SPECIFICATIONS
Range: -58.0 to 1832.0 °F
              -50.0 to 1000.0 °C
Resolution: 0.1°

OPERATION
Press and continue to hold down the trigger to take temperature readings. The unit will take temperature readings while the trigger is pressed and held (SCAN flashing on the display indicates measurements are being taken).

After the trigger is released, the last temperature measured will be displayed for approximately 8 seconds, the display will then turn off automatically. HOLD will appear on the display when the trigger has been released to indicate that the unit is no longer taking temperature measurements.

SWITCH LOCATIONS
The following switches are located in the handle:

°C/°F
LOCK ON/OFF
SET ALARM ON/OFF

To access these switches, locate the indentions on either side of the plastic case near the trigger. Open the handle by pulling the rubber portion of the handle out and away from the trigger. *Pull hard, it requires a good amount of force to open the handle.* Close the handle by snapping it shut.

PULL

BATTERY
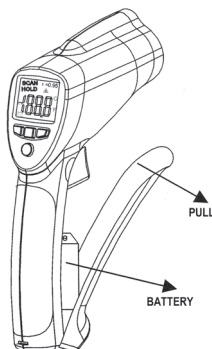
SELECTING UNITS OF MEASURE
Locate the °C/°F switch inside the handle. Slide the switch to °C to display the temperature in °C. Slide the switch to °F to display the temperature in °F.

LASER TARGETING/BACKLIGHT
While pressing and holding the trigger, each press the ☼/⚠ button toggles through the following:

Backlight ON (☼ appears on the display)

Backlight and Laser Targeting ON (☼ and ⚠ appear on the display)

Laser Targeting ON, Backlight OFF (⚠ appears on the display)

Backlight and Laser Targeting OFF (no display indicators)

With the backlight on, each time the trigger is pressed and held, the LCD display will be illuminated by the backlight.

With laser targeting on, each time the trigger is pressed and held, the laser beam will be emitted. *CAUTION:* Eye damage may result from direct exposure to laser light.

DISTANCE SPOT/RATIO
There are other factors that may affect measurement accuracy. The target must completely fill the spot diameter seen by the infrared sensor; otherwise readings will be influenced by the surface surrounding the target. The ratio of the distance to the size of the spot being measured is 50:1. For example, an object's diameter of 100mm can be measured from 5000mm.

VALUES RECORDED
With each press of the trigger, five values are recorded:
1. *MAX* - Highest temperature measured
2. *MIN* - Lowest temperature measured.
3. *DIF* - Difference between MAX and MIN
4. *AVG* - Time-weighted average temperature.
5. Value last displayed before releasing the trigger.

DISPLAY MODES
Each press of the MODE button will select one of the 7 display modes. You can cycle through the modes in this order:

"*MAX*" (Maximum temperature) - press the MODE button until *MAX* appears on the display. In the MAX mode the highest temperature measurement taken is displayed to the right of *MAX*. This value will update each time a higher temperature is measured.

"*MIN*" (Minimum temperature) - Press the MODE button until *MIN* appears on the display. In MIN mode, the lowest temperature measurement taken is displayed to the right of *MIN*. This value will update each time a new lower temperature is measured.

"*DIF*" (Temperature differential between MAX and MIN) - Press the MODE button until *DIF* appears on the display. The difference between the MAX and MIN reading is displayed to the right of *DIF*. This value is updated as new MAX and MIN temperatures are measured.

"*AVG*" (Calculated {time weighted} average temperature)- Press the MODE button until *AVG* appears on the display. The time weighted average temperature reading is displayed to the right of *AVG*. This value is updated continuously while the trigger is being pressed.

The term "time", in reference to the averaging mode, means all temperature measurements are averaged together from the first press of the trigger. Example: If the temperature was 72° for one minute, then 20° for 1/2 second, no significant change in average temperature would be displayed.

"*HAL*" (High Temperature Alarm) - Press the MODE button until *HAL* appears on the display. The high temperature alarm value that has been set is displayed to the left of *HAL*. (See High/Low Alarms section)

"*LAL*" (Low Temperature Alarm) - Press the MODE button until *LAL* appears on the display. The low temperature alarm value that has been set is displayed to the left of *LAL*. (See High/Low Alarms section)

"*EMS*" - Emissivity adjustment mode (See the Emissivity section).

