

1. GENERAL SAFETY RULES



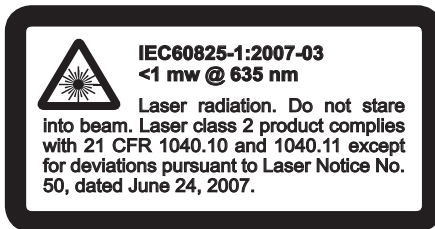
WARNING

Read all instructions. Failure to follow all instructions listed below may result in hazardous radiation exposure, electric shock, fire, and/or serious injury.

- **CAUTION**—use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- **DO NOT** operate this instrument in areas where there is risk of fire or explosion, like in the presence of flammable liquids, gases, dust, etc.
- **DO NOT** disassemble the instrument. There are no user serviceable parts inside. Disassembling the instrument will void all warranties on the product.
- **DO NOT** modify the instrument in any way. Modifying the instrument may result in hazardous laser radiation exposure.
- To ensure that the instrument is used safely, follow all safety and operating instructions in this manual. If the instrument is not used as described in this operation manual, the safety features of this device may be impaired.
- To avoid personal injuries and damage to the instrument, use extreme caution when working around hot machine or engine parts, such as radiators, exhaust manifolds, catalytic converters, etc.
- Repair and servicing must always be performed by qualified repair personnel. Repairs performed by unqualified personnel could result in serious injury.
- This instrument is designed for indoor use at temperatures between 32°F and 122°F (0°C to 50°C), altitudes up to 6500 ft. (2,000 m), and 10% to 90% relative humidity.

2. LASER SAFETY RULES

This label is on your laser instrument for your safety. ALWAYS BE AWARE of its location when using the tool.



DO NOT direct the laser beam at persons or animals and do not stare into the laser beam yourself. This tool produces class 2 laser radiation and complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007. This can lead to persons being blinded.

Working safely with this instrument is possible only when the operating and safety information are read completely and the instructions contained therein are strictly followed.

- Never make the warning labels on the instrument unrecognizable.
- Never aim the beam at a workpiece with a reflective surface.
- Mirrors or similar reflective surfaces are not recommended for laser use, as these could reflect the beam back towards the operator.
- Do not point the laser beam at persons or animals and do not look into the laser beam yourself, not even from a long distance.
- Do not use laser viewing glasses as safety goggles, because they do not protect against laser radiation.
- Do not allow children to use the measuring tool without supervision. They could unintentionally blind other people.
- **ALWAYS:** Make sure that any bystanders in the vicinity of use are made aware of the dangers of looking directly into the instrument.

3. TECHNICAL SPECIFICATIONS

3.1 General Specifications

Display:	3½ digits LCD, max. of 1999 display with measuring units, laser on and backlight indicators.
Resolution:	0.1 to 1 (°C or °F)
Operating temperature:	32°F to 122°F (0°C to 50°C)
Response time:	< 500 ms (approx.)
Target size/ Field of view:	10:1 optics ratio with a 1" min. target
Repeatability:	0.5% of reading, plus one digit
Emissivity:	Fixed at 0.95
Laser class:	2
Laser type:	< 1 mW @ 635 nm
Power source:	9 V battery type NEDA 1604, IEC6F22 IEC 6LR61
Battery life:	Approx. 20 hours (w/alkaline batteries)
Power saving:	Automatic shut off after 7 seconds
Thermopile range:	7 to 14 µm
Dimensions:	3.13"x 1.88"x 7.0" (80 x 48 x 178 mm)
Weight:	7.6 oz. (215 g) including battery
Accessories:	User's manual, soft pouch, and 9 V alkaline battery

3.2 Measurement Specifications

- Accuracies are ±(% of reading + number of least significant digits) at 23°C ±3°C (73°F ± 6°F) ambient temperature, with less than 75% relative humidity.

