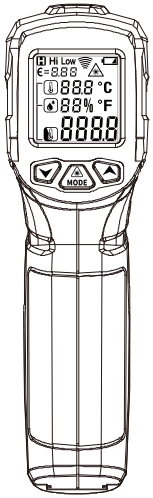
USERS MANUAL

INFRARED THERMOMETER



SAFETY INFORMATION

Thank you for purchasing the Infrared Thermometer (hereby known as the Thermometer). Please read this instruction manual carefully before use. Keep for future reference.

The Thermometer complies with the following standard:

- EN 60825-1:2014 Laser Standard

⚠ WARNING!

To avoid personal injury please adhere to the following guidelines:

- DO NOT point laser directly at eye or indirectly off reflective surfaces.
- DO NOT operate around steam, dust, smoke, etc. Measurements may not be accurate in the presence of these conditions.
- The Thermometer can not accurately measure transparent surfaces such as glass or plastic.
- KEEP OUT OF REACH OF CHILDREN.

Table 1. Safety Symbols

⚠	Risk of danger. Important Information. See manual for details.
CE	The product complies with the applicable European directives and an evaluation method of conformity for these directives was done.

Figure 1. Safety Marking



⚠ CAUTION

To avoid damage to the Thermometer protect from the following:

- Thermal shock can results from abrupt changes in ambient temperature. Allow 30 minutes for the Thermometer to stabilize to surrounding conditions.
- Avoid any electromagnetic fields (EFM) caused by electric welders, induction heaters, arc welders, etc.
- Do not place or leave the Thermometer on or near high temperature objects.
- Keep the Thermometer clean: See MAINTENANCE.

MAINTENANCE

- Cleaning the lens: Blow off loose particles using clean compressed air. Gently wipe surface with a moist cotton cloth.
- Cleaning the case: Use water (soap optional) on a damp sponge or cloth.
- Remove batteries and store when Thermometer will not be used for an extended period of time.

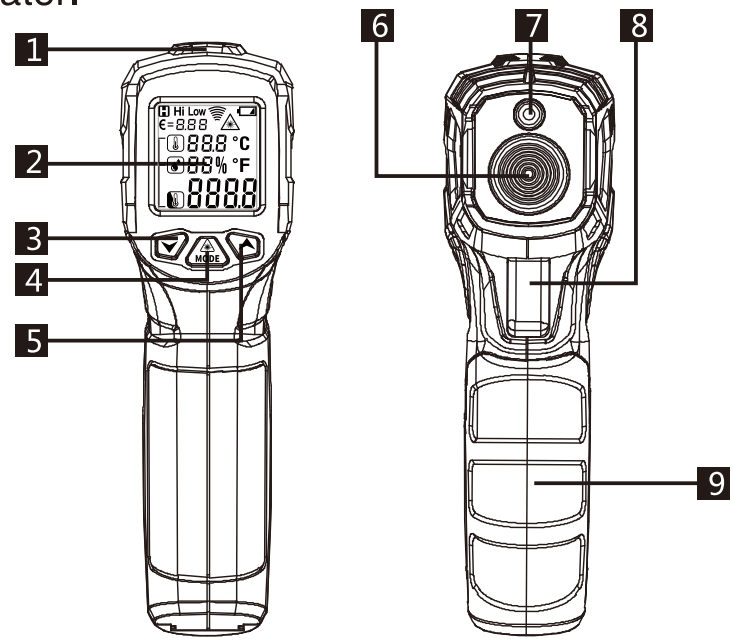
⚠ CAUTION

To avoid damaging the Thermometer:

