Infrared thermometer Instruction manual

MODEL: GM700

A. 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, Temperature 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.

B. Warning & Cautions

1. Warning:

To avoid the potential situation may cause harm or damage to people, please pay attention to the following items:
1) Before you use this unit, check on the plastic housing carefully. If there is any damage, do not use it
2) Do not point laser directly at eye or indirectly off reflective surfaces.
3) Do not use this unit in the environment of explosive gas, steam or dusty.

2. Caution:

To avoid the damage of the unit or the target, please protect from the following situations:
1) EMF (electro-magnetic fields) from arc welders, or induction heaters.
2) Thermal shock caused by high temperature changes allow 30 minutes for unit to stabilize before use.
3) Do not leave the unit on or near objects of high temperature

C. Distance to Spot size

1) When take measurement, pay attention to the D stance to Spot Size. As the Distance (D) from the target surface increases, the spot size (S) of the area measured by the unit becomes larger. The Distance to Spot size of the unit is 12:1

***This unit is equipped with a laser, which is used for aiming.
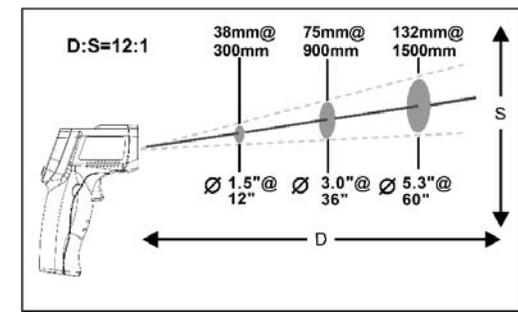
2) Field of view: Make sure the target is larger than the unit's spot size. The smaller the target the closer measure distance. When accuracy is critical, make sure the ta get is at least twice as large as the spot size.

D. Emissivity

Emissivity, Most organic materials and painted or oxidized surfaces have an emissivity of 0.95 (pre-set in the unit). Inaccurate readings will result from measuring shiny or polished metal surfaces. To compensate, cover the target surface 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	Material	Emissivity
Aluminum	0.3	Iron	0.70
Asbestos	0.95	Lead	0.5
Asphalt	0.95	Limestone	0.98
Basalt	0.70	Oil	0.94
Brass	0.5	Paint	0.93
Brick	0.90	Paper	0.95
Carbon	0.85	Plastic	0.95
Ceramic	0.95	Rubber	0.95
Concrete	0.95	Sand	0.90
Copper	0.95	Skin	0.98
Dirt	0.94	Snow	0.90
Frozen food	0.90	Steel	0.80
Hot food	0.93	Textiles	0.94
Glass(Plate)	0.85	Water	0.93
Ice	0.98	Wood	0..94

E. Operation

Operating the unit :
1) Open the battery door and insert a battery properly.
2) Pull the trigger to turn on the unit.
3) Aim at the target surface and pull the trigger, then temperature will be shown on the LCD. This unit is equipped with a laser which is only used for aiming.

Locating a Hot Spot :
To find a hot spot, aim the thermometer outside of interest, then scan across with an up and down motion until you locate the hot spot. (Figure 3)
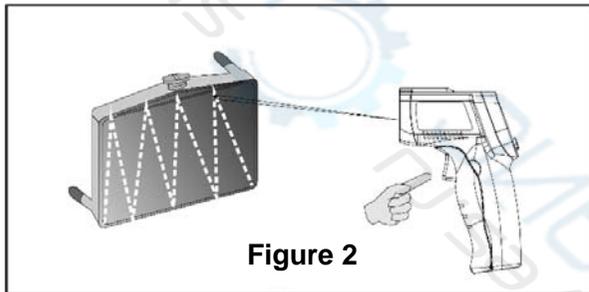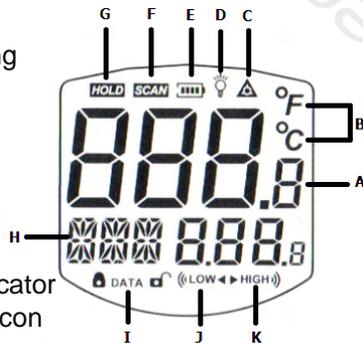

