OPERATION MANUAL

INFRARED THERMOMETER

CE

Model: ■ 8861
■ 8866

INTRODUCTION

8861 AND 8866 FEATURES

- ◆ Switchable °F or °Creadings
- ◆ Quick and simple operation
- ◆ Back-light
- ◆ Long battery life
- ◆ Temperature range of 0 to 788º (-20 to 420ºC)
- ◆ On-board nine measurement memory
- ◆ Barrel sight targeting
- ◆ Laser targeting (8866 only)
- ◆ User programmable alarm (8866 only)

PACKAGE CONTENTS

- ◆ Protective carrying case
- ◆ Either the 8861 or 8866
- ◆ Operating instruction manual
- ◆ One battery

SAFETY RULES

CAUTION

This equipment is intended for use by industry profes - sionals who know their professional environments. Temperature measurements are often taken in poten- tially hazardous areas. Know and use the safety stan - dards prescribed by your profession.

8866 LASER SAFETY

Do not point the laser toward the eyes or face of a person or animal.

Laser light can cause eye injury, if the beam makes direct eye contact. Reflected Laser light can also cause damage, if a mirror or a glass-like surface reflects the beam directly into the eye.

Laser's potential to cause damage is retained for hundreds of feet.

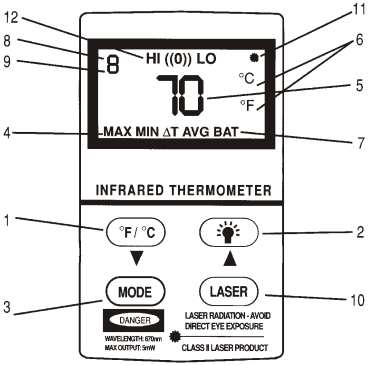
Use caution.

SYMBOLS

LASER SPLASH:

Indicates the use of laser equipment and the category of laser used.

CONTROLS AND INDICATORS



INF8861 AND INF8866

1. Fahrenheit / Centigrade select push-button, and mode down/decrease push-button.
2. Backlight push-button, and up / increase selector.
3. Temperature display mode select, memory recall and programming select (INF8866) push-button.
4. Temperature display mode indicator.
5. Temperature measurement.
6. Fahrenheit / Centigrade scale indicator.
7. Low battery annunciator.
8. Memory location annunciator.

INF8866 ONLY

9. Emissivity annunciator.
10. Laser targeting on/off push-button.
11. Laser on annunciator.
12. Alarm mode indicator.

INF8861AND INF8866 OPERATING INSTRUCTIONS

This instrument's light weight, pistol grip design, raised push-buttons, and large LCD display make it convenient for most temperature measurement needs and accessible to processes not suited for conventional "contact" temperature measurements.

TAKING MEASUREMENT SAMPLES

To take temperature measurements, point the instrument at the surface to be measured and pull the trigger.
A tube has been incorporated along the top of the barrel to aid the user in spotting the surface area to be measured (target).
Although this simple explanation works well in most cases, there are other factors that may impact the measurement accuracy.
Consider these influences before using the data you obtain with your infrared thermometer:

- The target must completely fill the spot diameter seen by the infrared sensor, otherwise the temperature displayed will be influenced by the surface surrounding the target.
  The ratio of the distance from the end of the barrel to the size of the spot being measured is **8:**
  1. For example, using the INF 8866, an object that is 6" in diameter can be accurately measured from 4' away. When using the gun to find hot -spots, accuracy of the reading is not as important as keeping the gun at the same distance from the target for each sample measurement.
  If you are looking for hot-spots on electrical panels, for instance, you

could take the readings from 6' away each time, even though you may only be filling half the spot diameter. The critical information in this process would be any significantly higher temperature Operating Instructions (cont.)

- Emissivity of an object will also affect accuracy. See the " Validation " section for details
- This instrument is sensitive to electromagnetic interference (EMI), such as that generated by spark plug wires, radio transmitters and welders. Do not use this instrument in close proximity to equipment that may produce such interference
- The instrument must be used within the ambient temperature range specified in the specification table

Each time the trigger is pulled your INF 8861 and INF8866 monitors four different readings, regardless of the selected mode. **They are:**

- The highest temperature measured
- The lowest temperature measured
- The average temperature (time weighted)
- The Net difference between the high and low temperatures "DT"

These four measurements go into the first memory location for future recall, when the trigger is released. See " Recalling memory points " for more details.
While the trigger is pulled, a temperature sample is taken at a minimum of once every 1/2 second (500 milliseconds).
The four parameters mentioned above are updated at the same rate.

