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> AIOMEST AI-1800 Digital Pyrometer: User Manual for High-Temperature Non-Contact Infrared Thermometer

## AIOMEST AN-1800

# AIOMEST AI-1800 Digital Pyrometer User Manual

Model: AN-1800

### IMPORTANT SAFETY INFORMATION

**WARNING:** This device is an industrial-grade infrared thermometer designed exclusively for measuring the surface temperature of inanimate objects. **It is NOT intended for measuring human or animal body temperature.** Readings for living beings will not be accurate.

- Do not point the laser directly at eyes or indirectly off reflective surfaces. This product uses a Class II laser with optical power  $<0.5\text{mW}$  and wavelength  $630\sim 670\ \mu\text{m}$ .
- Do not use the device in environments with explosive gas, vapor, or dust.
- Keep the device away from electromagnetic fields generated by arc welders or induction heaters.
- Avoid exposing the device to extreme temperatures, humidity, or direct sunlight for prolonged periods.

### PRODUCT OVERVIEW

The AIOMEST AN-1800 Digital Pyrometer is a high-performance, non-contact infrared thermometer engineered for precise temperature measurement across a wide range of industrial and household applications. Its advanced sensor technology allows for rapid and accurate readings of surface temperatures from a safe distance.



Image: The AIOMEST AI-1800 Digital Pyrometer highlighting its upgraded sensor, lamp light, temperature alarm, and MAX/MIN/AVG/DIF functions for accurate measurements from a further distance.

Key features include a wide temperature range, a high Distance-to-Spot (D:S) ratio of 50:1 for safe long-distance measurements, and adjustable emissivity for enhanced accuracy on various material surfaces. It is ideal for use in smelting, kilning, pottery firing, food processing, HVAC, and detecting hot/cold spots.



Image: The AIOMEST AI-1800 Digital Pyrometer displaying its wide measuring range from -58°F (-50°C) to 3272°F (1800°C) and high accuracy.

## PACKAGE CONTENTS

Upon unpacking, please ensure all the following items are present:

- 1 x AIOMEST AN-1800 Digital Pyrometer
- 1 x 9V Battery
- 1 x Screwdriver
- 1 x Buckle
- 1 x Zippered Case
- 1 x User Manual (this document)

## SETUP

### 1. Battery Installation

1. Locate the battery compartment cover on the handle of the device.

2. Use the provided screwdriver to open the battery compartment.
3. Insert the included 9V battery, ensuring correct polarity (+/-).
4. Close the battery compartment cover and secure it with the screw.

## 2. Attaching the Buckle/Carabiner (Optional)

The device includes a metal screw hole for fixing on a tripod and comes with a carabiner for convenient carrying.

- To attach the carabiner, simply thread it through the designated loop at the base of the handle.
- For tripod mounting, screw the device onto a standard tripod mount. (Tripod not included)



Image: The AIOMEST AI-1800 Digital Pyrometer illustrating its metal screw hole for tripod mounting and the carabiner for attaching to a belt loop or tool shelf.

## OPERATING INSTRUCTIONS

### 1. Powering On/Off

- To power on, press the trigger. The display will illuminate.

- The device features a 30-second auto-off function to conserve battery power.

## 2. Basic Temperature Measurement

1. Point the infrared lens towards the target object.
2. Press and hold the trigger. The laser pointer will activate (if enabled) to indicate the measurement spot.
3. The temperature reading will be displayed instantly on the screen (response time <250 ms).
4. Release the trigger to hold the reading on the display.

# 0.25 SECOND TEST TEMPERATURE

**0.25S**

**CONVENIENT FUNCTIONS**

- Auto shut down
- Data hold
- MAX/MIN /AVG
- 0.25S respond
- Temperature alarm
- Emissivity adjustable

Image: The AIOMEST AI-1800 Digital Pyrometer demonstrating its rapid 0.25-second response time and convenient functions such as auto shut down, data hold, MAX/MIN/AVG, temperature alarm, and adjustable emissivity.

## 3. Distance-to-Spot Ratio (D:S)

The AN-1800 has a D:S ratio of 50:1. This means that at a distance of 50 units from the target, the measurement spot diameter will be 1 unit. For example, at 500 cm (5 meters) distance, the measurement area is approximately 10 cm in diameter. A higher D:S ratio allows for accurate measurement of smaller areas from a greater distance.



# D:S=50:1

**DISTANCE AND SENSING AREA RATIO**

Allows you to stand **500cm** away to measure the temperature of **10cm-area**.

Image: The AIOMEST AI-1800 Digital Pyrometer demonstrating its 50:1 Distance-to-Spot ratio, allowing measurement of a 10cm area from 500cm away.

