AX-7540 - Infrared thermometer Instruction manual

1. Introduction

This infrared thermometer is used for measuring the temperature of the object's surface, which is applicable for various hot, hazardous or hard-to-reach objects without contact safely and quickly.
This unit consist of Optics, Photo sensor, Signal amplifier, Processing circuit and LCD Display. The Optics collected the infrared energy emitted by object and focus onto the Sensor. Then the sensor translates the energy into an electricity signal. This signal will be turned out to be digital shown on the LCD after the signal amplifier and processing circuit.

2. Accessories

Open the bag, then take the item out, and check below accessories:
1. Operation manual - 1pc
If you found that there's anything missing or damage please contact your supplier.

3. Warning & Cautions

3.1. Warning:

To avoid the potential situation which may cause harm or damage to people, please pay attention to the following instructions:
1) Do not point laser directly at eye or indirectly off reflective surfaces.
2) The unit cannot measure through transparent surfaces such as glass or plastic. It will measure the surface temperature of these materials instead.
3) Steam, dust, smoke, or other particles can prevent accurate measurement by obstructing by the units optics.

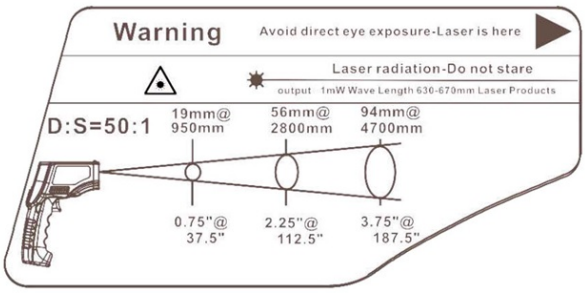
3.2. Cautions:

Infrared thermometer should be protected for the following:
1) EMF (electro-magnetic fields) from arc welders, induction heaters.
2) Thermal shock (cause by large or abrupt ambient temperature changes allow 30 minutes for unit to

stabilize before use).
3) Do not leave the unit on or near objects of high temperature.

4. Distance ratio

1. When take measurement, pay attention to the Distance ratio. As the Distance (D) from the target surface increases, the spot size (S) of the area measured by the unit becomes larger.
The Distance ratio of the unit is 50:1.
This unit is equipped with a laser, which is used for aiming.
2. Field of view: Make sure the target is larger than the unit's spot size. The smaller the target the closer measure distance. When accuracy is critical, make sure the target is at least twice as large as the spot size.



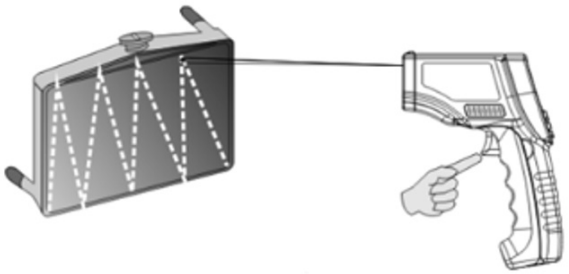
5. Emissivity

Most organic materials and painted or oxidized surfaces have an emissivity of 0.95 (preset in the unit). Inaccurate readings will result from measuring shiny or polished metal surfaces. To compensate for this, adjust the units emissivity reading or cover the surface to be measured with masking tape or flat black paint. Measure the tape or painted surface when the tape or painted reach the same temperature as the material underneath.
Material ----- Emissivity
Aluminum ----- 0.30
Asbestos ----- 0.95
Asphalt ----- 0.95
Basalt ----- 0.70
Brass ----- 0.50

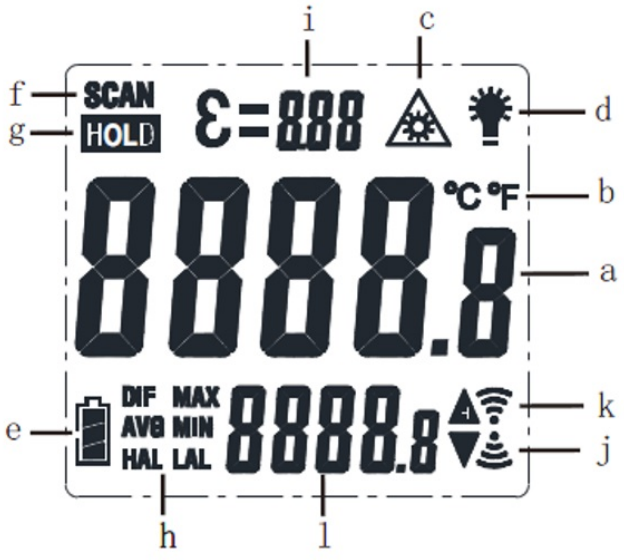
Brick ----- 0.90
Carbon ----- 0.85
Ceramic ----- 0.95
Concrete ----- 0.95
Copper ----- 0.95
Dirt ----- 0.94
Frozen food ----- 0.90
Hot food ----- 0.93
Glass(plate) ----- 0.85
Ice ----- 0.98
Iran ----- 0.70
Lead ----- 0.50
Limestone ----- 0.98
Oil ----- 0.94
Paint ----- 0.93
Paper ----- 0.95
Plastic ----- 0.95
Rubber ----- 0.95
Sand ----- 0.90
Skin ----- 0.98
Snow ----- 0.90
Steel ----- 0.80
Textiles ----- 0.94
Water ----- 0.93
Wood ----- 0.94

6. Operation

1. Fast measurement:
1) Open the battery door and insert a 9V battery properly.
2) Pull the trigger to turn on the unit;
3) Aim at the target surface with the laser and pull the trigger (If you do not need laser aiming, you can turn it off), then temperature will be shown on the LCD after you release the trigger.
2. Locating a Hot Spot
Scan across with an up and down motion when you pull the trigger until you locate the hot spot. You can refer below picture.



