FLUKE®

56x

Infrared Thermometers

Getting Started

PN 3833028
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Table of Contents

Infrared Thermometers

Introduction

The 561, 566 and 568 Infrared Thermometers ("the Thermometers" or "the Product") are for non-contact temperature measurement. These Thermometers determine an object's surface temperature by measuring the amount of infrared energy radiated by the object's surface. The Thermometers also support contact-temperature measurement via K-type thermocouple.

Note that the Japanese models indicate Celsius only.

Safety Information

A **Warning** identifies conditions and actions that pose hazard(s) to the user; A **Caution** identifies conditions and procedures that could cause Product damage, equipment under test damage, or permanent loss of data.

Symbols used on the Product and in this manual are explained in Table 1 and Figures 1 and 2.

⚠⚠Warning

To prevent eye damage and personal injury:

- **Read all safety Information before you use the Product.**
- **Do not look directly into the laser with optical tools (for example, binoculars, telescopes, microscopes). Optical tools can focus the laser and be dangerous to the eye.**
- **Do not look into the laser. Do not point laser directly at persons or animals or indirectly off reflective surfaces.**
- **Do not use laser viewing glasses as laser protection glasses. Laser viewing glasses are used only for better visibility of the laser in bright light.**
- **Do not open the Product. The laser beam is dangerous to eyes. Have the Product repaired only through an approved technical site.**
- **Replace the batteries when the low battery indicator shows to prevent incorrect measurements.**
- **The battery door must be closed and locked before you operate the Product.**
- **Do not use the Product if it operates incorrectly.**
- **Do not use the Product around explosive gas, vapor, or in damp or wet environments.**

- **Do not connect the optional external probe to live electrical circuits.**
- **See emissivity information for actual temperatures. Reflective objects result in lower than actual temperature measurements. These objects pose a burn hazard.**
- **Do not leave the Product on or near objects of high temperature.**
- **Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser radiation exposure.**
- **Use the Product only as specified, or the protection supplied by the Product can be compromised.**

⚠Caution

To avoid damaging the Product or the equipment under test, protect them from the following:

- **EMF (electro-magnetic fields) from arc welders, induction heaters, etc.**
- **Static electricity**
- **Thermal shock (caused by large or abrupt ambient temperature changes- for highest accuracy, allow 30 minutes for Product to stabilize before use).**