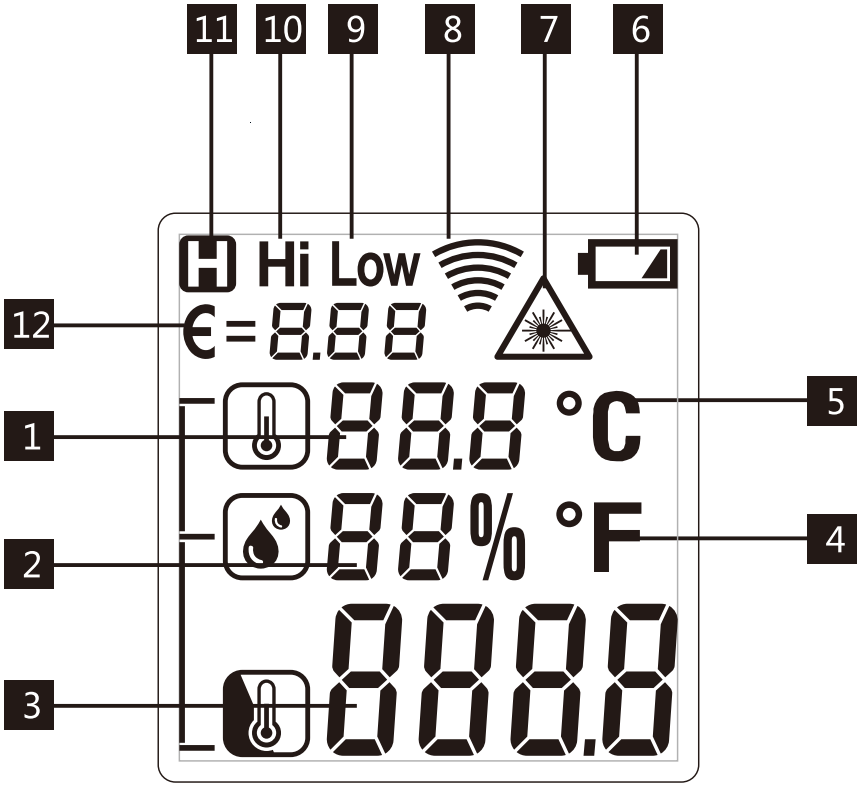
- DO NOT use solvent to clean lens.
- DO NOT submerge in water.

FEATURES

1. Alarm Indicator
2. LCD Display
3. Function Down ▼
4. MODE/Laser Control
5. Function Up ▲
6. Infrared Sensor
7. Laser Sight
8. Trigger
9. Battery Cover



LCD DISPLAY



1. Ambient Temperature
2. Humidity Display
3. Measured Surface Temperature
4. °F (Fahrenheit) Temp. Unit
5. °C (Celsius) Temp. Unit
6. Low Battery Indicator
7. Laser Symbol “On”
8. Measurement Indicator
9. Low Limit Alarm
10. High Limit Alarm
11. Data Hold
12. Emissivity Setting

OPERATING INSTRUCTIONS

Insert (2) AAA 1.5V batteries into Thermometer. Pull the Trigger on the Thermometer to measure surface temperature. The unit is equipped with a laser which is used for aiming only.

THE MODE BUTTON

The MODE button is used to access the Emissivity, Hold, Laser, Temperature Unit, High Limit and Low Limit Alarm features.

SETTING THE HIGH LIMIT ALARM

1.Press and Hold MODE for 2 seconds.
2.Press MODE until Hi is showing on the LCD screen.
3.Press ▲/▼to set alarm to desired high temperature value.
4.Press and hold ▲/▼ to quickly increase or decrease the set value.
5.Press Trigger or press and hold MODE to set selection.

SETTING THE LOW LIMIT ALARM

1. Press and Hold MODE for 2 seconds.
2. Press MODE until Low is showing on the LCD screen.
3. Press ▲/▼to set alarm to desired low temperature value.
4. Press and hold ▲/▼ to quickly increase or decrease the set value.
5. Press Trigger or press and hold MODE to set selection.

SETTING THE EMISSIVITY

1. Press and Hold MODE for 2 seconds.
2. Press MODE until Emissivity is flashing on the LCD screen.
3. Press ▲/▼ to set emissivity to desired value.
4. Press and hold ▲/▼ to quickly increase or decrease the set value.
5. Press Trigger or press and hold MODE to set selection.