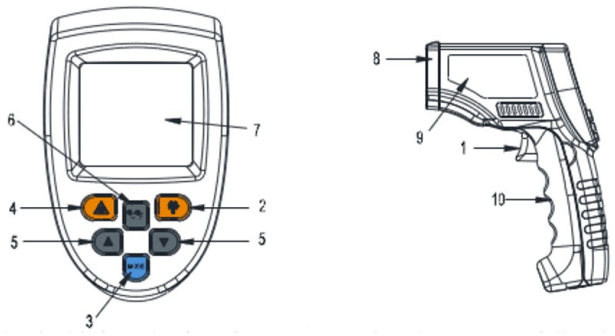
7. LCD display



1.LCD display:
a: measuring reading
b: measuring unit
c: laser on icon
d: back light on icon

e: battery power icon
f: scanning icon
g: data hold icon
h: mode indicator
i: emissivity indicator
j: low temperature alarm icon
k: high temperature alarm icon
l: temperature assistant display

8. Buttons and Component Name



(1) Trigger: Pull the trigger to turn on/off the item, and you can get the full screen in about 1.5 seconds, then it will show the measuring value; Press the trigger for a long time, the “SCAN” icon will flickering, release the trigger, display reading with HOLD icon and the reading will keep on the display. Press the trigger again, you can continue to measure. The data will be hold for about 20 seconds and the item will auto power off in 20 seconds if without any action.
(2) Back light button: Pull the trigger to turn on the item, and press this button to turn on the back light, press it again to turn off the back light.
(3) Laser light button: Pull the trigger to turn on the item, and press this button to turn on the laser light, press it again to turn off the laser light.
(4) Celsius / Fahrenheit button: Pull the trigger to turn on the item, and press this button to show the temperature.
(5) Function keys:
1Press the “MODE” key for a short time, LCD will flickering display MAX-AVG-MIN-DIF-LAL-HAL;
a. MAX: measuring maximum temperature

b. AVG: measuring average temperature
c. MIN: measuring minimum temperature
d. DIF: Basic on the set DIF value, compute the difference of current reading.
2Press the “MODE” key for 3 seconds, then press it for a short time, LCD will flickering display ε-LAL-HAL; (This item have memory function, it will show the same measure mode at the next time you open this item)
a.ε:emissivity can use / key to set from 0.10 to 1.00, press “MODE” key to confirm.
b. LAL: low temperature alarm--when selected LAL, short press / key to set the temperature alarm slowly and long press / key to set the temperature alarm quickly, confirmed by long pressing “MODE” key; When the tested temperature is less than the alarm which you set, LCD display icon with the buzzer alarm.
c. HAL: high temperature alarm--when selected HAL, short press / key to set the temperature alarm slowly and long press / key to set the temperature alarm quickly, confirmed by long pressing “MODE” key; When the tested temperature is more than the alarm which you set, LCD display icon with the buzzer alarm.
(7) Display area
(8) Laser emission area
(9) Sticker
(10) Battery cover: you need to open it to replace the battery.

9. Specification

Accuracy: ±(a% reading)
Working environment temperature: 0℃~40℃ (32°F~104°F) can not guarantee the accuracy
Store temperature: -20℃~50℃ (-4°F~122°F)
Relative humidity: 10-95% RH non-condensed
Weight/Size: 270g (include battery); 141*200*60mm
Power: 9V battery (not included)
Temperature range ///// -50℃~1150℃ (-58°F~2102°F)
Distance ratio ///// 50:1
Emissivity ///// 0.10~1.00 adjustable(preset 0.95)
Accuracy ///// - 50℃~0℃ (- 58°F~32°F) - ±3℃/±5°F; (take the bigger value) 0℃~100℃ (32°F~212°F) - ±1.5℃/±2.7°F; 100℃~1150℃ (212°F~2102°F) - ±1.5%
Resolution ///// 0.1℃/°F
Response time ///// <250ms
Dual range display ///// √
MAX/MIN value ///// √
D-value / Average value ///// √
High/Low temperature alarm ///// √
℃/°F setting ///// √

Turn off the laser ///// √
Display hold ///// √
Back light ///// √
Auto power off ///// √
Low battery display ///// √
Spectral response ///// 8um~14um
Laser power ///// output<1mW, wave length 630~670nm, class II

10. Maintenance

DO NOT CHANGE THE CIRCUIT
1. Pay attention to keep the item from the water, dust, and do not drop it on the ground.
2. Should not store and use the item in high temperature and high humidity, flammable and explosive and strong magnetic field area;
3. Lens Cleaning: Blow off loose particles using clean compressed air. Gently brush remaining debris away with a moist cotton swab. The swab may be moistened with water. Case cleaning: Clean the case with a damp sponge/ cloth and mild soap.
4. If you do not use the item from a long time, you should take the battery away.

11. Repairment

If your item can not work, you can check below instructions to solve some normal problems, if it still can not work, please contact us.
Conditions //// Way to solve
No reading on LCD //// Turn on the power
Replace battery"
Low battery icon appear //// Replace battery
No laser //// Turn on the laser
Big error Value //// Replace battery