Инструкция по эксплуатации Benetech GM550F

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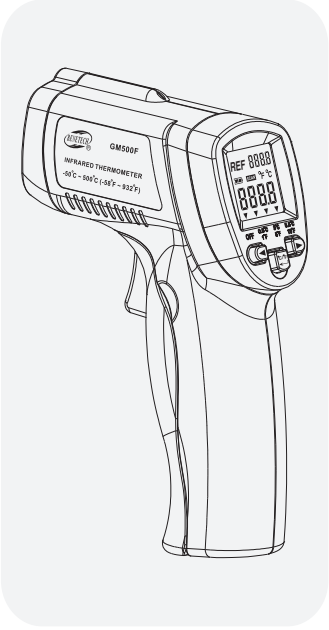
BENETECH®

MODEL: GM550F

Infrared Thermometer/Leak Detector Instruction



Version：GM550F-EN-00

A. Introduction

Infrared thermometer/leak detector determines surface temperature of objects by measuring infrared energy radiated from surface. It is suitable for measuring surface temperature of various high-temperature, toxic or untouchable objects in short time.

This instrument is composed of optical system, photoelectric sensor, signal amplifier, signal processing circuit and LCD display, etc. Optical system transmits infrared energy radiated from the object surface to photoelectric sensor, which converts the energy into corresponding electrical signal. Processed by signal amplifier and signal processing circuit, the signal is displayed on the LCD as digital reading.

B. Safety Notes

1. Warning

To avoid any possible harm, please follow the following instructions:

► When using thermometer, do not aim laser directly at eyes or indirectly with reflective surface.

► This instrument can not measure temperature on transparent objects, such as glass/plastic, otherwise the measured value will be surface temperature of transparent objects.

► Steam/dust/smoke or other particles may form hindrance and effect measurement accuracy.

2. Note

To avoid damaging thermometer or objects to be measured, keep them away from the following effects:

► EMF (electromagnetic field) produced by arc welding machines and induction heaters

► Thermal shock (caused by large or sudden changes of temperature, user needs to wait for 30 minutes before use until thermometerstabilizes)

► Putting thermometer near or on high temperature objects.

C. D:S

1. When using thermometer to measure temperature, pay attention to the ratio between the distance and the size of measurement area (referred to as D:S). When the distance between thermometer and the measured object increases, the size of measurement area enlarges correspondingly.

D:S of this thermometer/leak detector is 12:1 (as shown in Fig. 1)

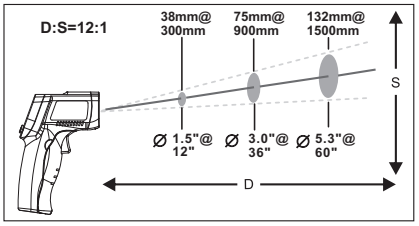
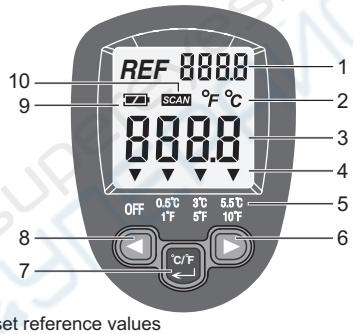


Figure 1

2. Observation range: ensure that measured object is larger than measurement area of this instrument. If measured object is small, distance between the measured object and the instrument should be shorter; for accurate measurement, ensure that the measured object is at least twice as large as measurement area.

D. LCD Display and Buttons



1. Preset reference values
2.Temperature units
3. Reading of temperature measurement
4. Cursor
5. Temperature difference (ΔT)
6. Right shift
7. Switch/OK button of temperature units
8. Left shift
9. Low Volume indicator
10. Data reading identifier

E. Emissivity

Emissivity of most organic materials and paints or oxidized materials is 0.95 (preset in this machine). Smooth or polished metal surfaces may lead to inaccurate measurements. As error compensation, coat the surfaces with tapes or black paints; before temperature measurement, wait until their temperature become the same as that of underlying materials.

