# manual for infrared thermometer

## Ⅰ. Sketch

BM infrared thermometer is a kind of professional hand-held non-contact infrared thermometer. It is simple to use, with high accuracy and wide range of temperature measurement, etc.

It has a laser target, with back light LCD display, and has a few functions such as holding maximum, alarming when set temperature is exceeded, adjustable emissivity and automatic shutdown, etc. while using, you just need to align the detecting window at the measured object and then you can get the temperature quickly and accurately.

## Ⅱ. Performance index

1. Normal working conditions
   1.1 Environmental temperature: 10~45℃;
   1.2 Relative humidity: less than 85%;
   1.3 Power supply: 9V laminated battery（6F22）.
2. LCD display resolution: 0.1℃/℉
3. Measuring range:
   BM300: -32~350℃（-25.6 ℉~662 ℉）,
   BM380:- 32~550℃（-25.6 ℉~1022 ℉）
4. Measuring error:
   -32℃~20℃: ±3℃,
   20℃~550℃: ±2℃ or ±2% taking the maximum
5. Repeat error:-32℃~20℃: ±1.5℃,
   20℃~550℃: ±1℃ or ±1% taking the maximum
6. Response time: <0.5S
7. Spectral response: 8~14um Thermopile detector
8. Measuring distance ratio: 12:1 (measuring distance and target diameter ratio) .
9. Emissivity is adjustable according to needs. Default: 0.95.
10. The laser power: <1mW
11. Battery: 6F22（9V）×1
12. Weight: about 180g.

## Ⅲ. The shape structure

1. LCD display screen
2. Function setting keys
3. Measuring button
4. Battery cover
5. Laser indicator
6. Temperature detecting window

## Ⅳ. Using methods:

1. Safety requirements:

1.1 Do not point the laser beam towards the eyes directly, or it may cause permanent damage to the eyes.

1.2 Avoid making the laser beam reflect to people's eyes after it shoots towards the surface of objects.

1.3 Do not allow children to access to the thermometer.

1.4 Do not shoot the laser beam towards the explosive gas.

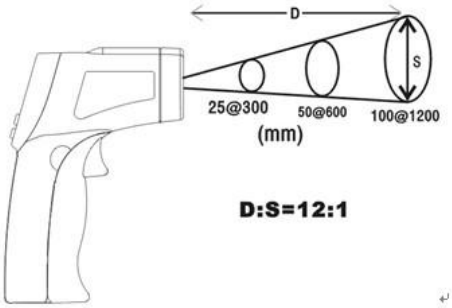
2. Step methods of measurement:

2.1 In order to get more accurate temperature, this thermometer should be placed for 10 minutes after the battery is installed and then can be used for measuring, or it should also be placed for 15 minutes before measuring when removed to a new environment.

2.2 After aligning the detecting window at the object under test, press the measuring button and then you can easily get its surface temperature.

While doing a constant measurement by pressing and holding the measuring button, the screen displays SCAN symbols. Under the SCAN state, the screen displays emissivity and the maximum value at that time. After the measuring button is loosened, the thermometer will preserve the final result and power off 10S later if you don't press any button.

**Note**: while measuring, select the emissivity of the instrument firstly according to the measured object. Adjust the measuring distance (D: S=12:1) according to the size of the object, and make sure that the measured target is completely within the field of view of the detecting window.




## Ⅴ. Settings

You can open or close the laser and backlight by continuously pressing L/B (laser/backlight) keys after starting up. The thermometer will be in a data-hold state after you loosen the measuring button. Under such a state, you can make the following settings:

1 ℃°F setting: Press MODE for the first time, the temperature symbol flashes and then you can press the UP or DOWN keys to set the display ℃°F.

2 Emissivity ( ε ) setting: Press MODE for the second time, the ε symbol flashes, and then you can press the UP or DOWN keys for one time and the ε increases or decreases by 0.01. Pressing and holding the UP or DOWN keys will quickly increase or decrease the ε. The default value of ε is 0.95.

3 Set the switch of high temperature alarming threshold (HAL): Press MODE for the third time, the HAL symbol flashes, and then you can press the UP or DOWN keys to close (OFF) or open (ON) the high temperature alarming.

4 Set the magnitude of high temperature alarming threshold (HAL): Press MODE for the forth time, the HAL symbol flashes, and then you can press the UP or DOWN keys to increase or decrease the HAL. Pressing the UP or DOWN keys for a long time and no loosening will quickly increase or decrease the HAL. The HAL will increase or decrease by 0.1℃（0.1 ℉）if you press just for one time and loosen. The default value of HAL is the maximum temperature when out of factory.

5 Set the switch of low temperature alarming threshold (LAL): Press MODE for the fifth time, the LAL symbol flashes, and then you can press the UP or DOWN keys to close (OFF) or open (ON) the low temperature alarming.

