

FLUKE®

67 MAX

Infrared Thermometer

Users Manual

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Table of Contents

Title	Page
Introduction.....	1
Contact Fluke	2
Safety Information	3
The User Interface.....	7
Use the Product.....	10
Aim the Product for Body Temperature	10
The Trigger.....	12
Alarm	13
Trigger Mode	14
Maintenance.....	14
Calibration and Verification	14
Change the Battery	14
Clean the Product.....	14
Specifications	16

Introduction

The Fluke 67 MAX Infrared Thermometer (the Product) can determine the surface temperature by measuring the amount of infrared energy radiated by the subject's skin.

⚠ Warning

Read all safety information before you use the Product.

It is important to understand there are inherent differences in accuracy between skin-surface temperature measurements obtained with an IR thermometer versus subdermal/core temperature measurements made with a contact thermometer.

ASTM laboratory accuracy requirements in the display range of 37 °C to 39 °C (98 °F to 102 °F) for IR thermometers is ± 0.3 °C (± 0.5 °F), whereas for mercury-in-glass and electronic thermometers, the requirement per ASTM Standards E667-86 and E1112-86 is ± 0.1 °C (± 0.2 °F).

Proper measurement technique is critical to keep sources of error to a minimum. Potential error sources include measurement distance to subject, measurement location, anatomical

67 MAX
Users Manual

variations between subjects, ambient temperature conditions, failure to observe the maximum-displayed reading, and more.

A correction between skin temperature at the forehead and sublingual (under the tongue) temperature was determined by a clinical study of adult subjects. The Product has not been tested on children and thus, is subject to error when used on children under 18 years of age. Characteristics and procedures are available from the manufacturer upon request. The Product defaults to **body** mode that incorporates this correction into the displayed measurement to compensate for this effect.

Safety Information

The Product meets requirements established in ASTM Standard E1965-98 (2016) Standard Specification for Infrared Thermometers for Intermittent Determination of Patient Temperature and ISO 80601-2-56 Medical electrical equipment part 2-56: Particular requirements for basic safety and essential performance of clinical thermometers for body temperature measurement. Full responsibility for the conformance of the Product to the standard is assumed by Fluke Corporation.

Notes

- *The Product is not FDA Approved or cleared.*
- *The Product is intended for consumer use and is NOT INTENDED for use to collect information for medical diagnosing purposes.*
- *The Product complies with the FDA Enforcement Policy for Clinical Electronic Thermometers During the Coronavirus Disease 2019 (COVID-19) Public Health Emergency.*

A **Warning** identifies conditions and procedures that are dangerous to the user. A **Caution** identifies conditions and procedures that can cause damage to the Product or effect essential performance.

See Table 1 for safety symbols used on the Product and in this manual.

⚠ Warning

To prevent personal injury or possible misdiagnosis of body temperature:

- Read all safety information before you use the Product.
- Do not alter the Product and use only as specified, or the protection supplied by the Product and its measurement accuracy can be compromised.
- Before you use the Product, inspect the case and optical lens. Look for cracks in case plastics, scratches, or other damage to the optical lens. Do not use the Product if it appears damaged.
- Do not use in ambient environments outside of the specified operating temperature and humidity range or subject the Product to excessive mechanical shock. Permanent damage to the Product including inaccurate temperature measurement may result.
- Do not use or store the Product in direct sunlight or near other sources of radiant heat. This can cause the Product temperature to differ from ambient conditions and affect measurement accuracy. Allow the Product time to equalize to ambient conditions before use.
- Do not use the Product around explosive gas, vapor, or in damp or wet environments.
- Do not use the Product if it operates incorrectly.

Infrared Thermometer
Safety Information

- Optical lens components must be free of moisture, dust, and debris to ensure measurement accuracy. Clean and disinfect only as specified.
- Replace the batteries when the low battery indicator shows to prevent incorrect measurements.
- Do not store the Product for long periods with the battery installed to prevent battery leakage.
- Repair the Product before use if the battery leaks. Battery leakage may damage the Product.
- Do not attempt to service the Product.

Table 1. Safety Symbols

Symbol	Meaning	Symbol	Meaning
	WARNING - RISK OF DANGER.		Consult user documentation.
	Operating ambient temperature (15 °C to 40 °C).		Measured temperature range (22 °C to 43 °C).
	Storage temperature (-20 °C to 50 °C).		Battery (case)

The User Interface

The Product user interface is made up of a trigger, buttons, and a display. Use the buttons to move through the various Product menu choices. Buttons and display messages are described in Table 2.

Table 2. Product Buttons and Display Messages

Symbol	Meaning	Symbol	Meaning
body	Body mode menu icon. Body mode is for body-temperature measurements. Select On or Off . Body mode is the default mode of the Product. See Figure 1.	b	Denotes that the Product is in Body mode. To change to Surface mode, push SEL until body appears and then push SET . b disappears and the non-adjusted surface temperature measurement is shown. See Figure 1.
°C / °F	Celsius or Fahrenheit. To change temperature units, push SEL until the display shows only F or C and push SET to make the choice.		