SELECTING FAHRENHEIT OR CENTIGRADE SCALES

Select the scale you prefer to use (ºF or ºC) by pressing the ("ºC/ºF ▼ ") push-button while the trigger is pulled.
Operating Instructions (cont.)

BACKLIGHT OPERATION

To toggle the backlight on or off, press the push-button with the backlight (🔆) symbol while the trigger is pulled. Once the backlight has been turned on, it will come on each time the trigger is pulled until it is toggled off.
Please note that this feature significantly reduces the battery's life.

MEASUREMENT MODES

This instrument allows you to select from one of five display modes. You can cycle through the modes in this order:

- Real-time temperature measurements
- Maximum temperature measured (MAX mode)
- Minimum temperature measured (MIN mode)
- Temperature difference between MAX and MIN (mode)
- Calculated (time weighted) average temperature (AVG mode)

The last mode selected will remain selected the next time you pull the trigger.

REAL-TIME TEMPERATURE MEASUREMENT MODE

This display mode shows the actual temperature of surfaces measured. This value is updated at least once every 1/2 second. When the instrument is powered up for the first time, this mode is pre-set. operating instructions (cont.)

MAXIMUM TEMPERATURE (MAX) MODE

To enter the "MAX" display mode, pull the trigger, and press and release the MODE push-button repeatedly until you see the word "MAX" displayed on the LCD. In the "MAX" mode the highest temperature measurement taken,

during the current trigger pull, is displayed on the LCD. The temperature reading will update each time a higher temperature is measured.

MINIMUM TEMPERATURE (MIN) MODE

To enter the "MIN" display mode, pull the trigger, and press and release the MODE push-button repeatedly until you see the word "MIN" displayed on the LCD.
In the "MIN" mode, the lowest temperature measurement taken, during the current trigger pull, is displayed on the LCD. The temperature reading will update each time a new lowest tempera -ture is measured.

AVERAGE (AVG) MODE

To select the " AVG " display mode, pull the trigger and press and release the MODE push-button repeatedly until " AVG " is displayed on the LCD.
The term "time weighted" in reference to the averaging mode means all temperature measurements taken, from the time the trigger was first pulled , are averaged together. Actual surface temperature is not displayed while taking measurements in this mode.
If you were to walk along a wall for one minute taking readings that were

generally 72 degrees, then walk by a spot for 1/2 second that was 20 degrees, no significant change in average temperature would be displayed. Operating instructions (cont.)

TEMPERATURE DIFFERENTIAL (△T) MODE

To select the temperature differential display mode (△T), pull the trigger and press and release the mode push-button repeatedly until "△T" is displayed on the LCD. This display mode is used to determine the net temperature difference between two surfaces. This is particularly valuable when calculating net heating or cooling, since ambient temperature is effectively removed from the equation.
Operating Instructions (Cont.)

RECALLING MEMORY POINTS

With each pull of the trigger, four values are recorded in memory:

- The highest temperature measured
- The lowest temperature measured
- The time weighted average temperature
- The value last displayed before releasing the trigger

A total of nine sets of these four values, representing nine trigger pulls, are available for recall. To review recorded values, start with the instrument off, (trigger released and nothing visible on the LCD), then press and release the MODE push-button.
The number "1" will appear on the display, indicating the latest of the nine sets of values recorded in memory. You may now either cycle through each of the four values recorded during the last trigger pull, or go to one of the four values, then select the number of the trigger pull you wish to review.
Refer to example situation on next page. Operating Instructions (Cont.)
Recalling Memory Points (Cont.)

For example, to select the high temperature measured three trigger pulls ago, you may either:

1. Press the MODE push-button once. The number "1" and a value appears.
2. Press the (/ ▲) push-button twice. The number "3" and a value appears.
3. Press the MODE push-button once again. The word "MAX" appears in the lower left of the LCD, along with the highest temperature recorded three trigger pulls prior.

Or:

1. Press the MODE push-button once. The number "1" and a value appears.
2. Press the MODE push-button once again. The word "MAX" appears in the lower left of the LCD, along with the highest temperature recorded during the last trigger pull.
3. Press the (☀ /▲) push-button twice. The number "1" and the value of the highest temperature recorded from three trigger pulls ago appears.

To maneuver up and down through recorded values, press the appropriate (ºF/ºC/ ▼) or (☀ /▲) push-button to view the different readings on the LCD.

