

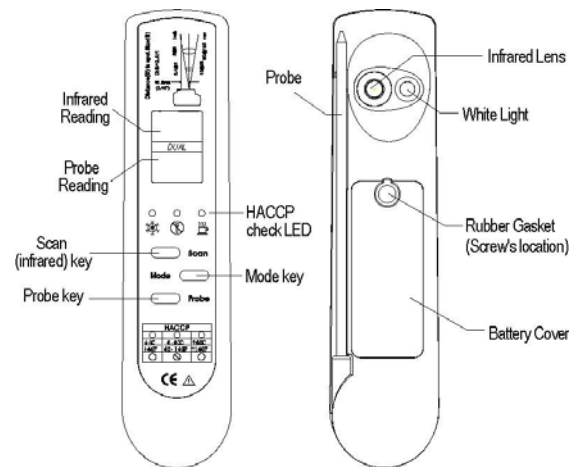


Operating Instructions FS200+ Food Safety Thermometer

The FS200+ Food Safety Thermometer is two thermometers in one: A non-contact infrared thermometer for scanning surface temperatures and a contact probe thermometer (type K thermocouple) to precisely measure internal temperatures. Users can switch between infrared and probe measurements quickly and easily.

Special Features:

- * HACCP Zone Display
- * IP65 protection from water and dust intrusion

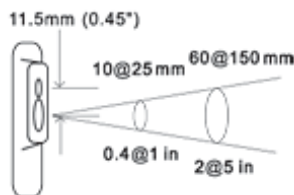


Non-Contact Infrared Thermometer Function

Distance to Spot Ratio
(D:S) = 2.5:1

Field of View

- 0.4" diameter circle at distance of 1 inch
- 1" diameter circle at distance of 2.5 inches
- 2" diameter circle at distance of 5 inches
- 3" diameter circle at distance of 7.5 inches
- 4" diameter circle at distance of 10 inches



To use infrared thermometer function: Simply aim the thermometer at the target and press the Scan button to display the surface temperature. The LED target light shows the approximate target area to be measured. For best results, hold the thermometer between 1 and 10 inches from the target and be sure your target is larger than the thermometer's field of view. The infrared thermometer will continuously measure and display updated surface temperatures as long as the Scan key is depressed. When the Scan key is released, the LCD display will "Hold", and the last measurement will remain visible for 15 seconds then automatically turn off.

APPLICATION NOTE: The infrared thermometer function measures the surface temperature of food and other items - not internal temperature - and is designed to be a screening tool only. Use the attached thermocouple probe to verify internal temperature.

Mode Selection (MIN, MAX, LOCK, °C, °F, EMIS)

Minimum or Maximum Mode

The infrared thermometer will display the minimum or maximum reading during the measurement period until the Mode key is pressed or the display auto powers off.

To activate Minimum (MIN) mode: Press the Scan button until the temperature appears on the display, then press the Mode button once. You will see "MIN" appear above the temperature reading. Immediately press and hold the Scan button again to scan for minimum temperature.

To activate Maximum (MAX) mode: Press the Scan button until the temperature appears on the display, then press the Mode button twice. You will see "MAX" appear above the temperature reading. Immediately press and hold the Scan button again to scan for maximum temperature.

Lock Mode

The lock mode is particularly useful for continuous monitoring of temperatures. When in lock mode, the infrared thermometer will continuously measure and display the temperature for up to 60 minutes.

To activate Lock mode: Press the Scan button until the temperature appears on the display, then press the Mode button three times. You will see "LOCK" appear above the temperature reading. Immediately press and release the Scan button. The thermometer will now continuously measure and display the temperature for up to 60 minutes or until the Scan button is pressed again.

°C/°F Mode

To change °C/°F: Press Scan button until the temperature appears on the display, then press the Mode button four times. The °C or °F icon will blink. Immediately press the Scan button to change from °C to °F or °F to °C.

Emissivity

The infrared thermometer is supplied with a default emissivity of 0.95. The emissivity can be changed from 0.10 (10E on display) to 1 (100E on display). For information relating to the emissivity of specific materials, please contact Customer Service. To change emissivity: Press the Scan button until the temperature appears on the display, then press the Mode button five times. You will see the current emissivity setting (10E-100E). Press the Scan button once for each 0.01 (1E) adjustment until the desired emissivity is displayed. Press the Mode button once to save the new emissivity.

Contact Thermocouple Probe Function

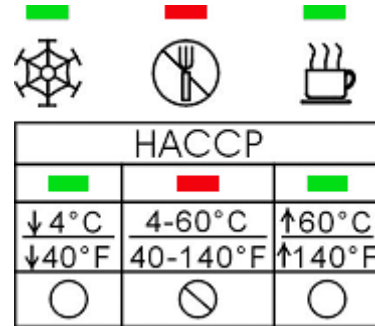
To use the Thermocouple Probe: Carefully rotate probe 180 degrees from its storage position against the FS200+ body. Press the Probe button and insert the probe tip into the item being measured. The thermometer will continuously measure and display the temperature for up to 4 minutes. Press the Probe button again to "Hold" the current temperature. To begin scanning again, press the Probe button again.