SETTING TEMPERATURE UNIT (SWITCHING BETWEEN °C and °F)

1.Press and Hold MODE for 2 seconds.
2.Press MODE until °C or °F is showing on the LCD screen.
3.Press ▲/▼ to switch between desired temperature unit.
4.Press Trigger or press and hold MODE to set selection.

EXITING MODE SETTINGS

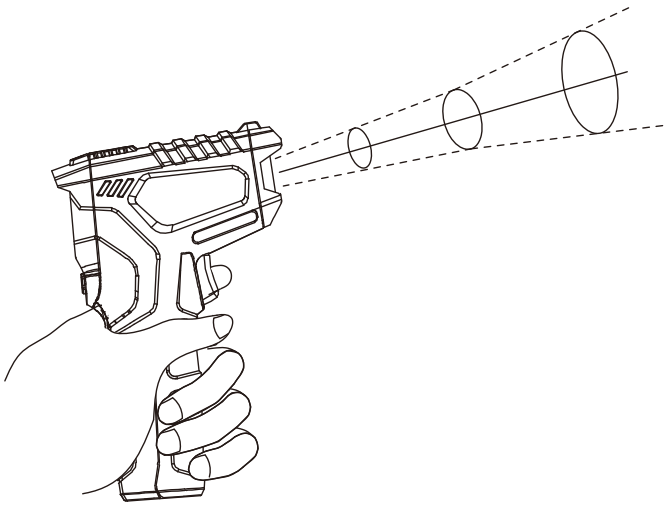
Press Trigger or press and hold MODE

TURNING THE LASER ON/OFF

Press MODE button to turn laser on or off. The  Laser Symbol will appear on the LCD screen when it is enabled.

MEASURING NON-CONTACT TEMPERATURE

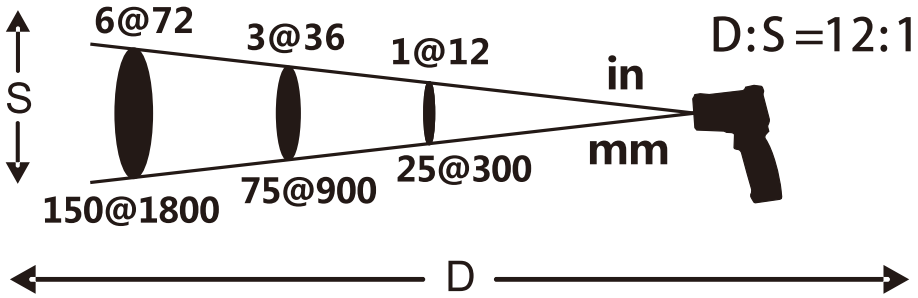
1. Aim Thermometer at the surface of the object and hold in the Trigger to read continuous temperature measurements.
2. Release the Trigger when desired measurement is obtained and result will stay displayed on the LCD screen.
3. When the measured surface temperature is greater than the High Limit Alarm temperature setting or less than the Low Limit Alarm setting previously set, the user will be alerted by the illumination of the RED Alarm Indicator on the Thermometer, and “OL” Symbol will be appeared on LCD Screen.



DISTANCE AND SPOT SIZE (D:S Ratio)

- As the distance (D) from the target surface being measured increases, the spot size (S) of the area being measured becomes larger.
- The meter's field of view is 12:1. See FIELD OF VIEW below.

Figure 2. D:S Ratio



FIELD OF VIEW

The device's field of view is 12:1 (Ex. If the Thermometer is 12 in. from the surface (spot), the diameter of the target must be greater than 1 in.). When accuracy is critical, make sure the target is at least twice as large as the spot size. The smaller the target, the closer the Thermometer should be to it when being measured. In general, measurements should be made as close to the target as possible.

