SPECIFICATIONS

Range:	−7 to 230°F / −22 to 110°C
Resolution:	0.1°
Accuracy:	± 1°C between 15.0 to 40.0°C and ± 1.5°C outside of this range
Emissivity:	0.95 (adjustable)
Sampling Rate:	1 second
Measurement Distance:	0 to 10 inches (0 to 25 cm)
Features:	Fast reading, field view 1:1, auto power off, minimum/maximum
Size/Weight:	2½ x 1½ x ½ in. / 1 oz (18 x 37 x 68 mm / 32 g)
Attachments:	Key chain and stand
Battery:	3-Volt Lithium

CONTROLS AND INDICATORS

1. **MEASUREMENT Button** - (large button) Turns unit on, displays temperature, and changes display from °C (Celsius) to °F (Fahrenheit).
2. **MODE Button** - Changes mode to minimum or maximum or lock.

OPERATION

Measurement

Press the MEASUREMENT button twice to capture and display a single temperature reading. The temperature will be displayed for approximately 15 seconds and the unit will turn off. Press and continuously hold down the MEASUREMENT button to continuously take temperatures. See the Lock Mode instructions for continuous measurements without holding down the button.

°C/°F CONVERSION

To change from °C to °F or °F to °C turn the unit on by pressing the MEASUREMENT button once, then press the MODE button four times. The °C or °F symbol will flash on the display, press the MEASUREMENT button to change the symbol, press the MEASUREMENT button again to confirm the symbol change.

MINIMUM OR MAXIMUM MODE

Use this mode for targets that are continuously changing temperatures and you wish to capture *only* the lowest temperature achieved or *only* the highest temperature achieved. The unit will not simultaneously display minimum and maximum, one or the other must be selected. Turn the unit on by pressing the MEASUREMENT button once, then press the MODE button once for minimum *only* readings or twice for maximum *only* readings. The MIN or MAX symbol will flash on the display, then press and continuously hold down the MEASUREMENT button to continuously take temperatures. The unit will display the minimum temperature achieved or the maximum temperature achieved during the time the button is held down.

LOCK MODE

The lock mode permits continuous monitoring of temperatures without continuously holding the MEASUREMENT button down. Turn the unit on by pressing the MEASUREMENT button, then press the MODE button three times. The LOCK symbol will flash, then press the MEASUREMENT button to confirm the lock measurement mode. The unit will continuously display temperatures for up to 60 minutes or until the MEASUREMENT button is pressed.

EMISSIVITY

Emissivity adjustment is optional. Emissivity adjustments are used to provide a truer temperature reading. 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. (see chart on other side)

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 and release the MEAS. button to turn on the display.
2. Press MODE button until (E95 {or whatever emissivity value has been set} will appear on the display).
3. To adjust the emissivity value, press MEAS. button to advance the value. Once the maximum value of 100 is reached, the display will roll over to the minimum value of 5.

The emissivity can be set from 0.05 to 1.00 (5 to 100 on the display)

4. Once desired emissivity value appears on display, press the MODE button to confirm the value.

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

MEASUREMENT DISTANCE

To take a temperature, point the unit at the surface to be measured and press the MEASUREMENT button. The unit should be positioned as close to the target as possible. Distance from an object can affect accuracy. The target must completely fill the spot diameter seen by the infrared sensor; otherwise, the reading will be influenced by the surface temperatures surrounding the target. The ratio of distance to the size of the spot being measured is 1:1. For example: an object 15 cm away has an infrared measurement spot diameter of 15 cm, and object 25 cm away has an infrared measurement spot diameter of 25 cm. For best accuracy, measure as close to the target object as possible.

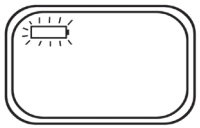
STAND/KEY CHAIN

Use the flip-open stand on the back of the unit on a bench or desk.. Use the key chain to fasten the unit to a button hole or loop.

Battery Indicator Display

'Battery OK': measurements are possible.

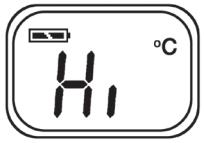
'Battery Low': battery needs to be replaced, measurements are possible.



'Battery Exhausted': measurements are not possible.

ERROR MESSAGE DISPLAY

'Hi' or 'Lo' is displayed when the temperature being measured is outside of the range of the unit, 'Hi' when higher than 110°C and 'Lo' when lower than -22°C.



'Er2' is displayed when the unit is exposed to rapid changes in the ambient temperature. 'Er3' is displayed when the ambient temperature of this unit exceeds -10 to 50°C. In both cases allow plenty of time (minimum 30 minutes) for this device to stabilize to the working/ room temperature (0 to 40°C).

'Er' for all other error messages it is necessary to reset this unit. To reset, turn off the unit, remove the battery and wait for a minimum of one minute, reinsert the battery and turn on (see battery replacement Instructions).

ALL OPERATIONAL DIFFICULTIES

If this unit 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, a faint display, no display or a flashing display are all indicators that the battery must be replaced. Make certain the unit is off before replacing the battery. Turn the battery compartment panel on the back of the unit in the direction the arrow. Replace the exhausted battery with a new 3-volt lithium battery. Note that the lip of the battery must be placed under the upper metal contact. Turn the panel back into place. Replacement battery Cat. No. 1005.

EMISSIVITY CHART

METALS (Typical Emissivity Values)

SURFACE	EMISSIVITY
Iron and Steel	
Cast iron (polished)	0.2
Cast iron (tumed at 100°C)	0.45
Cast iron (tumed 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

WARRANTY, SERVICE, OR RECALIBRATION

For warranty, service, or recalibration, contact:

TRACEABLE® PRODUCTS
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Webster, Texas 77598 USA
Ph. 281 482-1714 • Fax 281 482-9448
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.

MiniiiIR TRACEABLE® THERMOMETER INSTRUCTIONS

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