- ⚠ **CAUTION:** Over-rotating, over-stressing or forcing the probe outside the range of the hinge will cause damage – please use care.
- ⚠ **CAUTION:** The probe is sharp and can be dangerous in the fully extended position. Fold the probe back against the unit when not in use.
- ⚠ **CAUTION:** The probe may remain hot after measuring a high-temperature item. Allow it to cool for a few minutes before touching.
- ⚠ **CAUTION:** The probe must be washed before and after each use. Carefully hand wash - do not submerge or wash in an automatic dishwasher.
- ⚠ **CAUTION:** Do not use this thermometer to measure body temperature.

HACCP Check

The FS200+ Food Safety Thermometer incorporates the “HACCP CHECK” feature to graphically indicate the critical temperature zones. The icons and LED indicators indicate if the food temperature is safe, or in the unsafe HACCP “Danger Zone”. Note: The green and red LED lights will always be lit before power off.

- A Green LED appearing above the snowflake icon indicates a safe cool or frozen food condition (below 4°C/40°F)
- A Green LED appearing above the steaming mug icon indicates a safe hot food condition (above 60°C/140°F)



- A Red LED appearing above the fork icon indicates that food is in an unsafe temperature condition - the HACCP "Danger Zone" (between 4-60°C/40-140°F)

LCD Error Messages

The thermometer incorporates visual diagnostic messages as follows:

'Hi' or 'Lo' is displayed when the temperature being measured is outside of the range of the instrument:

'Hi' when measured temperature is higher than +250°C (482°F)

'Lo' when measured temperature is lower than -55°C (-67 °F)

'Er2' is displayed when the thermometer is exposed to rapid changes in the ambient temperature.

'Er3' is displayed when the ambient temperature is lower than 0°C (32°F) or higher than +50°C (122°F). The thermometer should be allowed plenty of time (minimum 30 minutes) to stabilize to the working/room temperature.

For all error messages it is necessary to reset the thermometer. To reset the thermometer, wait for auto power off, remove the battery, wait for at least one minute, reinsert the battery, and turn on. If the error message remains, please contact Customer Service for further assistance.

Batteries

When the 'Low Battery' icon appears, the battery should be replaced immediately with two new 1.5V AAA batteries. Please note: It is important to turn the instrument off before replacing the battery otherwise the thermometer may malfunction.

The thermometer incorporates visual low battery indication as follows:



'Battery OK': Thermometer will take measurements



'Battery Low': Measurements are still possible, but battery needs to be replaced soon



'Battery Exhausted': Measurements are not possible, replace battery before using

To Change Batteries

1. Remove small rubber gasket from the battery cover with a fingernail or straightened end of a paperclip, and use a small philips head screwdriver to remove the screw.
2. Remove the battery cover.
3. Remove the old batteries and replace with new ones (two 1.5V AAA batteries). Note: Please dispose of used batteries properly.
4. Reinstall the battery cover.
5. Insert screw and tighten using small philips head screwdriver. Use fingertip to reinstall rubber gasket over screw head.

Specifications

	Infrared Thermometer	Thermocouple Probe (K type, Grounded)
Measurement Range	-55 to 250°C (-67 to 482°F)	-55 to 330°C (-67 to 626°F)
Accuracy	$T_{obj}=15-35^{\circ}\text{C}$, $T_{amb}=25^{\circ}\text{C}$ +/-0.6°C (1.1 °F) $T_{amb}=23\pm 3^{\circ}\text{C}$ +/-1°C + 0.1/degree at -33 to 0°C +/-1°C at 0 to 65°C +/-1.5% of reading at 65 to 250°C	+/-1°C at below -5 +/-0.5°C at -5 to 65°C +/-1% of reading at above 65°C
Operating Range	32 to 122°F (0 to 50°C)	
Emissivity Range	0.95 (default) – adjustable from 0.10 to 1.00, step 0.01	
Wave Length	8µm to 14µm	
Resolution (-9.9 to 199.9°C)	0.2°C/0.5°F	
Distance to Spot	2.5:1	
Dimensions	0.87 x 1.50 x 6.3 in (22.18 x 38 x 160 mm)	
Weight (with battery)	3.5oz (98.1g)	
Battery Life	18 hours continuous use (auto power off after 15 seconds)	

⚠ **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.

Warnings

- ⚠ Keep away from children
- ⚠ Please dispose of used batteries properly
- ⚠ To avoid electric shock and thermometer damage, never place probe in contact with electricity
- ⚠ Do not use this thermometer to measure body temperature

SALES & CUSTOMER SERVICE

TTI Instruments
PO Box 1073, 8 Leroy Road, Williston VT 05495 USA
Toll-Free: 800-235-8367 • Phone: 802-863-0085 • Fax: 802-863-1193
email: support@instrumart.com • website: www.instrumart.com