EMISSIVITY

Emissivity is the measurement of a material's ability to radiate heat. The majority of organic materials and painted or oxidized surfaces have an emissivity between 0.85 and 0.98. The Thermometer emissivity is 0.95 by default. While measuring, set the Emissivity on the Thermometer to match the object being measured. Refer to Table 2 for typical emissivity settings.

Table 2. Surface Emissivity

Measured Surface	Material	Emissivity
Aluminum	Oxidized	0.2 to 0.4
	A3003 Alloy (Oxidized)	0.3
	A3003 Alloy (Roughened)	0.1 to 0.3
Brass	Polished	0.3
	Oxidized	0.5
Copper	Oxidized	0.4 to 0.8
	Electrical Terminal Blocks	0.6
Hastelloy		0.3 to 0.8
Ferro-Nickel	Oxidized	0.7 to 0.95
	Abrasive Blasting	0.3 to 0.6
	Electro Polishing	0.15

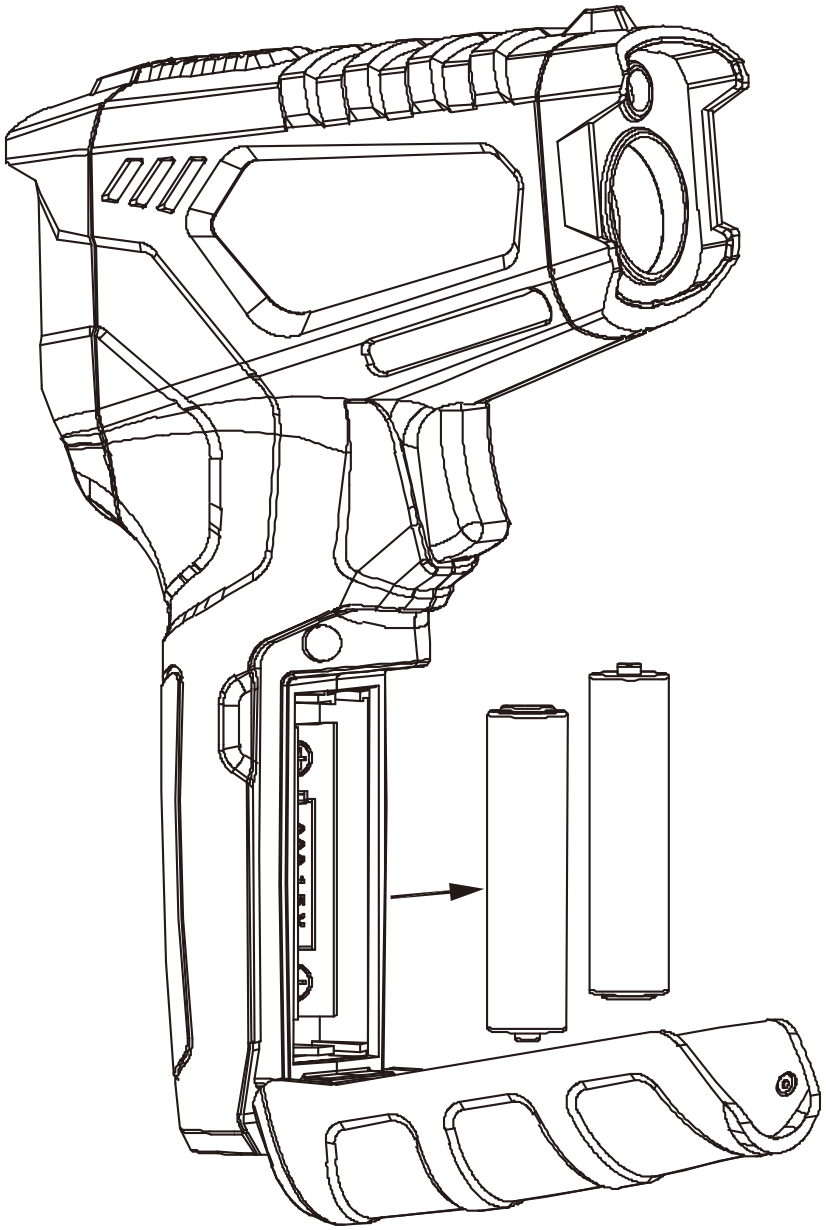
Iron	Oxidized	0.5 to 0.9
	Rust	0.5 to 0.7
Iron, Cast	Oxidized	0.6 to 0.95
	Unoxidized	0.2
	Molten	0.2 to 0.3
Iron, Cast	Passivated	0.9
Lead	Roughened	0.4
	Oxidized	0.2 to 0.6
Molybdenum	Oxidized	0.2 to 0.6
Nickel	Oxidized	0.2 to 0.5
Platinum	Black	0.9
Steel	Cold-Rolled	0.7 to 0.9
	Ground Sheet	0.4 to 0.6
	Polished Sheet	0.1
Zinc	Oxidized	0.1
Asbestos		0.95
Asphalt		0.95
Basalt		0.7