NOTE: The last mode selected will remain selected the next time the trigger is pressed.

MEMORY RECALL
With each press of the trigger, five values are recorded:
1. *MAX* - Highest temperature measured
2. *MIN* - Lowest temperature measured.
3. *DIF* - Difference between MAX and MIN
4. *AVG* - Time-weighted average temperature.
5. The value last displayed before releasing the trigger.

To cycle through each of the values recorded during the last measurement, press the MODE button. (See the "Display Modes" section for an explanation of the values displayed)

HI/LOW ALARMS
An audible alarm will sound at both an upper and a lower temperature limit.

To adjust the alarm temperature set points:

1. Press the MODE button until "*HAL*" (High Temperature Alarm) or "*LAL*" (Low Temperature Alarm) is displayed.

2. To adjust the temperature alarm set point, press the ▲ or ▼ button. *(Do not press the trigger while adjusting the alarm set points).* Press and hold to advance the display rapidly.

To turn the Hi/Low Alarm function On/Off:
1. Locate the SET ALARM ON/OFF switch in the handle.
2. Slide the switch to the desired position.

With the Alarm function set to ON, (indicated by (((HI and LOW))) appearing on the display), while taking temperature measurements, an alarm will sound when the temperature measured is above or below the High and Low alarm set points that have been entered. If the temperature is above the High Alarm set point, (((HI will flash on the display. If the temperature is below the Low Alarm set point, LOW))) will flash on the display.

The alarm will sound regardless of the Display Mode if the temperature measured is above or below the High and Low alarm set points that have been entered.

LOCK FUNCTION
The lock function allows the thermometer to take long term measurements without having to hold the trigger. When the lock function is activated, the unit will take continuous temperature measurements until the LOCK function is set to OFF.

To use the lock function:
1. Locate the LOCK ON/OFF switch in the handle.
2. Slide the switch to the ON position.
3. Close the handle.
4. Press and release the trigger to begin taking measurements.

The unit will continue to take measurements without holding the trigger until the LOCK ON/OFF switch is set to OFF.

5. When finished taking measurements, locate the LOCK ON/OFF switch in the handle.
6. Slide the switch to the OFF position.
7. Close the handle.

EMISSIVITY

Emissivity adjustment is optional. Emissivity adjustments are used to provide a truer temperature reading. The emissivity value appears at the top of the display (ϵ=#.##).

Different materials radiate infrared energy at slightly different temperatures. The emissivity adjustment is used to compensate for different types of materials. The default emissivity of 0.95 will cover 90% of typical applications.

The emissivity table provides a guide of different emissivity values for different materials.

When the emissivity of an object is unknown use a non-infrared thermometer, such as a thermometer with a surface probe to measure the object's surface temperature. Adjust the emissivity until the temperature of the Infrared Thermometer matches the temperature of the surface probe. The emissivity value arrived at by this method may be used to measure similar materials.

To adjust the emissivity (optional):
1. Press the MODE button until $E\,m\,S$ appears on the display.

2. To adjust the emissivity value, press the ▲ or ▼ button. *(Do not press the trigger while adjusting the emissivity value).* Press and hold to advance the display rapidly.

The emissivity can be set from 0.10 to 1.00.

This emissivity value will be used for all temperature measurements until the value is re-set.

DISPLAY MESSAGES

" ꟷ" will appear on the display when the temperature being measured is outside the range of the unit.

ALL OPERATIONAL DIFFICULTIES

If this thermometer does not function properly for any reason, replace the battery with a new high quality battery (see Battery Replacement section). Low battery power can occasionally cause any number of "apparent" operational difficulties. Replacing the battery with a new fresh battery will solve most difficulties.

BATTERY REPLACEMENT

Erratic readings, faint readings, no display, or a battery symbol appearing on the display are all indications that the battery must be replaced. Locate the indentions on either side of the plastic case near the trigger. Open the battery compartment by pulling the rubber portion of the handle out and away from the trigger. *Pull hard, it requires a good amount of force to open the battery compartment.* Remove the exhausted battery and replace it with a new 9-volt alkaline battery. Close the battery cover by snapping it shut.