INF8866 SPECIFIC OPERATING INSTRUCTIONS

AUDIBLE ALARMS

The INF8866will sound an audible alarm at both an upper and a lower temperature limit, which you set.
To adjust the alarm, start with the instrument's power turned off.
Press and hold the MODE push-button until you hear an audible beep.
Either "MAX" or MIN will be displayed on the LCD, along with a value to the right. Do not pull the trigger.

Select the mode (MAX or MIN) you want the instrument to provide the alarm for by pressing either the (ºF/ºC/ ▼) push-button to select the low temperature alarm or the (/ ▲) push-button to select the high temperature alarm. Once the instrument indicates the alarm mode you want to set, press the (MODE) push-button again.
You're now ready to adjust the alarm threshold value, displayed on the LCD. To decrease the value press the (ºF/ºC /▼) push-button. To increase this value , press the (/ ▲) push-button.
To lock this value in, once again, press the MODE push-button.

The alarm settings (whatever is display -ed at the time) are instantly saved if, at any time during the alarm setting process, the instrument either shuts off after five seconds of inactivity or the trigger is pulled.

EMISSIVITY ADJUSTMENT

When a process calls for repeated measurements of like materials, such as evaluating a plastic solidity at a processing plant, the best method of attaining quick, reliable temperature readings is to adjust the emissivity setting of your INF8866.
To set emissivity you must pass through the alarm setting function.

As described earlier, press and hold the MODE push-button until an audible tone is heard, and the LCD displays the alarm adjustment function.

Do not pull the trigger, or let the in strument time-out and turn off. Press the MODE push-button once more to display the current emissivity value. To decrease the value press the (ºF/ºC/ ▼) push-button. To increase this value, press the (☀/▲) push-button.

To exit and save the newly set value, press the MODE push-button again, let the instrument time-out in five seconds, or pull the trigger.

The value last entered for emissivity will become the instrument's default next time it is used. If the instrument will be used on various surfaces or by various people for different applications, it is a good practice to reset the emissivity value to .95 before returning it to storage.

Know the emissivity value your instrument is set at may prevent the collection of erroneous data that could result in unnecessary, time consuming and costly process step adjustments.

inf8866 specific Operating Instructions (cont.)

LASER TARGETING

⚠ **CAUTION**

Do not point the laser at the eyes or face of any human or animal. Eye damage may result from direct exposure to laser light. Reflected laser light, from mirrors, glass, etc. can also cause eye damage. Laser is effective for hundreds of feet. Be aware of what or who is in your line of sight. Keep this device away from children, except under direct adult supervision.

To toggle the laser targeting feature on, or off depress the LASER push-button while pulling the trigger.

You can engage the laser function from any of the five measurement modes (see section four to review the measurement modes). Once selected, the laser light is activated each time the trigger is pulled until it has been toggled off.

Note: The laser remains on for approximately 1/2 second after the trigger is released.

MAINTENANCE

TROUBLESHOOTING

No display or erratic display: Check the battery for proper voltage and tight contact at the battery clip. Ensure the unit is at the specified operating temperature.

Constant or spurious over-load (OL) display: Check battery voltage. Check for electromagnetic interference (EMI). To check for EMI, move the unit to an open area, away from high voltage and radio or radar transmitting sources.
Erroneous temperature readings: Inspect the infrared lens for blockage or contamination.
Follow cleaning instructions. Check battery for proper voltage and tight fit in the battery clip.

BATTERY REPLACEMENT

To remove and replace the battery, turn the instrument upside down; and slide the battery access panel (a plate at the bottom of the pistol grip) forward with your thumb.
Carefully remove the battery from the battery clip. A small flat-blade screw driver may be used to gently pry the clips away from the battery posts.
When placing a new battery in the clip, make sure the clip fits tight around both posts of the battery. Some batteries are slightly larger or smaller than others.
If necessary, compress the metal prongs on the clip to get a tight fit on the new battery.

Ensure the small red and black wires are not in a position to be pinched or cut, as the battery is replaced in its slot. Replace the battery access cover.
INF8861/8866Specification Table

WARRANTY

The INF8861 and INF8866 are 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 thermometer 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.
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 for a service charge.

Accuracy, the Zenith of
Measuring / Testing Instruments !

- Hygrometer/Psychrometer
- Thermometer
- Anemometer
- Sound Level Meter
- Air Flow meter
- Infrared Thermometer
- K type Thermometer
- K.J.T. type Thermometer
- K.J.T.R.S.E. type Thermometer
- pH Meter
- Conductivity Meter
- T.D.S. Meter
- D.O. Meter
- Saccharimeter
- Manometer
- Tacho Meter
- Lux / Light Meter
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