Figure 2

F. LCD display & Buttons

1. LCD display:
a) Measurement reading
b) Measurement unit
c) Laser on icon
d) Backlight on icon
e) Battery power icon
f) Scanning icon
g) Data hold icon
h) Mode emissivity indicator
i) Data storage / read icon
j) Low temperature icon
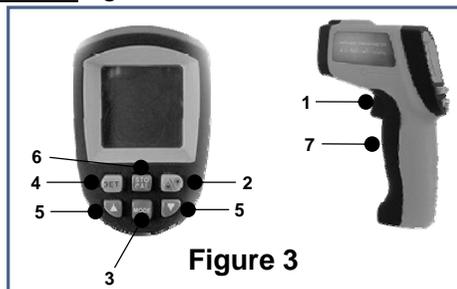k) High temperature icon

2. Buttons: Figure 3

Figure 3

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1) Trigger: When turn on LCD display VERXX software version for 1 sec. And turn to display reading with scan icon. Release the trigger, Display HOLD icon. Built in auto power off in 30 sec.
2) Laser/Back light button: When back light turn on any operation will remain back light for 10 sec. LCD indicate on/off status.
3) - 6) Key function: Press 3key. LCD subdisplay blinks MAX-MIN-DIF-AVG-HAL-LAL-STO-EMS segment (Only main display means normal measuring mode) press 4key to enter

a) MAX: Measuring maximum temperature

b) MIN: Measuring minimum temperature

c) DIF: Basic on the reading before press 4key compute the difference of current reading

d) AVG: measuring average temperature

e) HAL: high temperature alarm, When selected HAL press 5 keys to set high temperature alarm trigger and confirmed by press 4 key. When reading over trigger, LCD display HI icon with BiBi audio sounds

f) LAL: low temperature alarm, When select LAL. Press 5 keys to set low temperature trigger and confirmed by pressing 4 keys. When reading over trigger. LCD display LOW icon with BiBi audio sounds.

g) STO: data storage. When selected STO, lock & DATA indicator will shown. when press 4 key. After temperature read out press 6 key to store then memory unit will shown. There 12 groups memory unit available. To recall the stored data in normal measuring mode by press 6 keys for 3 second.

h) EMS: Emissivity. Press 5 key for emissivity setting, press 4 keys to save setup and back to normal status

7) Celsius/Fahrenheit switch: Please open battery and push the slide switch for conversion

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G. Maintenance

1. **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.
2. **Case cleaning:** Clean the case with a damp sponge/ cloth and mild soap.

Note:
1) 1) Do not use solvent to clean plastic lens.
2) 2) Do not submerge the unit in water.

H. Specification

Temperature range	-50 ~ 700 °C (-58 ~ 1292 °F)
Accuracy	0~700°C (32 ~1292°F) ±1.5°C (± 2.7°F) or ±1.5% -50~0°C (-58~32°F) ±3°C (±5°F) Whichever is greater
Resolution	0.1°C or 0.1°F
Repeatability	1% of reading or 1°C
Response time	500 mSec, 95% response
Spectral response	8-14 um
Emissivity	0.10~1.00 Adjustable (0.95Preset)
Distance to Spot size	12:1
Operating Temperature	0~ 40°C (32 ~ 104°F)
Operating Humidity	10~95%RH non-condensing up to 30°C (86°F)
Storage Temperature	-20 ~ 60°C (-4 ~ 140°F)
Power	9V *1 Battery
Typical battery life (Alkaline)	Non-laser mode: 22 hrs; Laser Models:12 hrs
Weight	222g
Dimension	110x50x172mm

CE

MADE IN CHINA