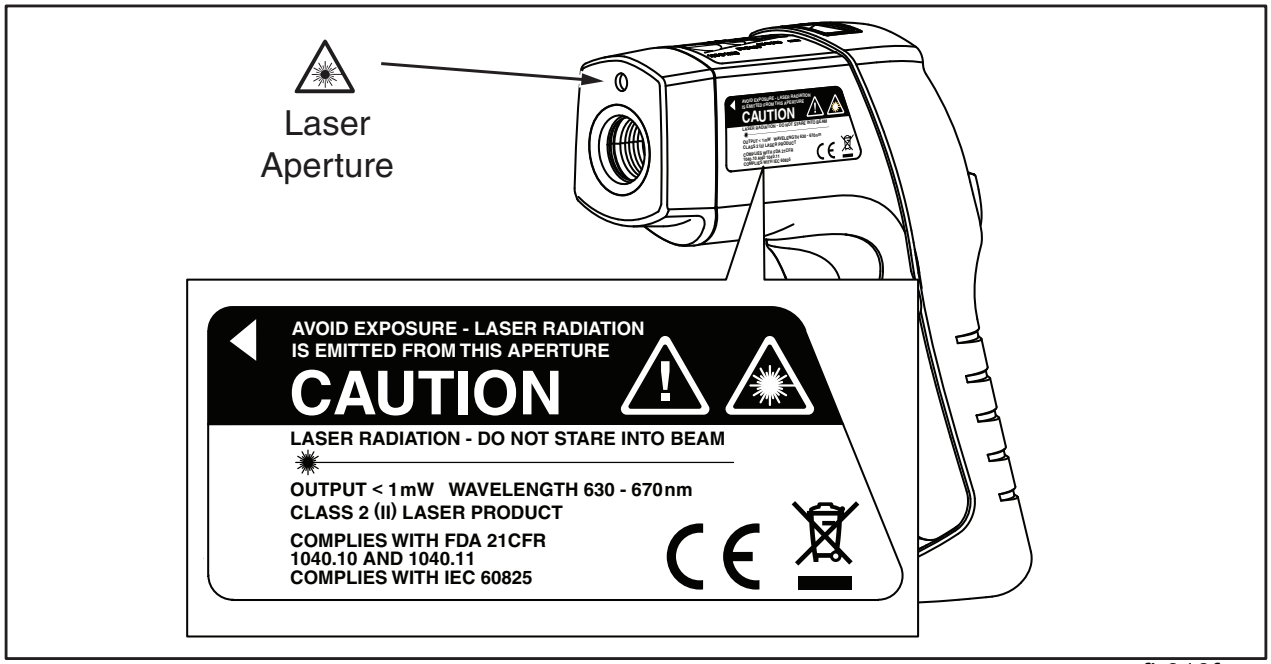

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Figure 1. 561 Laser Safety Markings

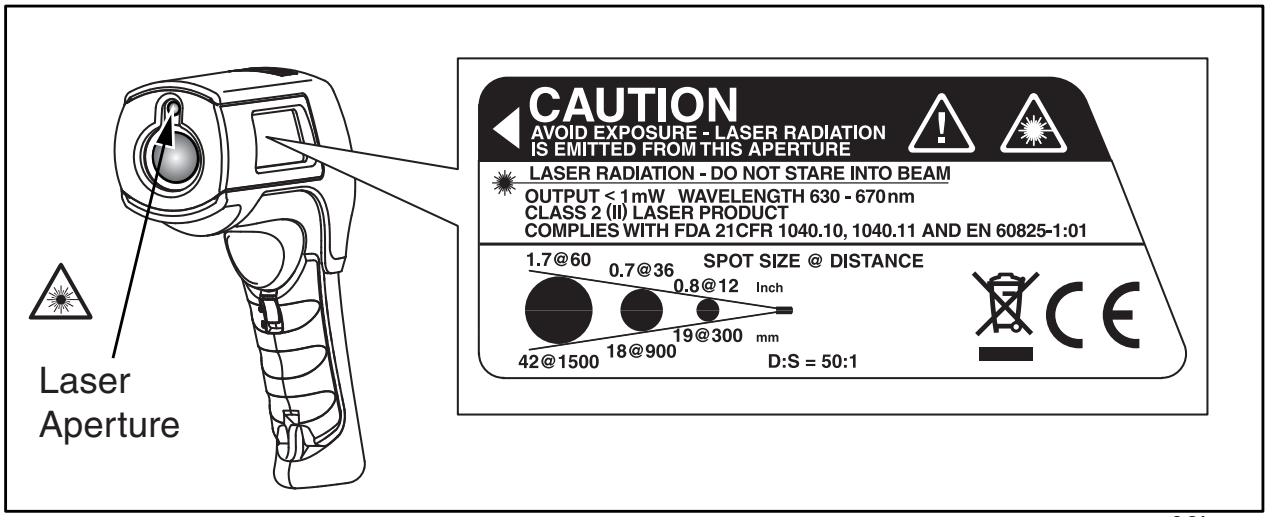

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Figure 2. 566/568 Laser Safety Markings

Using the Thermometer

To take a temperature reading, point the Thermometer at the desired object and pull the trigger. You can use the laser pointer to help aim the Thermometer. You may also insert the K-type thermocouple probe for contact measurement.

Changing Batteries

To change the batteries, see Figure 3.

