



THE TIME & TEMPERATURE COMPANY™

Model: IN428

## Infrared Thermometer

-67 to +428°F/-55 to +220°C

### Perfect For

- Non-contact surface temperature measurement without risk of cross contamination

### Easy To Use

- 1-second response
- Data-hold
- One-button operation

### Features

- Shatterproof
- Maximum, minimum and lock for continuous scanning
- Distance:spot = 1:1
- Battery status indication
- Food-safe ABS plastic
- Auto-off
- Mounting: rope
- Battery and instructions included

### Get Professional Results Every Time!

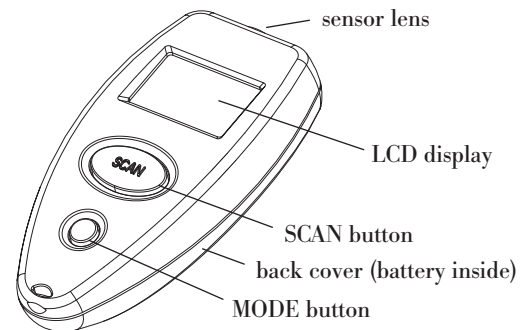
Monitoring surface temperature is essential to keeping food safe. The handy IN428 is perfect for any application. Simply point the sensor lens toward the target and press SCAN to get a quick reading of surface temperatures.

#### Minimum, Maximum and Lock

The IN428 also offers Minimum, Maximum, and Lock modes. Minimum mode displays the lowest temperature among multiple targets. Maximum mode displays the highest temperature among multiple targets. While Lock mode continuously displays the temperature for up to 60 minutes. This is particularly useful for continuous temperature monitoring.

**Note:** Remove sticker from display before use.

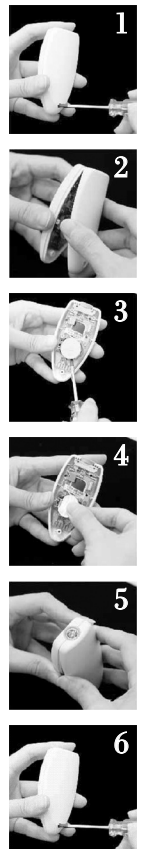
**Note:** In the following instructions, names of the control buttons are shown in CAPS. Function information that appears on the display is shown in **BOLD CAPS**.



### Battery Installation

Power off the unit before installing the battery. A malfunction may occur if the power is on when the battery is installed. If a malfunction occurs, restart the device.

1. Holding the device on the outside edges (do not press buttons), loosen the screw on the back by turning counter clockwise.
2. Remove the back housing, bottom edge first.
3. Gently pry the battery out using the screwdriver.
4. Install the CR2032 battery observing polarity by hooking it into the left side of the battery housing. Press the battery down until it clicks.
5. Replace the back cover, top edge first.
6. Fasten the screw on the back housing.



# Operating Instructions

## A. Temperature Scale

To select temperature reading in Fahrenheit or Celsius:

1. Press the SCAN button to turn the thermometer on.
2. Press the MODE button four times. The °F or °C symbol flashes on the display.
3. Press the SCAN button to change the scale.

## B. Infrared Thermometer

### 1. Infrared Scanning

#### a. Distance:Spot = 1:1

For example, if the surface area being measured is 10" in diameter, then the thermometer must be within 10" of the target for an accurate reading.

- b. Aim the thermometer at the target and press the SCAN button to display the surface temperature.

### 2. Minimum Mode

- a. Press the SCAN button to turn the thermometer on.
- b. Press the MODE button once. The MIN icon flashes on the display.
- c. Press and hold the SCAN button to confirm the Minimum Mode and display the lowest temperature among multiple targets.

### 3. Maximum Mode

- a. Press the SCAN button to turn the thermometer on.
- b. Press the MODE button twice. The MAX icon flashes on the display.
- c. Press and hold the SCAN button to confirm the Maximum Mode and display the highest temperature among multiple targets.

### 4. Lock Mode

This is particularly useful for continuous temperature monitoring.

- a. Press the SCAN button to turn the thermometer on.
- b. Press the MODE button three times. The LOCK icon flashes on the display.
- c. Press the SCAN button to confirm the Lock Mode. The IN428 will continuously display the temperature for up to 60 minutes or until the SCAN button is pressed again.

### 5. Emissivity

Everything gives off a certain amount of radiation. Emissivity is the measure of this thermal radiation. The infrared thermometer is supplied with a default emissivity of 0.95, which standard for most uses. The emissivity of the thermometer can be changed from 0.05 (5E) to






1 (100E). **Only experienced personnel should attempt to make changes.** For information relating to the emissivity of specific materials, please contact CDN.

