

814-065 Combo Thermometer

Operating Instructions

The Combo Thermometer is not only a non-contact infrared thermometer but also a conventional penetration thermometer. Choose the mode required, either the IR mode (infrared) or the TC On (probe). To use the non-contact measurement, simply press the IR button and point the thermometer at the target to display the surface temperature (in the upper display). To use the probe, press the probe button, unfold and insert into the object being measured, wait until the temperature stabilizes and the reading will be displayed in the lower display. Please note: the Combo Thermometer will only display either the IR or probe reading.

Minimum or Maximum Mode (Infrared only)

To utilize the Combo's minimum or maximum mode, first turn the instrument on by pressing the Infrared measurement button, then press the mode button once for minimum or twice for maximum function. The MIN or MAX icon will flash, then press the measurement button to confirm the minimum or maximum mode. The Combo will display the minimum or maximum reading only.

Lock Mode (Infrared only)

The lock mode is particularly useful for continuous monitoring of temperatures. To utilize the Combo's lock mode, first turn the instrument on by pressing the Infrared measurement button, then press the mode button three times for the lock mode function. The LOCK icon will flash, then press the Infrared button to confirm the lock measurement mode. The Combo will continuously display the temperature for up to 60 minutes or until the Infrared button is pressed.

°C or °F Mode

To change the Combo from °C to °F or from °F to °C, first turn the instrument on by pressing the Infrared measurement button, then press the mode button four times, the °C or °F icon will flash, press the Infrared button to change, then press again to confirm the mode.

Emissivity

The Combo is supplied with a default emissivity of 0.95. The emissivity of the Combo can be changed from 0.1 (10E) to 1 (100E). Changes should only be carried out by experienced personnel. To change the Combo's emissivity, first press the Infrared button, then press the mode button five times for emissivity function. The 95E will flash on the LCD screen, then press the Infrared button to adjust the emissivity value, press the mode button again to exit the set up screen. For information relating to the emissivity of specific materials, please contact ThermoWorks or visit www.thermoworks.com. Note: non-contact infrared thermometers are not recommended for use in measuring the temperature of shiny or polished metals.

Specifications

Measuring Range (IR)	-27 to 428°F / -33 to 220°C	<i>* IR accuracy can be affected by the emissivity setting, target spot size, and rapid changes in ambient temperature.</i>
Accuracy (IR)*	±2%, or 2°C, whichever is greater	
Repeatability (IR)	0.1°C at 25°C, 0.5°C at 80°C	
Measuring Range (probe)	-67 to 626°F / -55 to 330°C	
Accuracy (probe)	±1%, or 1.8°F / 1°C, whichever is greater	
Response Time (probe)	10 to 15 seconds typical	
Resolution	0.1° from -9.9 to 199.9°; 1° beyond	
Units	Switchable C or F	
Emissivity	Default 0.95, adjustable 0.1 to 1.0 in 0.01 increments	
Distance/Target Ratio	5:1 (1" target diameter at 5" distance)	
Battery	CR2032, included	



ThermoWorks

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Made in China



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°C OR °F MODE

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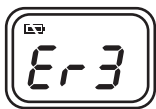
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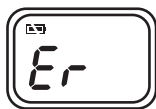


LCD ERROR MESSAGES

The Combo incorporates visual diagnostic messages as follows:



Hi or Lo is displayed when the temperature being measured is outside of the range of the instrument, Hi when higher than +428°F and Lo when lower than -27.4°F.



Er2 is displayed when the Combo is exposed to rapid changes in the ambient temperature. Er3 is displayed when the ambient temperature of the Combo exceeds 32°F or +122°F. In both cases you should allow plenty of time (minimum 30 minutes) for the Combo to stabilize to the working/room temperature (32 to +104°F).

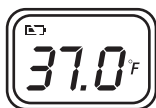
For all other error messages it is necessary to reset the Combo. To reset, turn the instrument off, remove the battery and wait for a minimum of one minute, insert the battery and turn on. If the error message remains please contact the ThermoWorks Service Department for further assistance.

BATTERY

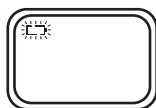
The Combo incorporates visual low battery indication as follows:



'Battery OK'
measurements are
possible



'Battery Low' battery needs to
be replaced, measurements are
possible



'Battery Exhausted'
measurements are
not possible

BATTERY REPLACEMENT

When the Low Battery icon indicates the battery is low, it should be replaced immediately with a CR2032 lithium cell. The battery is located under the twist cover at the rear of the Combo. When inserting the new battery, be sure to slide the coin cell battery under metal spring-loaded clip first, then snap into place. Please note: It is important to turn the instrument off before replacing the battery otherwise the Combo may malfunction.

STORAGE & CLEANING

The sensor lens is the most delicate part of the Combo. The lens should be kept clean at all times, care should be taken when cleaning the lens using only a soft cloth or cotton swab with water or medical alcohol, allowing the lens to fully dry before using the Combo, do not submerge any part of the unit. The Combo should be stored at room temperature between +50 to +104°F.

EMC/RFI

Readings may be affected if the unit is operated within a radio frequency electromagnetic field strength of approximately 3 volts per metre, but the performance of the instrument will not be permanently affected.

PRODUCT WARRANTY & GUARANTEE

This instrument carries a one-year warranty and guarantee against defects in either components or workmanship. During this period, products that prove to be defective will, at the discretion of ThermoWorks, be either repaired or replaced without charge. The product warranty and guarantee does not cover damage caused by fair wear and tear, abnormal storage conditions, incorrect use, accidental misuse, abuse, neglect, misapplication or modification, or use with non-ThermoWorks hardware/ software. No warranty of fitness for a particular purpose is offered and the user assumes the entire risk of using the product. Any liability by ThermoWorks is limited only to the replacement of defective materials or workmanship, and ThermoWorks accepts no responsibility for consequential loss. In line with our policy of continuous development, we reserve the right to amend our product specification without prior notice.

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