Table 2. Product Buttons and Display Messages (cont.)

Symbol	Meaning	Symbol	Meaning
	The Product is in HOLD mode. The display reading will not change while in this mode.		Low battery symbol (display)
	Select button (SEL). Push to scroll through the menu.		SET button. Push to choose a menu item.
	Up and Down arrow button. Push this to scroll up or down through the menu or to adjust temperature settings.		This denotes the Trigger mode menu choice. See <i>Trigger Mode</i> .
	Use the Product in ambient conditions between 15 °C and 40 °C. In colder or hotter conditions the display reads COLD or HOT and the Product does not show a temperature reading.		

Infrared Thermometer
The User Interface

Table 2. Product Buttons and Display Messages (cont.)

Symbol	Meaning	Symbol	Meaning
SCAN	When you push and hold the trigger, and then move across a surface, the Product is in SCAN mode.	Max	In SCAN mode, this indicates the maximum temperature reading and is held by the Product until the trigger is released.
EMS	Emissivity. In Surface mode, the display shows a fixed value of 0.98.	Lo / Hi	The Lo or Hi indicators appear when the measured temperature is outside of the specified range of the Product (22 °C to 43 °C). When <21.5 °C, the display shows Lo . When >43.5 °C, the Product shows Hi .

Use the Product

Note

When ambient conditions change significantly, wait 30 minutes for the Product to stabilize before you use it or the accuracy may be impacted. For example, if the Product is brought from cold or hot outdoor conditions into a building.

Aim the Product for Body Temperature

When you use the Product to measure body temperature, make sure that the Product shows the correct temperature. When you measure the subject's temperature, make sure the skin of the forehead is unobstructed by hair, eye glasses, or anything that could interfere with the emitted infrared energy. Make sure the distance to subject is 50 mm to 150 mm (2 in to 6 in), or accuracy may be impacted. Make sure the Product is in **Body** mode. See Figure 1.

Infrared Thermometer
Use the Product

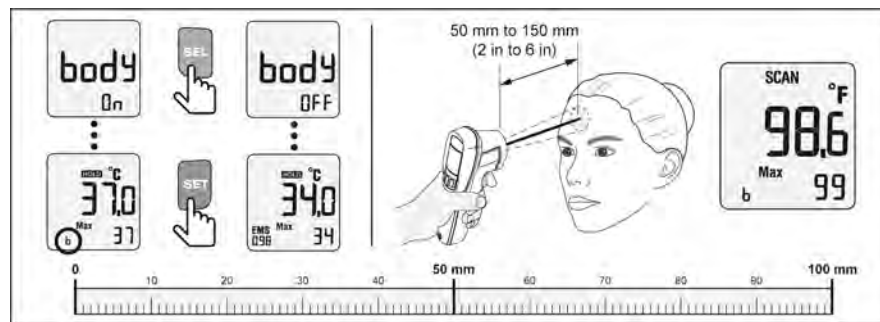


Figure 1. Aiming the Product

The Trigger

To take a measurement, see Figure 2:

1. Aim the Product at the subject.
2. Pull the trigger for more than 1 second to measure the temperature (❶). Note that all the display segments temporarily appear when you pull the trigger.

⚠ Warning

Do not use if any segments are missing from those shown in Figure 2. The Product is damaged.

3. Release the trigger to **HOLD** the current measurement (❷).

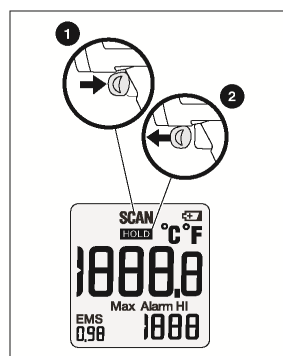


Figure 2. Trigger

Infrared Thermometer
Use the Product

Alarm

The Product has an alarm setting for when the measured temperature is above a set limit. To set or adjust the alarm, see Figure 3:

4. Push **SEL** until **Alarm HI** appears.

1. To set the alarm temperature, push the up or down arrow.
2. Once the desired temperature appears, push **SET** to toggle the alarm on or off.

If the measured temperature is above the alarm limit, **Alarm HI** shows.