PULL

BATTERY
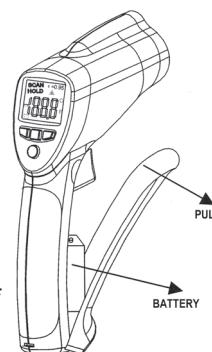
WARRANTY, SERVICE, OR RECALIBRATION

For warranty, service, or recalibration, contact:

TRACEABLE® PRODUCTS

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E-mail support@traceable.com
www.traceable.com

Traceable® Products are ISO 9001:2015 Quality-Certified by DNV and ISO/IEC 17025:2017 accredited as a Calibration Laboratory by A2LA.

TRACEABLE® INFRARED THERMOMETER GUN INSTRUCTIONS

Note: Traceable Infrared Thermometers, are NOT approved for Medical usage, and are not FDA approved.

METALS (Typical Emissivity Values)

SURFACE	EMISSIVITY
Iron and Steel	
Cast iron (polished)	0.2
Cast iron (turned at 100°C)	0.45
Cast iron (turned at 1000°C)	0.6 to 0.7
Steel (ground sheet)	0.6
Mild steel	0.3 to 0.5
Steel plate (oxidized)	0.9
Iron plate (rusted)	0.7 to 0.85
Cast iron (rough) rusted	0.95
Rough ingot iron	0.9
Molten cast iron	0.3
Molten mild steel	0.3 to 0.4
Stainless steel (polished)	0.1
Stainless steel (various)	0.2 to 0.6
Aluminum	
Polished aluminum	0.1*
Aluminum (heavily oxidized)	0.25
Aluminum oxide at 260°C	0.6
Aluminum oxide at 800°C	0.3
Aluminum Alloys, various	0.1 to 0.25
Brass	
Brass (polished)	0.1*
Brass (roughened surface)	0.2
Brass (oxide)	0.6
Copper	
Copper (polished)	0.05*
Copper (oxide)	0.8
Molten copper	0.15
Lead	
Lead (polished)	0.1*
Lead (oxide at 25°C)	0.3
Lead (oxide)	0.6
Nickel and Its Alloys	
Nickel (pure)	0.1*
Nickel plate (oxide)	0.4 to 0.5
Nichrome	0.7
Nichrome (oxide)	0.95
Zinc (oxidized)	0.1*
Galvanized iron	0.3
Tin-plated steel	0.1*
Gold (polished)	0.1*
Silver (polished)	0.1*
Chromium (polished)	0.1*

NON-METALS (Typical Emissivity Values)

SURFACE	EMISSIVITY
Refractory & Building Materials	
Red brick (rough)	0.75 to 0.9
Fire clay	0.75
Asbestos	0.95
Concrete	0.7
Marble	0.9
Carborundum	0.85
Plaster	0.9
Alumina (fine grain)	0.25
Alumina (coarse grain)	0.45
Silica (fine grain)	0.4
Silica (coarse grain)	0.55
Zirconium silicate up to 500°C	0.85
Zirconium silicate at 850°C	0.6
Quartz (rough)	0.9
Carbon (graphite)	0.75
Carbon (soot)	0.95
Timber (various)	0.8 to 0.9
Miscellaneous	
Enamel (any color)	0.9
Oil paint (any color)	0.95
Lacquer	0.9
Matte black paint	0.95 to 0.98
Aluminum lacquer	0.5
Water	0.98
Rubber (smooth)	0.9
Rubber (rough)	0.98
Plastics (various, solid)	0.8 to 0.95
Plastic films (0.05 mm thick)	0.5 to 0.95
Polythene film (0.03 mm thick)	0.2 to 0.3
Rubber (smooth)	0.9
Rubber (rough)	0.98
Plastics (various, solid)	0.8 to 0.95
Plastic films (0.05 mm thick)	0.5 to 0.95
Polythene film (0.03 mm thick)	0.2 to 0.3
Paper and cardboard	0.9
Silicone polish	0.7

*Emissivity varies with purity