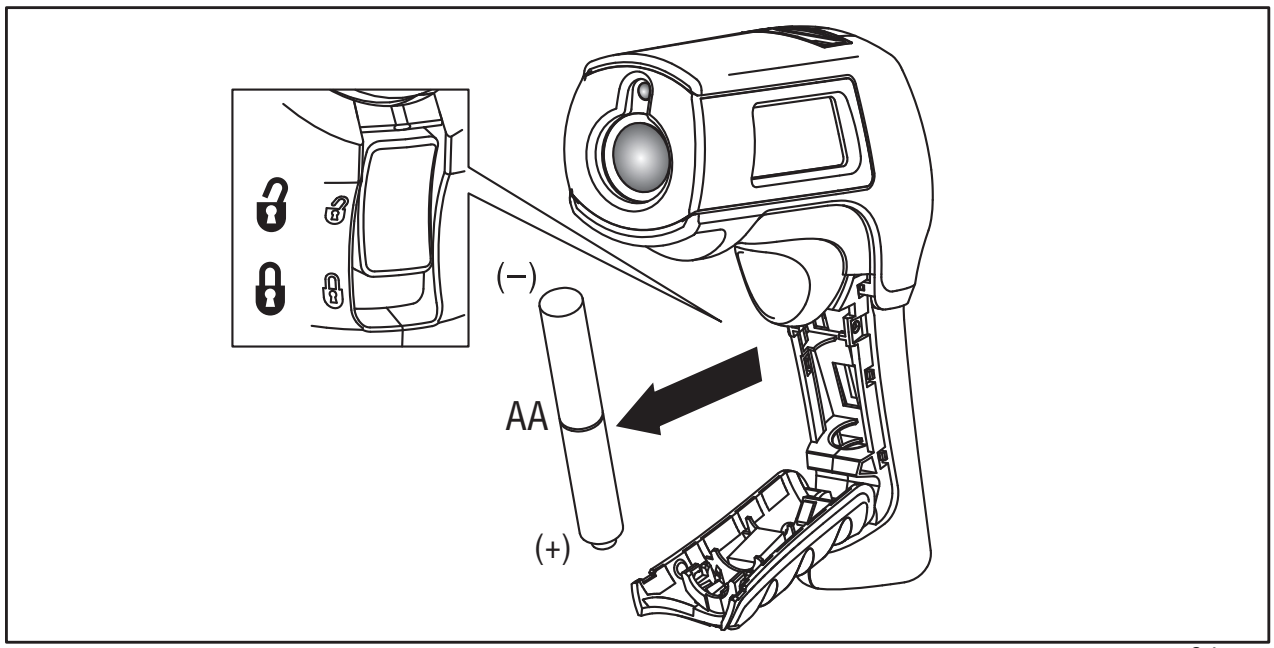

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Figure 3. Changing Batteries (566/568 is shown)

Cable Connections (568 Only)

To connect the USB and Thermocouple to the 568, see Figure 4.

