Eastwood DO THE JOB RIGHT.

Part #31223

NON-CONTACT INFRARED THERMOMETER

INSTRUCTIONS

The **EASTWOOD NON-CONTACT INFRARED THERMOMETER** is compact, rugged and easy to use. This infrared thermometer safely measures the surface temperatures of hot, hazardous, or hard-to-reach objects without contact. Simply aim and push the button to read instantaneous temperatures in less than a second.

The infrared thermometer collects invisible infrared radiation emitted by the object being measured. This radiation is focused on an optical sensor in the thermometer and converted into an electrical signal. This signal, along with the emissivity of the material being measured, is used to calculate the surface temperature at the point of measurement. A red laser pointer helps the user aim the infrared beam for improved accuracy.

SAFETY INFORMATION

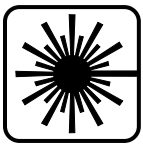
In this manual, on the labeling, and all other information provided with this product:

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ READ INSTRUCTIONS

Thoroughly read and understand this manual before using.
Save for future reference.



⚠ WARNING LASER RADIATION CAN INJURE EYES

Never point laser directly at eyes or in a direction that may reflect into someone's eyes.

PRECAUTIONS

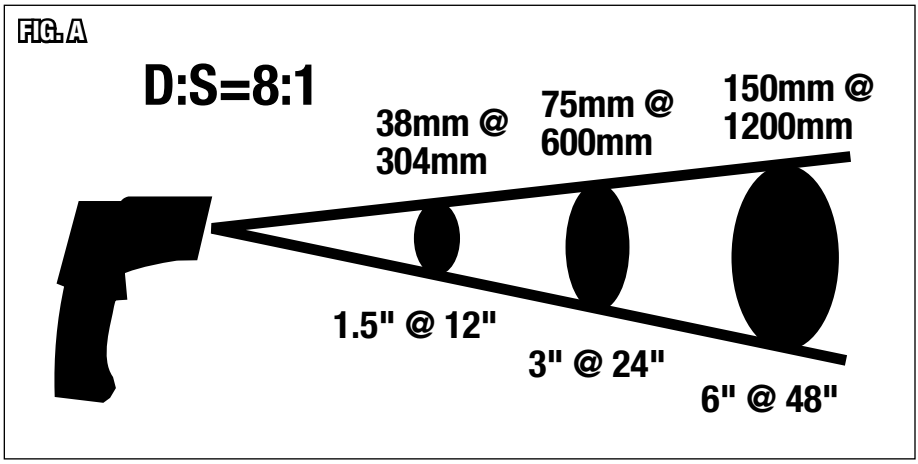
To maintain accuracy, the thermometer should be protected from the following conditions:

- EMF (electromagnetic fields) from arc welders, induction heaters and other EMF-emitting devices.
- Thermal shock created by large or sudden changes in ambient temperature. For best results allow thermometer to stabilize for 1 hour before use.
- Continuous exposure to or storage in extreme temperatures.
- Submersion in water.

PREPARATION

- Objects to be measured should be larger than the diameter of the beam shown in the diagram below **(FIG A)**.
- As the distance from the object increases, the diameter of the beam increases.
- The smaller the object to be measured, the closer the thermometer must be to the object.
- Most solid surfaces have an emissivity factor (the ability to radiate heat) of ~0.95. Some shiny surfaces, such as polished metal, may return inaccurate results when measured with an infrared thermometer. For best results, cover the area to be measured with masking tape or flat black paint prior to measurement.

FIG. A



THERMOMETER FUNCTION KEY

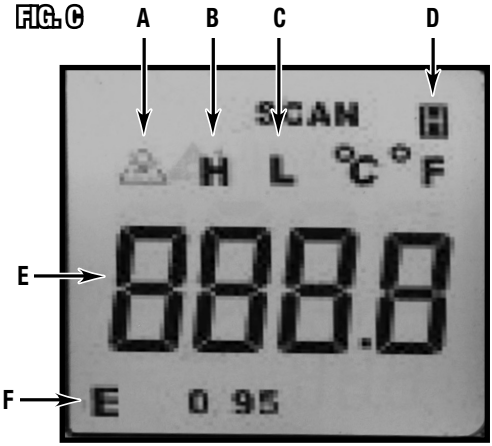
1. **TRIGGER** – Pull to turn thermometer on. The instantaneous temperature at the measurement point is displayed on "E" on the LCD display **(FIG. C)**.
2. **LASER POINTER BUTTON** – Press to toggle between "on" and "off."
3. **BACKLIGHT/UP BUTTON** – Press to switch backlighting on and off as needed during use. In "Alarm Temperature" and "Setting Emissivity" modes, press to increase setting value.
4. **MODE BUTTON** – Press to change between measurement modes:
   MAX – Displays the maximum temperature measured during the duration while the trigger was depressed. Resets when trigger is pulled again.
   MIN – Displays the minimum temperature measured during the duration while the trigger was depressed. Resets when trigger is pulled again.
   AVG – Calculates the average of all temperatures measured during the time while the trigger was depressed. Resets when trigger is pulled again.
   HAL – High temperature alert. Using the UP or DN button, set the desired high alert temperature. When the temperature exceeds the set temperature, the LCD readout will display "H".
   LAL – Low temperature alert. Using the UP or DN button, set the desired low alert temperature. When the temperature drops below the set temperature, the LCD readout will display "L".
5. **T/DN BUTTON** – Press to change between ˚C and ˚F on display. In "Alarm Temperature" and "Setting Emissivity" modes, press to decrease setting value.
6. **SET BUTTON** – Press to set emissivity. Use UP or DN buttons to adjust between 0.1 and 1.0, then press SET again to exit setting mode.
7. **LCD READOUT** – See display key above
8. **BATTERY DOOR** – Use finger indents to pry door open.