Function	Range	Accuracy (whichever is greater of)	Resolution
Temperature °C	-30°C to 0°C	± 2°C	0.1°C
	0°C to 199.9°C	1°C or 1.5%+2 (whichever is greater)	
	200°C to 650°C	2.0% + 2	1°C
Temperature °F	-22°F to 32°F	± 4°F	0.1°F
	-32°F to 199.9°F	2°F or 1.5%+4 (whichever is greater)	
	200°F to 1200°F	2.0% + 2	1°F

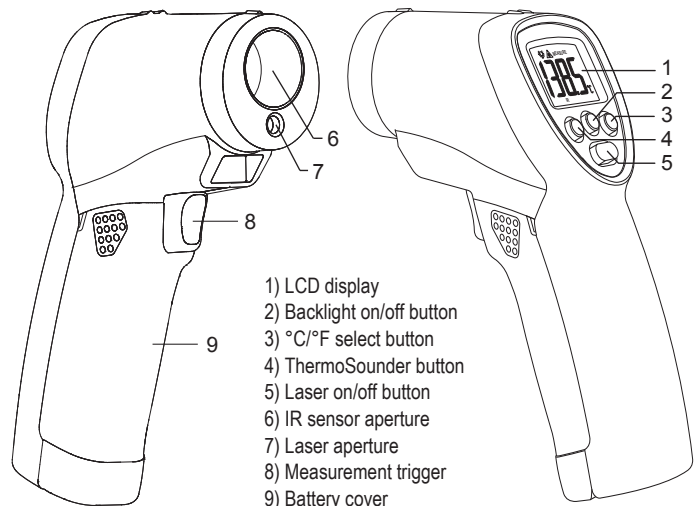
4. OPERATION



CAUTION

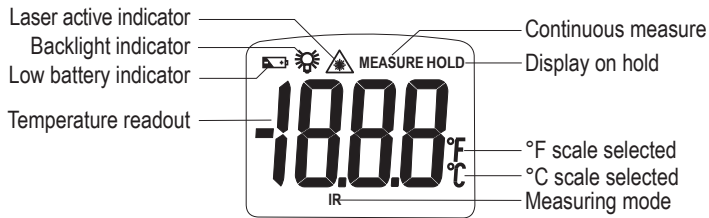
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

4.1 Instrument Description



- 1) LCD display
- 2) Backlight on/off button
- 3) °C/°F select button
- 4) ThermoSounder button
- 5) Laser on/off button
- 6) IR sensor aperture
- 7) Laser aperture
- 8) Measurement trigger
- 9) Battery cover

4.2 Display Description

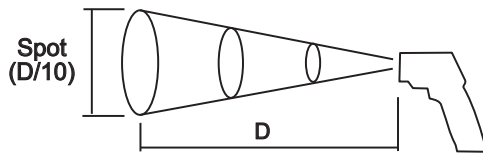


4.3 Measurement Procedures

4.3.1 Temperature Measurement

- Hold the instrument by its handle, point the IR Sensor at the area or object to measure, and press the Measurement Trigger.
- While the Measurement trigger is kept pressed, the instrument will continuously measure and update the display with the temperature of the object the IR sensor is pointed at.
- After the Measurement trigger is released the instrument will hold the last temperature reading for 7 seconds, then shut off automatically.

4.3.2 Field of view or measurement target area



- To ensure accurate temperature measurements, make sure that the target object is larger than the unit spot size, at the measuring distance.
- The smaller the target, the closer you should be.
- For maximum accuracy, make sure that the target area is at least twice as large as the spot size.

4.3.3 Selecting Temperature Units (°C/°F).

- Make sure the instrument is turned on, if not press the Measurement trigger.
- Pressing the °C/°F button will switch between degrees Celsius and degrees Fahrenheit as the temperature measurement units.
- The temperature reading and selected measurement units will be displayed on the LCD.