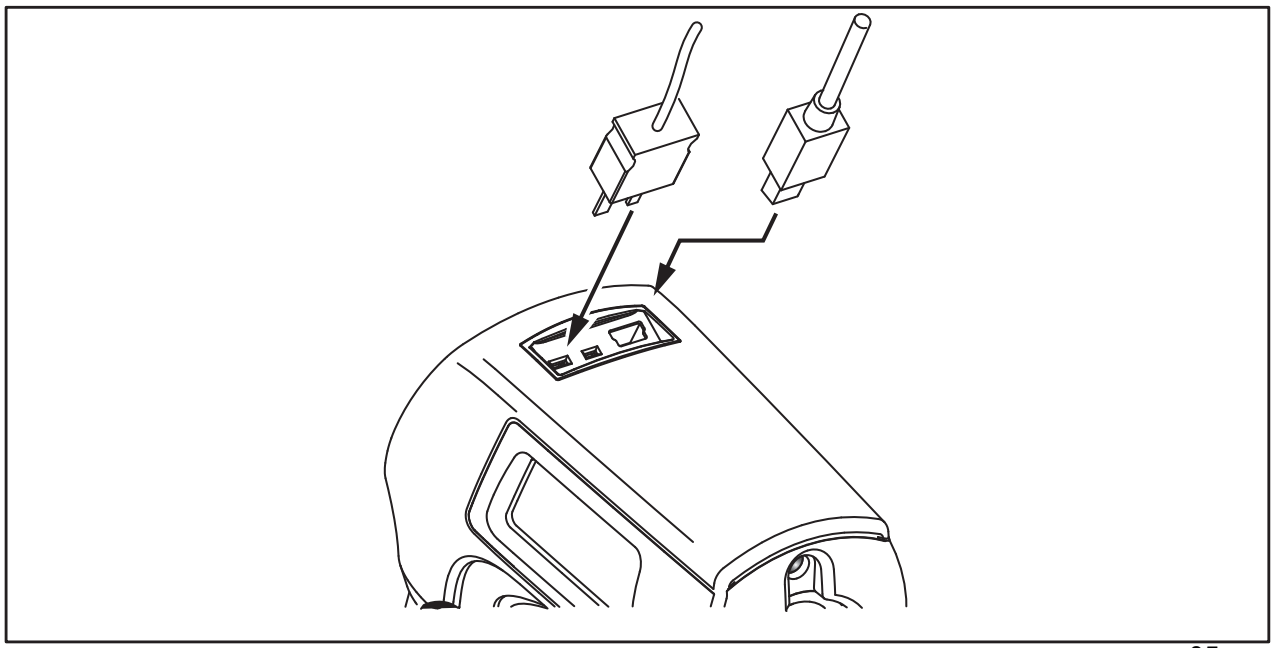

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Figure 4. Connecting the K-Type Thermocouple, USB Cable (568 Only)

Note

To prevent incorrect readings, do not perform a temperature measurement of an earthed conductor while the 568 is connected to a PC that is earthed by a three-phase grounding plug.

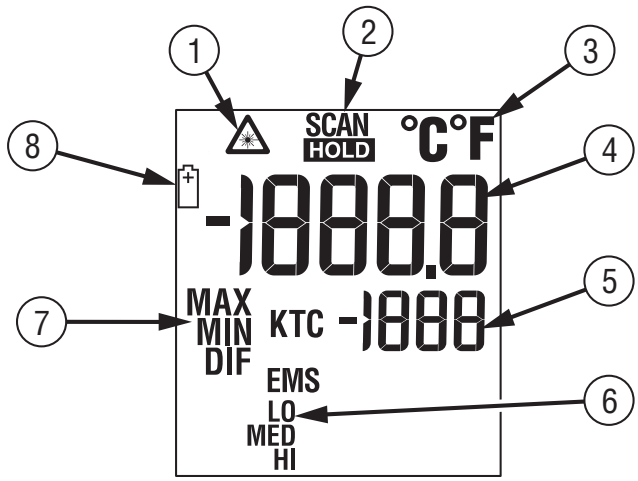
561 Display

The primary temperature display reports the current or last IR temperature read until the 7-second hold time elapses.

The secondary temperature display reports current thermocouple temperature when a type-K thermocouple is attached. See Figure 5.

Note

When the battery is low, [battery] appears on the display.



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Number	Description
①	Laser “On” symbol
②	SCAN or HOLD
③	°C/°F symbol (Celsius/Fahrenheit)
④	Primary temperature display
⑤	Secondary temperature display
⑥	Emissivity LO, MED, HI
⑦	Temperature values for the MIN, MAX, DIF, KTC. KTC indicates the thermocouple temperature.
⑧	Low Battery symbol. Appears when the battery charge is <25 %.

Figure 5. 561 Thermometer Display

566/568 Menu Overview

There are many settings that can be easily changed by using the menu. Table 1 is a top-level description. Selecting the **Menu** button advances the menu to the next level. Figure 6 shows the LCD and menu interface. The Users Manual explains the menus in full detail.

