

**FLUKE®**

# Fluke-61

Noncontact Thermometer

**Users Manual**

PN 1645059

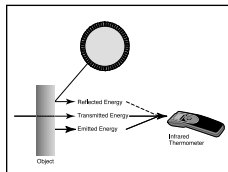
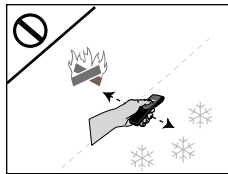
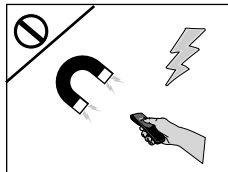
Rev.1 7/02

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Specifications	
Temperature range	-18 to 275°C (0 to 525°F)
Display Resolution	0.2°C or 0.5°F
Accuracy (assumes ambient operating temperature of 23°C [73°F])	For targets at: -1 to 275°C (30 to 525°F) ±2% of reading or ±2°C (±3.5°F), whichever is greater -18 to -1°C (0 to 30°F) ±3°C (±5°F)
Temperature Coefficient	0.2K per °C or 0.2% per °C, whichever is greater
Repeatability	± 2% of reading, or ± 2°C (±3.5°F) whichever is greater
Response time	500 mSec, 95% response
Spectral response	7–18 µm
Emissivity	pre-set 0.95
Ambient operating range	0 to 50°C (32 to 120°F)
Relative humidity	10–90% RH noncondensing, @ up to 50°C (120°F)
Storage temperature	-20° to 60°C (-4° to 140°F) without battery
Weight / Dimensions	227 g (0.5 lb); 184 x 45 x 38 mm (7.25 x 1.75 x 1.5 in) without holster 341 g (0.75lb); 190 x 51 x 41 mm (7.5 x 2.0 x 1.6 in) with holster
Power	9V Alkaline or NiCd battery
Battery life (Alkaline)	12 hrs
Distance to Spot Size	8:1
<i>Specifications subject to change without notice.</i>	

English



## Warning

Do not point laser directly at eye or indirectly off reflective surfaces.

## Cautions

Use this unit only as specified in this manual or the protection provided by the unit may be impaired.

All models should be protected from the following,

- ▲ EMF (electro-magnetic fields) from arc welders, induction heaters
- ▲ Static electricity
- ▲ Thermal shock (caused by large or abrupt ambient temperature changes—allow 30 minutes for unit to stabilize before use)
- ▲ Do not leave the unit on or near objects of high temperature

## Introduction

We are confident you will find many uses for your handheld noncontact thermometer. Compact, rugged, and easy to use—just aim, press the trigger, and read surface temperatures in less than a second. You can safely measure surface temperatures of hot, hazardous, or hard-to-reach objects without contact.

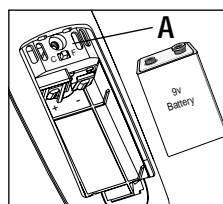
## How it Works

Infrared thermometers measure the surface temperature of an object. The unit's optics sense emitted (E), reflected (R), and transmitted (T) energy, which is collected and focused onto a detector. The unit's electronics translate the information into a temperature reading which is displayed on the unit. The laser is used for aiming purposes only.

## How to Operate the Unit

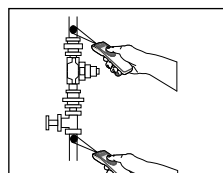
### °C/°F and Battery

Open the battery compartment to access the C/F switch or to insert/remove the battery. To switch between °C and °F, toggle the switch (A). Insert the 9v battery positive side first into the battery compartment.



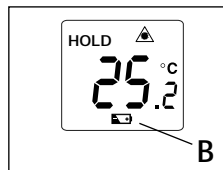
### Operating the Unit

To measure a temperature, point unit at object and press the On Button. Be sure to consider distance-to-spot size ratio and field of view. If the unit is equipped with a laser, use the laser only for aiming. See 'How to Accurately Measure Temperatures'.



### Display

The backlit LCD displays the current temperature in Celsius or Fahrenheit. The unit will hold the reading for 7 seconds after the On Button is released; the word HOLD appears. The presence of the battery icon indicates a low battery (B).

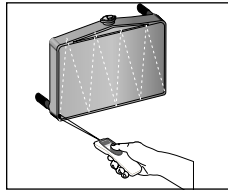


English

## How to Accurately Measure Temperature

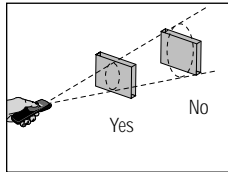
### Locating a Hot Spot

To find a hot spot aim the thermometer outside the area of interest, then scan across with an up and down motion until you locate the hot spot.



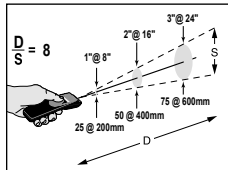
### Field of View

Make sure that the target is larger than the unit's spot size. The smaller the target, the closer you should be to it. When accuracy is critical, make sure the target is at least twice as large as the spot size.



### Distance & Spot Size

As the distance (D) from the object increases, the spot size (S) of the area measured by the unit becomes larger.



### Reminders

- Not recommended for use in measuring shiny or polished metal surfaces (stainless steel, aluminum, etc.). See Emissivity.
- The unit cannot measure through transparent surfaces such as glass. It will measure the surface temperature of the glass instead.
- Steam, dust, smoke, etc., can prevent accurate measurement by obstructing the unit's optics.

### Emissivity

Most organic materials and painted or oxidized surfaces have an emissivity of 0.95 (pre-set in the unit). Inaccurate readings will result from measuring shiny or polished metal surfaces. To compensate, cover the surface to be measured with masking tape or flat black paint. Allow time for the tape to reach the same temperature as the material underneath it. Measure the temperature of the tape or painted surface.

### Maintenance

Lens Cleaning: Blow off loose particles using clean compressed air. Gently brush remaining debris away with a camel's hair brush. Carefully wipe the surface with a moist cotton swab. The swab may be moistened with water.

NOTE: DO NOT use solvents to clean the plastic lens.

Case Cleaning: Use soap and water on a damp sponge or soft cloth.

NOTE: DO NOT submerge the unit in water.

### Troubleshooting

Code	Problem	Action
— — — (on display)	Target temperature is over or under range	Select target within specifications
Battery icon appears	Possible low battery	Check and/or replace battery
Blank display	Possible dead battery	Check and/or replace battery
Laser doesn't work	Low or dead battery	Replace battery

English



#### CE Certification

This instrument conforms to the following standards:

- EN 61326-1 Electromagnetic Emissions and Susceptibility
- EN 61010-1 General Safety
- EN 60825-1 Laser Safety

Between approximately 250Mhz and 800 Mhz at 3V/m, the instrument may not meet its stated accuracy.

#### LIMITED WARRANTY AND LIMITATION OF LIABILITY

This Fluke product will be free from defects in material and workmanship for one year from the date of purchase. This warranty does not cover fuses, disposable batteries, or damage from accident, neglect, misuse, alteration, contamination, or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Fluke's behalf. To obtain service during the warranty period, contact your nearest Fluke authorized service center to obtain return authorization information, then send the product to that Service Center with a description of the problem.

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