- a. Press the SCAN button to turn the thermometer on.
- b. Press the MODE button five times to enter Emissivity Mode. 95E flashes on the display.
- c. Press the SCAN button to adjust the emissivity value in 0.01 (1E) increments.
- d. Press the MODE button again to exit Emissivity Mode.

**Note:** Infrared thermometers are not recommended for use in measuring the temperature of shiny or polished metals.

### 6. Error Messages

The IN428 incorporates visual diagnostic messages as follows:




- a. HI or LO is displayed when the temperature being measured is outside of the range of the thermometer.
  1. HI indicates that the temperature is higher than 428°F/220°C. 
  2. LO indicates that the temperature is lower than -67°F/-55°C. 
- b. Allow a minimum 30 minutes for the thermometer to stabilize to the working/room temperature.
  1. ER2 is displayed when the thermometer is exposed to rapid changes in the ambient temperature. 
  2. ER3 is displayed when the ambient temperature exceeds 14°F/-10°C OR +122°F/+50°C. 
- c. For all other error messages it is necessary to reset the IN428. 
  1. Wait for the thermometer to power off.
  2. Remove the battery and wait for a minimum of one minute.
  3. Reinstall the battery (see **Battery Installation**).
  4. Press the SCAN button to turn the thermometer on.
  5. If the error message remains, please contact CDN for further assistance.

### EMC/RFI

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

### C. Battery Status

The thermometer incorporates visual battery status indication:

1.  **Battery OK:** measurements are possible
2.  **Battery Low:** replace battery with a CR2032 lithium cell; measurements are possible
3.  **Battery Exhausted:** replace battery; measurements are not possible

### Care of Your Product

- The sensor lens is the most delicate part of the thermometer and should be kept clean at all times. Take care when cleaning the lens. Use only a soft cloth or cotton swab with water or rubbing alcohol. Allow the lens to fully dry before using the thermometer.
- Do not submerge any part of the thermometer in water. Wipe clean with a damp cloth.
- Store the thermometer at room temperature between -4 to +149°F/-20 to +65°C.

### Precautions

- Dispose of used battery promptly and keep away from children.
- Do not clean the case with abrasive or corrosive compound, which may scratch the plastic and corrode the electronic circuits.
- Do not subject the unit to excessive force shock, dust, temperature or humidity, which may result in malfunction, shorter electronic life span, damaged battery and distorted parts.
- Do not tamper with the unit's internal components. Doing so will invalidate the warranty on the unit and may cause unnecessary battery damage and distorted parts.
- Do not subject the unit to excessive exposure to direct sunlight. **The unit is not waterproof** – do not immerse it into water or expose to heavy rain.
- To avoid deformation, do not place the unit in extreme temperatures.
- Always read the users manual thoroughly before operating.

**CAUTION:** Avoid keeping the thermometer too close to objects that continuously generate high heat for long periods (i.e., hot plate). This can cause the thermometer to overheat.



\*USDA does not endorse any product, service or organization.

### Specifications

<b>Measurement Range</b>	-67 to +428°F/-55 to +220°C
<b>Operating Range</b>	14 to +122°F/-10 to +50°C
<b>Resolution</b>	0.1°F/°C (selectable)
<b>Response Time</b>	1 second
<b>Accuracy</b>	±1.1°F/±0.6°C (Tobj=59~95°F/15~35°C, Tamb=77°F/25°C)
<b>Accuracy</b>	±2% of reading or 4°F/2°C (Tobj=-27~428°F/-33~220°C, whichever is greater Tamb=73±37.4°F/23±3°C)
<b>Distance:Spot</b>	1:1 optics ratio
<b>Emissivity Range</b>	0.95 default; adjustable 0.05 to 1 step .01
<b>Battery Life</b>	Typ. 40 hr, min 30 hr (auto power off after 15 seconds)
<b>Power Supply</b>	1 CR2032 lithium battery
<b>Dimensions</b>	1.5 W x 3.0 H x 0.75 D (inches)/ 39.0 W x 76.8 H x 19.3 D (mm)
<b>Weight</b>	1.12 oz/32 g (including battery)

The information in this document has been reviewed and is believed to be accurate. However, neither the manufacturer nor its affiliates assume any responsibility for inaccuracies, errors or omissions that may be contained herein. In no event will the manufacturer or its affiliates be liable for direct, indirect, special, incidental or consequential damages arisen by using this product or resulting from any defect/omission in this document, even if advised of the possibility of such damages. The manufacturer and its affiliates reserve the right to make improvements or changes to this document and the products and services described at any time, without notice or obligation.



**1-Year Limited Warranty:** Any instrument that proves to be defective in material or workmanship within one year of original purchase will be repaired or replaced without charge upon receipt of the unit prepaid at: CDN, PO Box 10947, Portland, OR 97296-0947. This warranty does not cover damage in shipment or failure caused by tampering, obvious carelessness or abuse



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