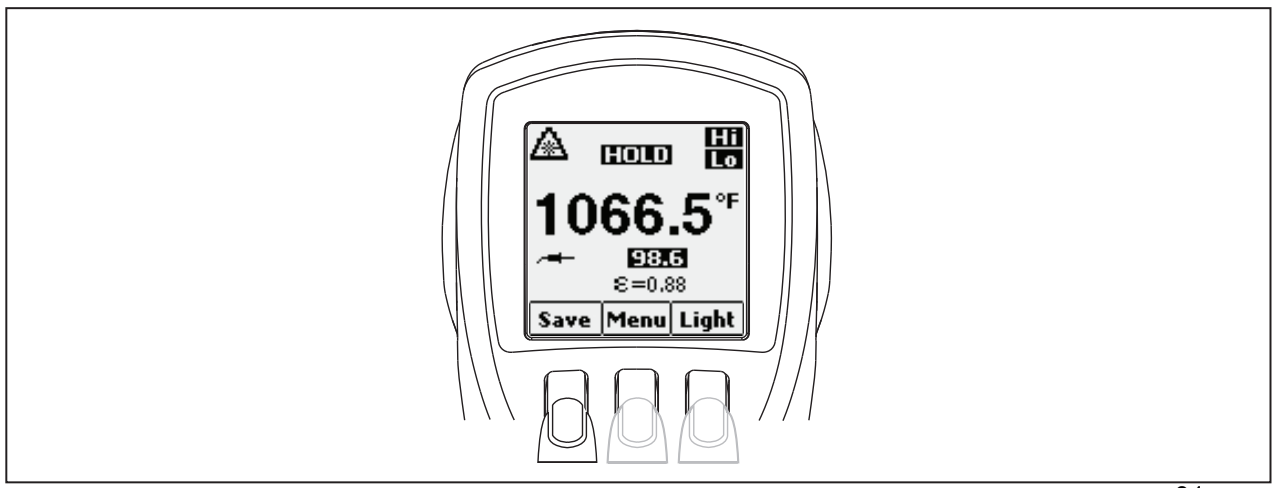

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Figure 6. Menu Navigation

Table 1. Top-Level Menu Description

Level	Left Softkey	Description	Center Softkey	Right Softkey	Description
1	**Save**	Save reading to memory	**Menu**	**Light**	Turn on bright backlight
2	**Mem**	Review / delete memories	**Menu**	ε	Set emissivity
3	**MnMx**	Enables Min/Max	**Menu**	**Avg**	Enable Avg/Diff
4	**°F/°C**	Toggle between C and F	**Menu**	**Alarm**	Set and enable alarms
5	**(Lock)**	Lock the Thermometer on	**Menu**	**Laser**	Toggle the laser on/off
6	**Setup**	- Turn off backlight - Change Time/Date - Change Language	**Menu**		

Specifications Summary

See Users Manual on CD for full specifications.

Feature	561	566	568
IR Temperature Range	-40 °C to 550 °C (-40 °F to 1022 °F)	-40 °C to 650 °C (-40 °F to 1202 °F)	-40 °C to 800 °C (-40 °F to 1472 °F)
Accuracy	<0 °C: ±(1.0 °C + 0.1 °/1 °C) >0 °C: ±1 % or ±1.0 °C, whichever is greater (<32 °F ±2 °F ±0.1 °/1 °F) >32 °F: ±1 % or ±2 °F), whichever is greater		
K-Type Thermo-couple Input Temperature Range	0 °C to 100 °C (32 °F to 212 °F)	-270 °C to 1372 °C (-454 °F to 2501 °F)	
K-Type Thermo-couple Input Accuracy	Input accuracy ±2.2 °C (±4 °F)	-270 °C to -40 °C: ±(1 °C + 0.2 °/1 °C) (-454 °F to -40 °F: ±(2 °F + 0.2 °/1 °F)) -40 °C to 1372 °C: ±1 % or 1 °C (-40 °F to 2501 °F: ±1 % or 2 °F), whichever is greater	

Feature	561	566	568
Distance:Spot (90 % energy)	12:1	30:1	50:1
Laser sighting	Single laser, output <1 mW Class II, wavelength 630 to 670 nm		
Emissivity	LO, MED, HI	Digitally adjustable from 0.10 to 1.00 by 0.01 or via built-in table of common materials	
Data storage	-	20 points	99 points
Communication	none		USB 2.0
Operating Altitude	3000 meters above mean sea level		
Storage Altitude	12,000 meters above mean sea level		
Relative Humidity	10 % to 90 % RH non-condensing up to 30 °C (86 °F)		
Operating Temperature	0 °C to 50 °C (32 °F to 122 °F)	0 °C to 50 °C (32 °F to 122 °F)	
Storage Temperature	-20 °C to 65 °C (-4 °F to 149 °F)	-20 °C to 60 °C (-4 °F to 149 °F)	

Feature	561	566	568
Power	2 AA /LR6 Batteries (alkaline or NiCD)		2 AA /LR6 Batteries or USB connection when used with a PC
Battery Life	12 hours with laser and backlight on; 100 hours with laser and backlight off, at 100 % duty cycle (Thermometer continuously on)		

Feature	K-Type Thermocouple Probe (Bead Type)
Measurement Range	-40 °C to 260 °C (-40 °F to 500 °F)