4.4 ThermoSounder

4.4.1 Introduction

The ThermoSounder is a feature of your LTX12 that facilitates finding temperature variations or differentials (e.g. cold and hot spots) quickly and easily by providing a sound that varies proportionally to temperature differences.

4.4.2 Activating the ThermoSounder function

- Make sure the instrument is turned on, if not press the Measurement trigger.
- Pressing the ThermoSounder button will turn this function on and off.
- The ThermoSounder indicator is displayed on the LCD when activated.

4.4.3 Using the ThermoSounder function

- Activate the ThermoSounder function as described in 4.4.2.
- Point at the area or object whose temperature you want to use as reference and press the Measurement trigger.
- The LTX12 will use the reference temperature to generate a 'reference' beeping.
- Higher temperatures (than the reference) will be indicated by a faster pace of beeping, the more the difference, the faster the pace of the beeping (proportional to the temperature difference).
- Lower temperatures (than the reference) will be indicated by a slower pace of beeping, the more the difference, the lower the pace of beeping (proportional to the temperature difference).
- The reference temperature for the ThermoSounder will be maintained as long the Measurement trigger is pressed.
- To choose a new reference temperature, release the Measurement trigger, then point at the area or object with the new temperature you want to use as reference and press the Measurement trigger.

4.5 Other Functions

4.5.1 Display Hold

- The instrument will automatically hold the last temperature reading for approximately 7 seconds after the Measurement trigger has been released.

4.5.2 Display Backlight

- Make sure the instrument is turned on, if it is not, press the Measurement trigger.
- Pressing the Backlight on/off button, will turn the display backlight on and off.
- When the backlight is not needed, turn it off to prolong battery life.

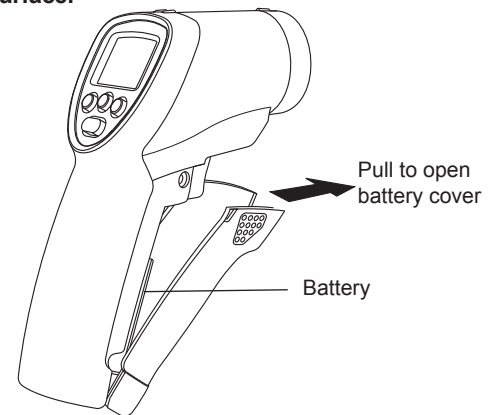
4.5.3 Laser Pointer

- To turn the laser sight on or off, press the Laser on/off button, when the unit is on. The laser sight indicator will appear on the display when the laser sight function is on.

5. MAINTENANCE

5.1 Battery Replacement

CAUTION In order to avoid laser radiation exposure when removing or replacing the battery always make sure the laser aperture (located opposite to the display) is pointing away from any person, animal, or reflective surface.



- When the battery is low and needs to be replaced, the "Low battery indicator" symbol will appear on the lower left hand side of the display.
- To replace the battery, open the battery compartment cover (located at the front of the handle) by pulling on the finger indents near the trigger, and remove the battery.
- Replace with a new 9 V alkaline battery type NEDA 1604 or IEC6F22 observing the proper polarity when connecting the battery terminals, and close the battery cover.

5.2 Cleaning

CAUTION In order to avoid laser radiation exposure, remove the battery before performing any cleaning of the lens or exterior of the instrument.

5.2.1 Lens Cleaning

Debris or dirt on the lens may cause obstruction and reduce the accuracy of the thermometer. If this occurs, either wipe the lens with a cotton swab (moistened with water only) or blow the loose particles off with clean compressed air. Do not use solvents on the lenses, as they may damage the instrument.

5.2.2 Exterior Cleaning

Periodically wipe the enclosure with a soft damp cloth and mild household cleanser. Do not use abrasives or solvents. Ensure that no water gets inside the instrument to prevent possible short circuits and damage.

6. WARRANTY

One year limited warranty, excluding batteries and fuses. For details see Standard Warranty Information on our web page or request a printed copy.

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