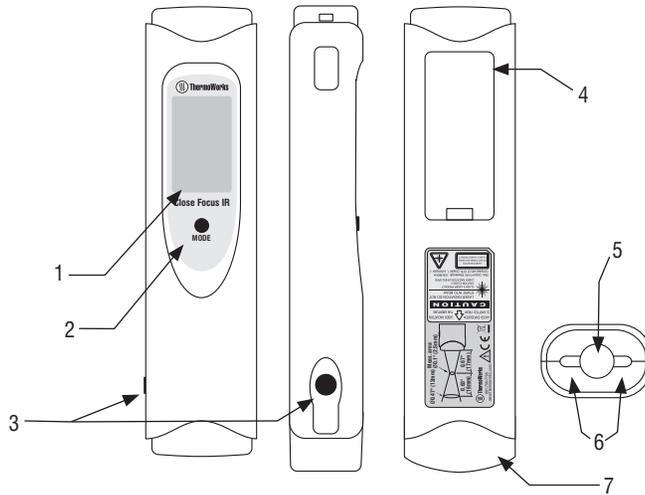


# CF-IR Close Focus Infrared Thermometer

Thank you for purchasing our non-contact infrared thermometer.

## OVERVIEW

1. LCD
2. MODE button
3. SCAN button
4. Battery cover
5. Infrared sensor
6. Lasers
7. Protective cover



## SPECIFICATIONS

Thermometer Measurement Range	-67 to 428°F / -55 to 220°C
Ambient Operating Temperature	32 to 122°F / 0 to 50°C
Display Resolution	Thermometer: 0.2°C / 0.5°F; Stop Watch: 1 sec.
Accuracy (Tamb=23 ±3°C)*	-55 to 0°C; ±(2+0.05/deg)°C; above 0°C; ±2°C (4°F) or ±2% of the reading, whichever is greater.
Measurement Distance	0.7 inch / 18mm, with a 0.1 inch / 2.5mm spot size
Emissivity Features	0.95 default; adjustable to 1 in 0.05 increments
Battery Type	AAA x 2
Battery Life	15 hrs continuous (auto power off after 15 sec)
Dimensions	6.7 (W) x 1.5 (H) x 1.0 (D) inches / 170 (W) x 38 (H) x 25 (D) mm
Weight	4.4 oz / 125 grams including two AAA cells
Certificate	Includes Certificate of Conformance

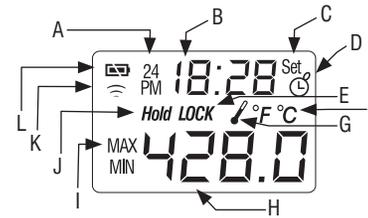
\*IR accuracy can be affected by the emissivity setting, target spot size, rapid changes in ambient temperature, and environmental conditions.

## SETTING THE CLOCK

1. Press the SCAN button to turn the thermometer on. Press the MODE button seven times until the SET icon flashes.
2. Press the SCAN button to choose between the 12 or 24 hour time format.
3. Press the MODE button to select the hours. The hour digits will blink. Press the SCAN button to set the hours.
4. Press the MODE button to select the minutes. The minutes digits will blink. Press the SCAN button to set the minutes.
5. Press the MODE button when done.

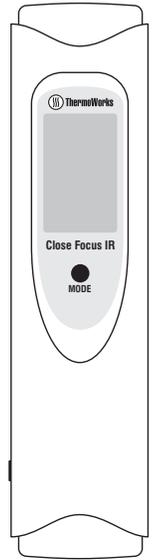
## OPERATING INSTRUCTIONS

1. Information is displayed on the LCD through the following symbols:



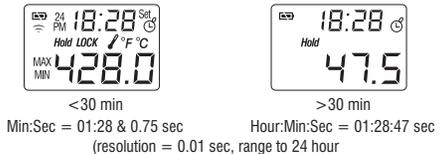
- |  |                             |
|--|-----------------------------|
| A. 12/24 hr indicator                    | G. Ambient temperature icon |
| B. Clock                                 | H. Temperature reading      |
| C. SET icon                              | I. MIN/MAX indicators       |
| D. COUNT icon                            | J. HOLD Indicator           |
| E. LOCK indicator                        | K. SCAN indicator           |
| F. Selected temperature scale (°C or °F) | L. Low battery indicator    |

2. Remove the protective cover from the sensor end of the thermometer.
3. Press the SCAN button to turn the thermometer on.
4. Hold the thermometer like a pen. Position the infrared sensor 0.7 inches / 18mm from the object to be measured.
5. Press and hold the SCAN button with the index finger. The two lasers will converge into one when the exact distance is obtained. Be sure the target is located at this focal point. The area measured is 0.1 inches / 2.5mm in diameter.
6. Pressing the SCAN button momentarily will result in a momentary reading. Holding the SCAN button will result in a continuous reading.
7. The thermometer will automatically power off if left idle for more than 15 seconds. If you have set the CLOCK mode, the clock and ambient room temperature will continue to display even after 15 seconds.



