.

To determine the emissivity of the surface being tested, paint a portion with flat black paint, and then measure the temperature of the painted area and compare it to the temperature of the standard surface. Use the following to determine the emissivity to use.

Temperature (Standard area) divided by temperature (painted area). As an example 61° in the standard area and 68° painted is 61/68 or 0.89

UEi TEST INSTRUMENTS **INF195C**
Infrared Thermometer

Limited Warranty

The INF195C is warranted to be free from defects in materials and workmanship for a period of one year 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.

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

PLEASE RECYCLE

17303 07/15