

# TN159 Thermometer Operating Instructions

The thermometer is a non-contact infrared thermometer. Simply aim the thermometer at the target and press the 'SCAN' button to display the surface temperature. The distance to target ratio is 1:1 therefore the thermometer should be positioned as close to the target as possible.

## °C OR °F MODE

To change the thermometer from °C to °F or from °F to °C, firstly turn the instrument on by pressing the 'SCAN' button, then press the 'Mode' button four times, the °C or °F symbol will flash, press the 'SCAN' key to change the scale.

## MINIMUM OR MAXIMUM MODE

To utilize the thermometer's minimum or maximum mode, firstly turn the instrument on by pressing the 'SCAN' button, then press the 'Mode' button once for minimum or twice for maximum function. The 'MIN' or 'MAX' icon will flash, then press the 'SCAN' button to confirm the minimum or maximum mode. Keep pressing the 'SCAN' button; the thermometer will display the minimum or maximum reading only.

## LOCK MODE

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

## EMISSIVITY

The infrared thermometer is supplied with a default emissivity of 0.95. The emissivity of the thermometer can be changed from 0.05 (5E) to 1 (100E). Changes should only be carried out by experienced personnel. To change the emissivity, firstly turn the instrument on by pressing the 'SCAN' button, then press the 'Mode' button five times for emissivity function. The 95E will flash on the LCD screen, then press the 'SCAN' 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 the nearest retailer. Note: non-contact infrared thermometers are not recommended for use in measuring the temperature of shiny or polished metals.

## LCD ERROR MESSAGES

The thermometer incorporates visual diagnostic messages as follows:



'Hi' or 'Lo' is displayed when the temperature being measured is outside of the measurement range.



'Er2' is displayed when the thermometer is exposed to rapid changes in the ambient temperature. 'Er3' is displayed when the ambient temperature of the thermometer EXCEEDS -10°C (14°F) OR +50°C (122°F). In both cases you should allow plenty of time (minimum 30 minutes) for the thermometer to stabilize to the working/room temperature.



For all other error messages it is necessary to reset the thermometer. To reset it, waiting for the instrument power off, remove the battery and wait for a minimum, then reinsert the battery and turn on. If the error message remains, please contact the Service Department for further assistance.

## BATTERIES

The thermometer incorporates visual low battery indication as follows:



'Battery OK': measurements are possible

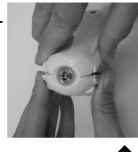


## BATTERY REPLACEMENT

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



(Remember to power off the unit before replacing the battery.)



'Battery Exhausted': measurements are not possible



① Loosen the screw on the back housing of anti-clockwise. ② Open the back housing. ③ Hold the device and use the screwdriver to take the battery out. ④ Replace the new battery and put it on the left side of back housing (Make sure the battery is hooked.) Then, press the right side of the battery until you hear a click sound ⑤ First, close the upper side. ⑥ Then, close the bottom side. ⑦ Fasten the screw on the back housing.

**⚠ A malfunction may occur if the power is on when the battery is replaced. If a malfunction occurs, restart the device. Keep the battery away from children.**

## STORAGE & CLEANING

The probe is the most delicate part of the thermometer and 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 thermometer, do not submerge any part of it.

## SPECIFICATION

Range	-55 to +220°C (-67 to +428°F)
Operating Range	-10 to +50°C (14 to +122°F)
Resolution	0.1°C at -9.9~199.9°C, otherwise 1°C
Response Time	1 second
Accuracy (Tobj)=15~35°C, Tamb=25°C	±0.6°C (1.1°F)
Accuracy (Tobj)=33~220°C, Tamb=23±3°C	±2% of reading or 2°C (4°F) whichever is greater
Distance/Spot	1:1 optics ratio
Emissivity Range	0.95 default – adjustable 0.05 to 1 step .01
Battery Life	Typ. 40hr, min 30hr (auto power off after 15 seconds)
Power Supply	CR2032 x 1pcs
Dimensions	93.5 x 35.6 x 24.6 mm(3.7x1.4x1.0 inch)
Weight	40 grams(1.41 oz) including battery

## EMC/RFI

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

## GUARANTEED

The thermometer is guaranteed for a period of one year from the date of purchase against mechanical and electrical manufacturing defects. There are no user serviceable parts inside the instrument. Any attempted repair by unauthorized persons voids the warranty.

**⚠ Avoid keeping the thermometer too close for long periods to objects that continuously generate high heat (like a hot plate), which can cause overheating of the thermometer.**