## USING THE STOP WATCH

1. Press the SCAN button to turn the thermometer on. Press the MODE button six times until the COUNT icon flashes.
2. Press the SCAN button to start or stop the stop watch. Press the MODE button to reset the stop watch to zero.



## OTHER FUNCTIONS

- MIN/MAX** Power on and press the MODE button once for the Minimum (MIN) or twice for Maximum (MAX) modes. When the MIN or MAX icon flashes, press the SCAN button to confirm. Hold down the SCAN button, the minimum or maximum reading of measurement will be continuously updated.
- LOCK** Power on and press the MODE button three times. When the LOCK icon flashes, press the SCAN button to confirm. This mode is particularly useful for continuous monitoring of temperatures for up to 60 minutes or until the SCAN button is pressed.
- °C /°F** Power on and press the MODE button four times. When the °C icon flashes, press the SCAN button to change the scale to °F.
- Emissivity** Power on and press the MODE button five times. When the default emissivity "95E" appears, press the SCAN button to modify the emissivity setting. Press MODE button when complete.



 **CAUTION**

1. Do not look directly into the laser beam. Permanent eye damage may result.
2. Never point the device towards anyone's eyes.
3. Keep out of reach of all children.

**STORAGE & CLEANING**

The sensor lens should be kept clean at all times and stored at room temperature. Use only a soft cloth or cotton swab with water or medical alcohol when cleaning the lens. Allow the lens to fully dry before using. Clean the thermometer with a damp cloth. The thermometer should be stored between -4 to 149°F / -20 to 65°C.

Readings may be affected if the thermometer is operated within a radio frequency electromagnetic field strength of approximately 3 volts per meter, but its performance will not be permanently affected. Under an electromagnetic field of 3V/m from 300 to 350 MHz the maximum error is  $\pm 6^{\circ}\text{C}$ .

**LCD ERROR MESSAGES**

The thermometer incorporates visual diagnostic messages as follows:

**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 0°C (32°F) or +50°C (122°F). The thermometer should be allowed plenty of time (minimum 30 minutes) to stabilize to the working/room temperature.

**Er** Er is displayed for all other error messages. Clear the error by resetting the thermometer. To reset, turn the thermometer off, remove the batteries and wait for a minimum of one minute. Reinsert the batteries and turn it on. If the error message remains please contact ThermoWorks for further assistance.

**Hi Lo** Hi or Lo is displayed when the temperature being measured exceeds the measurement range of the thermometer.

**BATTERIES**

The thermometer incorporates visual low battery indication as follows:



'Battery OK'



'Battery Low': battery needs to be replaced.



'Battery Exhausted': measurements may be affected.



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**ThermoWorks**

**CERTIFICATE OF CONFORMANCE**

The manufacturer of this instrument has implemented a quality assurance system under ISO 9001:2000 certified quality system and fully follow ISO GUM (Guide to the Expression of Uncertainty in Measurement) to evaluate the uncertainty of temperature and resistance standards, guarantee performance as below:

Calibration Temperature	Max Error	Target Accuracy	Target Stability
-30°C	$\pm 2.0^{\circ}\text{C}$	$\pm 0.3^{\circ}\text{C}$	0.3°C
0°C	$\pm 2.0^{\circ}\text{C}$	$\pm 0.4^{\circ}\text{C}$	0.1°C
100°C	$\pm 2.0^{\circ}\text{C}$	$\pm 0.4^{\circ}\text{C}$	0.1°C
200°C	$\pm 4.0^{\circ}\text{C}$	$\pm 0.5^{\circ}\text{C}$	0.1°C

Note: Assume the operation ambient temperature under  $23 \pm 3^{\circ}\text{C}$

Furthermore, we certify that this infrared thermometer has been inspected and found to comply with published specifications. This device has been calibrated by temperature and/or resistance standards that are traceable to NIST (U.S. National Institute of Standards and Technology) or NML (National Measurement Laboratory) of Taiwan, and the calibration procedure corresponds with generally accepted regulations and standards.

**ThermoWorks, Inc.**

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