FIG. B

LCD DISPLAY KEY

A. Laser pointer “on” indicator
B. High temperature alert indicator
C. Low temperature alert indicator
D. Data hold indicator
E. Measurement result
F. Emissivity indicator

FIG. C



INSTRUCTIONS FOR USE

1. Remove the battery cover (8) and install battery, if needed (FIG. B). Pull the trigger and check LCD reading (FIG C) to confirm operation. Reading will display for 7 seconds after releasing the trigger.
2. Aim the thermometer toward the object to be measured.
3. Use the laser pointer for accuracy.
4. Pull the trigger and hold.
5. Slowly move the thermometer back and forth, then up and down, to locate the hottest spot on the object.

MAINTENANCE

- **Lens cleaning** – Use compressed air to remove loose particles. Gently wipe away any remaining debris with a damp cotton cloth. Do not use solvents to clean lens.
- **Case cleaning** – Use a damp cloth and mild soap to clean case.
- Remove battery from thermometer when not in use for extended periods.

SPECIFICATIONS

Temperature range	-30˚C to 550˚C (-22˚F to 1022˚F)
Accuracy	±4% or ±4˚C of reading, -30˚C to 0˚C (-22˚F to 32˚F) ±2% or ±2˚C of reading, 0˚C to 100˚C (32˚F to 212˚F) ±4% or ±4˚C of reading, ≥100˚C (212˚F)
Repeatability	1% of reading or 1˚C
Response time	500msec, 95% response
Spectral response	8-14um
Emissivity	0.1-1.0, adjustable
Ambient operating range	0˚C to ~60˚C (32˚F to 140˚F)
Relative humidity	10-95% RH noncondensing
Storage temperature	-20˚C to ~60˚C (-4˚F to 140˚F)
Ambient temp range to guarantee accuracy	23˚C to ~28˚C (73˚F to 82˚F)
Weight/dimensions	155g (5.5oz) / 165x72x41mm (6.5”x2.8”x1.6”)
Power	9V battery, 6F22 or NEDA 1604
Distance to spot ratio	8:1

NOTE:

- Display “AL” indicates ambient temperature is lower than 0˚C (32˚F)
- Display “AH” indicates ambient temperature is higher than 60˚C (140˚F)
- “AL” or “AH” displayed in normal ambient temps may indicate failure

MATERIAL EMISSIVITY (FOR REFERENCE ONLY)

MATERIAL	EMISSIVITY	MATERIAL	EMISSIVITY
Asphalt	0.90 - 0.98	Textile (black)	0.98
Beton Concrete	0.94	Human Skin	0.98
Cement	0.96	Soap Bubble	0.75 - 0.80
Sand	0.90	Charcoal (powder)	0.96
Soil	0.92 - 0.96	Paint	0.80 - 0.95
Water	0.92 - 0.96	Varnish	0.97
Ice	0.96 – 0.98	Rubber (black)	0.94
Snow	0.83	Plastic	0.85 – 0.95
Glass	0.90 – 0.95	Wood	0.90
Ceramic	0.90 – 0.94	Paper	0.70 – 0.94
Marble	0.94	Chromic Oxide	0.81
Gypsum	0.80 – 0.90	Copper Oxide	0.78
Particle Board	0.89 – 0.91	Iron Oxide	0.78 – 0.82
Brick	0.93 – 0.96	Stainless Steel/Aluminum	0.2 – 0.3

If you have any questions about the use of this product, please contact
The Eastwood Technical Assistance Service Department: 800.544.5118 >> email: techelp@eastwood.com
PDF version of this manual is available online >> eastwood.com/31223manual

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