Carbon		0.8 to 0.9
Graphite	Unoxidized	0.7 to 0.8
Silicon Carbide		0.9
Ceramics		0.95
Clay		0.95
Concrete		0.95
Cloth		0.95
Glass		0.85
Gravel		0.95
Plaster		0.8 to 0.95
Ice		0.98
Limestone		0.98
Paper		0.95
Plastics		0.95
Soil		0.9 to 0.98
Water		0.93
Timber		0.9 to 0.95

CHANGING THE BATTERY

When the Low Battery Symbol appears on the LCD screen promptly replace the Thermometer's batteries. Carefully open the battery compartment and insert (2) AAA 1.5V batteries as shown below:

Figure 3. Battery Compartment



⚠ CAUTION

All batteries lose their charge over time, and dead batteries will eventually leak if care is not taken. Battery leaks can lead to respiratory, eye, and skin irritation.
To prevent corrosion:

- DO NOT mix different types (ie. Alkaline, Rechargeable, Zinc-Carbon, etc.) of batteries.
- DO NOT mix old and new batteries, or batteries of different brands.
- DO NOT recharge non-rechargeable batteries.
- Replace entire set of batteries when required.
- Promptly remove dead batteries from Thermometer. Dispose of batteries properly.
- Remove batteries from the Thermometer when it is not intended to be used for extended periods of time. Store batteries separately from the device, and periodically check the expiration dates.

SPECIFICATIONS

Infrared Measurement Range		-50℃ to 550℃(-58℉ to 1022℉)
		-50℃ to 800℃(-58℉ to 1472℉)
Emissivity	0.1 to 1.0	
Field of View (D:S Ratio)	12:1	
Spectral Response	8μ to 14μ	
Laser Pointer	Class 2	
	Output < 1mW power	
	Wavelength : 620nm to 690nm	

Response Time	<0.5 second
Automatic Power Off	30 seconds
Operating Temperature	0℃ to 40℃ / 32℉ to 104℉
Storage Temperature	-10℃ to 60℃ / 14℉ to 140℉
Power Supply	(2) AAA 1.5V batteries
Ambient Temperature Accuracy	0℃ to 45℃ (32℉ to 113℉): ±1.0℃/2℉ -10℃ to 0℃, 45℃ to 60℃ (14℉ ~ 32℉,113℉ ~ 140℉): ±1.5℃/ 3℉
Ambient Humidity Accuracy	20% to 80%: ±4.0% RH 0% to 20%, 80% to 100%: ±5.0% RH
Surface Temperature Accuracy	-50℃ to 0℃ (-58℉ to 32℉): ±3℃ 0℃ to 550℃ (32℉ to 1022℉): ± (1.5% of reading + 2℃ / 4℉)
	-50℃ to 0℃ (-58℉ to 32℉): ±3℃ 0℃ to 800℃ (32℉ to 1472℉): ± (1.5% of reading + 2℃ / 4℉)
Weight	Approx. 108g (3.8 oz.)
Dimensions	150 x 94 x 40mm (5.9 x 3.7 x 1.6 in.)