## 4. Unit Selection (Celsius/Fahrenheit)

Press the '°C/°F' button to toggle between Celsius and Fahrenheit temperature units.

## 5. Backlight and Flashlight

The device features a backlight for the display and a built-in flashlight for improved visibility in low-light conditions. Refer to the device buttons for specific controls.

## EMISSIVITY ADJUSTMENT

Emissivity ( $\epsilon$ ) is a measure of an object's ability to emit infrared energy. Different materials have different emissivities, ranging from 0.1 (highly reflective) to 1.0 (perfect emitter). For accurate readings, adjust the emissivity setting on your AN-1800 to match the material being measured.

- The AN-1800 allows emissivity adjustment from 0.1 to 1.0.
- Consult a standard emissivity table for common materials (e.g., polished metals have low emissivity, painted surfaces and organic materials have high emissivity).

- To adjust emissivity, press the 'MODE' button until 'EMS' appears, then use the UP/DOWN buttons to set the desired value.

## ADVANCED FUNCTIONS

### 1. MAX/MIN/AVG/DIF Modes

The AN-1800 offers various measurement modes:

- **MAX:** Displays the maximum temperature recorded during a continuous scan.
- **MIN:** Displays the minimum temperature recorded during a continuous scan.
- **AVG:** Displays the average temperature recorded during a continuous scan.
- **DIF:** Displays the difference between the maximum and minimum temperatures recorded.

To cycle through these modes, press the 'MODE' button repeatedly while the device is powered on.

### 2. High/Low Temperature Alarm

Set high and low temperature thresholds. The device will emit an alarm when the measured temperature exceeds the high limit or falls below the low limit.

- Refer to the device's interface for specific buttons to set the alarm thresholds.
- This feature is useful for monitoring critical temperature ranges in industrial processes or cooking.

## MAINTENANCE

### 1. Cleaning

- Wipe the device clean with a soft, damp cloth. Do not use abrasive cleaners or solvents.
- Keep the infrared lens clean and free of dust or debris to ensure accurate readings. Use a soft brush or compressed air for the lens.

### 2. Battery Replacement

When the battery indicator appears on the display, replace the 9V battery following the installation steps in the 'Setup' section.

### 3. Storage

Store the device in its zippered case in a cool, dry place when not in use, away from direct sunlight and extreme temperatures.

## TROUBLESHOOTING

Problem	Possible Cause	Solution
No display/Device won't turn on	Dead or incorrectly installed battery	Replace the 9V battery, ensuring correct polarity.

Problem	Possible Cause	Solution
Inaccurate readings	Incorrect emissivity setting; Dirty lens; Object too far/too small; Measurement through smoke/steam	Adjust emissivity for the target material. Clean the lens. Ensure the target fills the measurement spot. Avoid measuring through obstructions.
Laser not visible	Laser disabled; Bright ambient light	Check device settings to ensure the laser is enabled. The laser may be difficult to see in bright conditions.
Display shows 'HI' or 'LO'	Temperature is outside the device's measurement range	Ensure the target temperature is within -58°F to 3272°F (-50°C to 1800°C).

If you encounter issues not listed here or if solutions do not resolve the problem, please contact customer support.



Image: The AIOMEST AI-1800 Digital Pyrometer illustrating measurement tips for liquids like water or oil, advising not to face the sensor lens into smoke and to maintain a measuring angle between 45° and 60°.

## SPECIFICATIONS

Feature	Specification
Model	AN-1800
Temperature Range	-58°F to 3272°F (-50°C to 1800°C)
Distance Spot Ratio (D:S)	50:1
Emissivity	0.1 ~ 1.0 (Adjustable)
Response Time	<250 ms
Spectral Response	8-14um
Resolution	0.1°F (<1832°F); 1°F (>1832°F)
Accuracy	±3% of readings ±3°C (-50°C to 0°C); ±2% of readings ±2°C (0°C to 100°C); ±3% of readings ±3°C (≥100°C)
Repeatability	1% of reading or 1°C
Laser Type	Class II, <0.5mW, 630~670 um
Power Source	9V Battery
Auto-Off	30 seconds
Outer Material Type	Stainless Steel
Special Features	Alarm, High Accuracy, Non-Contact, MAX/MIN/AVG/DIF modes, Data Hold, Backlight, Flashlight, Circle Laser Position

## WARRANTY AND SUPPORT

AIOMEST provides a 12-month product quality warranty for the AN-1800 Digital Pyrometer from the date of purchase. We also offer life-long technical support to ensure your satisfaction.

For any product-related inquiries, technical assistance, or warranty claims, please contact our customer support team. We aim to provide a quick response within 24 hours.

Please refer to the contact information provided with your purchase or visit the official AIOMEST website for support details.