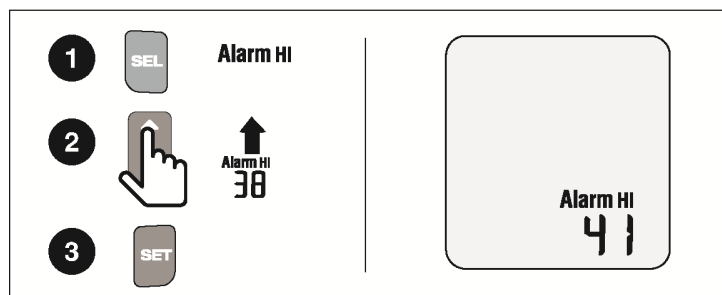


Figure 3. Alarm

67 MAX

Users Manual

Trigger Mode

Trigger mode saves battery power when the Product is stored in a toolbox or similar condition. With Trigger mode **On**, if the trigger is pulled continuously, the Product turns off after approximately 10 minutes. With Trigger mode **Off** the Product only turns off after the trigger is released for 7 seconds. To turn Trigger mode on or off, push **SEL** until the display reads **Tr 9**, then push **SET** to toggle it **On** or **Off**.

Maintenance

Change the Battery

Do not dispose of this Product or product battery as unsorted municipal waste.

To install or change the AA IEC LR06 battery, open the battery compartment and replace the battery as shown in Figure 4.

Clean the Product

Use 70 % isopropyl alcohol on a sponge or soft cloth to clean the Product case. A swab may be used to clean the IR lens. See Figure 4.

***Infrared Thermometer
Maintenance***

⚠ Caution
Do not submerge the Product.

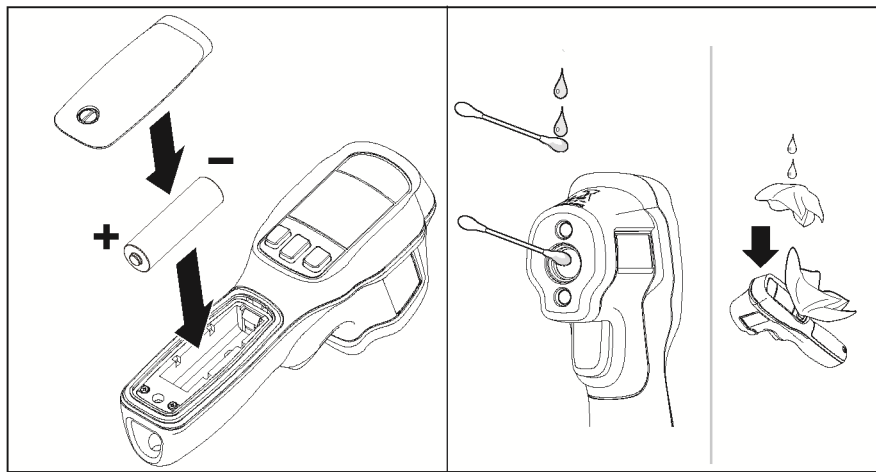


Figure 4. Change the Battery and Clean the Product

Specifications

Temperature Range	22 °C to 43 °C (71.6 °F to 109.4 °F)
Accuracy valid for period of 1 year after date of last calibration.	0.3 °C (0.5 °F)
Stabilization	If ambient temperature changes by more than 10 °C (18 °F), wait 30 minutes for the Product temperature to stabilize, or accuracy may be impacted.
Power	1 AA IEC LR06 Battery 100 hours continuous operation
Emissivity	0.98 (fixed value for human skin)
Distance to Subject	50 mm to 150 mm (2 in to 6 in)
Operating Temperature T _{AMB}	15 °C to 40 °C (59 °F to 104 °F)
Storage/Transport Temperature	-20 °C to 50 °C (-4 °F to 122 °F), (without battery)
Operating Humidity	10 % to 95 % RH non-condensing
Operating Altitude	3000 meters above mean sea level
Storage Altitude	12 000 meters above mean sea level
Ingress Protection Rating	IEC 60529: IP42 (protected against the ingress of dust and splashed water)

**Infrared Thermometer
Specifications**

Mechanical Shock	2 meters
EMC	IEC 61326-1, IEC 61326-2-2, IEC 60601-1-2
Expected Service Life	10 years

Electromagnetic Compatibility (EMC)

International IEC 61326-1: Portable Electromagnetic Environment,
IEC 60601-1-2: Home Healthcare Environment

This Product is suitable for use in home, commercial or industrial environments with the exception of near active HF surgical equipment or within the RF shielded room of a magnetic resonance imaging system where the intensity of EM disturbances are high.

Caution: use in these environments or near portable RF communications equipment (including peripherals such as antenna cables and external antennas) within 30 cm (12 inches) may cause, degradation to the performance of the Product.

CISPR 11: Group 1, Class B

Group 1: Equipment has intentionally generated and/or uses conductively-coupled radio frequency energy that is necessary for the internal function of the equipment itself.

Class B: Equipment is suitable for use in domestic establishments and in establishments directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.

67 MAX
Users Manual

- Korea (KCC)..... Class B Equipment (Industrial Broadcasting & Communication Equipment)
Class B: Equipment meets requirements for home electromagnetic wave equipment and the seller or user should take notice of it. This equipment is intended for use in home environments.
- USA (FCC)..... 47 CFR 15 subpart B. This product is considered an exempt device per clause 15.103.