F. Operation Instruction

1. Rapid Measurement: (as shown in Fig. 2)

a. Open battery door and load 9V batteries (6F22).
b. Pull trigger to turn on the instrument;
c. Aiming at the surface of measured object with laser positioning (laser positioning can be turned off if not needed); pull trigger and the temperature of target and SCAN icon will be displayed on LCD at the same time. After releasing trigger, the temperature value remains on LCD display.
The instrument will automatically shutdown after 15s of no operation.

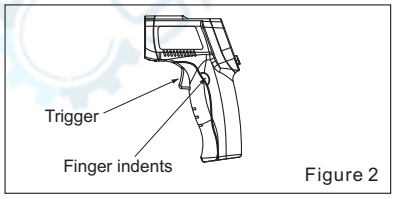


Figure 2

2. High Temperature Point Location

Press on/off button (as shown in Fig. 3) and move laser point of thermometer up and down slowly for scanning and positioning.

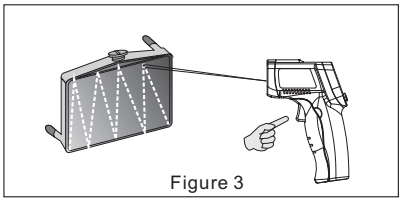


Figure 3

3. Temperature Unit Switch

After startup, temperature unit can be switched by pressing℃/℉button.

4. Tricolor Backlight Indicator for Temperature Difference

(1) Setting reference temperature value
Aiming at the measured point, pull trigger and press temperature unit switch button at the same time, set the current temperature as reference temperature value, which will be displayed next to REF.
(2) Selecting range of temperature difference
After setting reference value, move cursor with left/ right shift button to select required temperature difference. The following table shows several optional temperature differences (ΔT).

OFF	0.5℃ 1℉	3℃ 5℉	5.5℃ 10℉

Negative critical value = reference temperature -ΔT
Positive critical value = reference temperature +ΔT

(3) Scanning temperature difference:
After setting reference vaule and selecting temperature difference, pull trigger and start slowly and continuously measuring over object surface. Different colors and sound signals appear according to different temperature differences.

Results are shown in the following table:

Color display	Sound signal	Results
Red	Fast	Beyond positive critical value
Green	None	Within critical value
Blue	Slow	Below negative critical value

Operation Example:
When cold air enters into room through window, first scan window frame quickly and select hottest spot as reference temperature. For example, reference temperature is 20℃, and selected temperature difference is 3℃. If the cold air is below 17℃, then scan window frame evenly again, LCD display will turn blue and slow alarm will go off.

G. Product Maintenance

1. Lens cleaning: use clean compressed air to blow away dust, then use camel hair brush to wipe away the remaining dust, and wipe the surface carefully with wet cotton cloth at last.
2. Case cleaning: use wet sponge or soft cloth with soap water to clean case.

Note:

1) Do not use any solvent to clean plastic lens.
2) Do not immerse thermometer in water.

H. Technological Parameters

Measurement temperature range	-50℃ ~ 500℃ (-58℉~ 932℉)
Measuring accuracy	0℃~500℃ (32℉~932℉): ±1.5℃ (±2.7℉) or±1.5% rdg Whichever is greater -50℃~0℃(-58℉~32℉): ±3℃ (±5℉)
Repeatability	1% reading or 1 degree Celsius
Response time	500 mSec, 95% response
Response wavelength	5-14 um
Emissivity	0.95 Preset
Working temperature	0 ~40℃ (32 ~ 104℉)
Relative humidity	10-95% RH without condensation
Storage temperature	-20 ~ 60℃ (-4~140℉)
D:S	12:1
Battery life	Laser Models:12 hours
Power	9V battery（6F22）
Size	153*101*43mm
Weight	147.5g

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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