BENETECH®

MODEL:GM1500

Infrared thermometer
Instruction manual

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-toreach 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) . 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.

2. Cautions:

Infrared thermometer should be protected for the following:

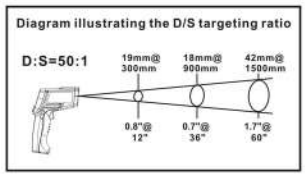
1). EMF (electro-magnetic fields) from arc welders, induction heaters.
2). Thermal shock (cause by large or abrupt ambient temperature changes allow 30 minutes for unit to stabilize before use).
3). Do not leave the unit on or near objects of high temperature.

C. Distance to spot size

1. When take measurement, pay attention to the Distance 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 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.

D. EMISSIVITY

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.

Marterial	Emissivity	Marterial	Emissivity
Aluminum	0.30	Iron	0.70
Asbestos	0.95	Lead	0.50
Asphalt	0.95	Limestone	0.98
Basalt	0.70	Oil	0.94
Brass	0.50	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

1. Operating the unit:

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 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.

2. 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 1)

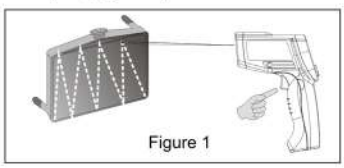
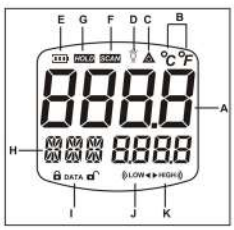


Figure 1

F. LCD display & buttons

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/emissivity indicator
I: data storge / read icon
J: low temperature alarm icon
K: high temperature alarm icon

2. Diagram description:
(figure 2)

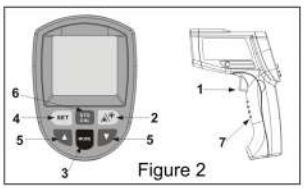


Figure 2

(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 reading with HOLD icon. Built in auto power off in 30sec.

(2) Laser / back light button: when back light turn on , any operations will remain back light for 10 sec. LCD indicate on/off status.

(3)—(6) key functions: press 3 key, LCD subdisplay blinks MAX-MIN-DIF-AVG-HAL-LAL-STO-EMS segment(only main display means normal measuring mode) press 4 key to enter.

a. MAX: measuring maximum temperature

b. MIN: measuring minimum temperature

c. DIF: Basic on the reading before press 4 key, 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 pressing 4 key. When reading over trigger, LCD display HI icon with BiBi audio sounds.

f. LAL: low temperature alarm--when selected LAL, press 5 keys to set low temperature alarm trigger and confirmed by pressing 4 key.
When reading over trigger, LCD display LOW icon with BiBi audio sounds

g. STO: data storage--when selected STO, lock & DATA & 1---indicator will shown when press 4 key. After temperature read out press 6 key to store, then 2---memory unit will be shown. There 80 groups memory unit available. To recall the stored data in normal measuring mode by pressing 6 key, remove all data by pressing 6 keys for 3 seconds.

H. EMS: Emissivity setup-- press 5 key for emissivity settings, press 4 key to save setup and back to normal status.

(7) Clesius / Fahrenheit switch: Please open battery and push the slide switch for convertsion.

G. Maintenence

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

H. Specification

Temperature range	-30~1500°C (-22~2732°F)
Accuracy	0~1500°C(32~2732°F) :±1.5°C(±2.7°F) or±1.5% -30~0°C(-22~32°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	5-14 um
Emissivity	0.10~1.00 Adjustable (0.95 Preset)
Distance to Spot size	50:1
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 Alkaline or NiCd battery
Typical battery life (Alkaline)	Non-laser mode: 22 hrs; Laser Models:12 hrs
Weight	270g
Dimension	141*60*200mm
Number of data stored	80

Specific Declarations:
Our company shall hold no any responisibility resulting from using output from this product as an direct or indirect evidence.
We reserves the right to modify product design and specification without notice.

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