6 Set the magnitude of low temperature alarming threshold (LAL): Press MODE for the sixth time, the LAL symbol flashes, and then you can press the UP or DOWN keys to increase or decrease the LAL. Pressing the UP or DOWN keys for a long time and no loosening will quickly increase or decrease the LAL. The LAL will increase or decrease by 0.1℃（0.1 ℉）if you press just for one time and loosen. The default value of LAL is the minimum temperature when out of factory.

The thermometer will power off automatically after you finish the settings. When it is started up again, the settings are saved automatically. After the battery is replaced, the thermometer recovers its factory settings.

## Ⅵ. Notes

1. Please carefully protect the glass of the temperature detecting window which is the most fragile part. When cleaning and maintaining, you can use clean compressed air to blow the dust or remove the debris with a soft brush, and then gently wipe the glass with wet cotton balls or soft cloth. Please don't clean the glass with solvent.
2. Don't charge the used battery or throw it into fire. Please discard it to the designated collection point.
3. Please remove the battery if the product will not be used for a long time.
4. Please don't immerse this product into water and avoid direct sunlight exposure.
5. Failing to measure aiming at the center of the measured object based on the effective distance may result in deviation of measuring results. It is suggested to repeat the measurement for once or multiple times.
6. This product has a one-year quality guarantee period since the date of purchase.

## Ⅶ. Accessories:

1. One copy of manual.
2. One copy of certification.

## Ⅷ. Attached list

Common Object Emissivity Comparison Table

| Material | Temperature (℃/℉) | Emissivity |
|---|---|---|
| Gold(high purity) | 227/440 | 0.02 |
| Aluminum foil | 27/81 | 0.04 |
| Aluminum sheet | 27/81 | 0.18 |
| Family-use Aluminum(flat) | 23/73 | 0.01 |
| Aluminum (aluminum plate with a purity of 98.3%) | 227/440 | 0.04 |
| | 577/1070 | 0.06 |
| Aluminum(rough aluminum plate) | 26/78 | 0.06 |
| Aluminum(oxidation @599℃) | 199/390 | 0.11 |
| | 599/1110 | 0.19 |
| Top-polished aluminum | 38/100 | 0.22 |
| Tin(bright tinned iron sheet) | 25/77 | 0.04 |
| Nickel wire | 187/368 | 0.1 |
| Lead (purity 99.9%-not oxidized) | 127/260 | 0.06 |
| Copper | 199/390 | 0.18 |
| | 599/1110 | 0.19 |
| Steel | 199/390 | 0.52 |
| | 599/1110 | 0.57 |
| Tinned iron sheet(bright) | 28/82 | 0.23 |
| Brass(highly polished) | 247/476 | 0.03 |
| Brass(hard, with a gold foil surface, polished metal wire) | 21/70 | 0.04 |
| Tinned iron(bright) | - | 0.13 |
| Iron(completely rust) | 20/68 | 0.69 |
| Steel sheet with a gold foil surface | 21/71 | 0.66 |
| Iron oxide | 100/212 | 0.74 |
| Forged iron | 21/70 | 0.94 |
| Cast iron | 1299-1399/3270-2550 | 0.29 |
| Copper(polished) | 21-117/70-242 | 0.02 |
| Copper(bright because of being rubbed rather than being reflected) | 22/72 | 0.07 |
| Copper (heavy oxide board) | 25/77 | 0.78 |
| Enamel (iron equipped with fuse) | 19/66 | 0.9 |
| Formica sheet | 27/81 | 0.94 |
| Frozen soil | - | 0.93 |
| Brick (red – rough) | 21/70 | 0.93 |
| Brick (-not glazed, rough) | 1000/1832 | 0.8 |
| Carbon (T - carbon 0.9% ash) | 127/260 | 0.81 |
| Brick (red – rough) | 21/70 | 0.93 |
| Brick (-not glazed, rough) | 1000/1832 | 0.8 |
| Concrete | - | 0.94 |
| Glass (smooth) | 22/72 | 0.94 |
| Granite (polished) | 21/70 | 0.85 |
| Ice | 0/32 | 0.97 |
| Marble (polished, gray) | 22/72 | 0.93 |
| Asbestos board | 23/74 | 0.96 |
| Asbestos paper | 38/100 | 0.93 |
| | 371/700 | 0.95 |
| Paper (black tar) | - | 0.93 |
| Paper (white) | - | 0.95 |
| Plastic (white) | - | 0.91 |
| Plywood | 19/66 | 0.96 |
| Water | - | 0.95 |
| Wood(with a fresh smell) | - | 0.90 |

# BM Infrared Digital Thermometer Instruction Manual

For current product information, availability, and compatible options, use the verified ThermoMart links below. The preceding pages remain the original manual content.

Looking for product information? Browse the manual library to find current ThermoMart models and guides.

**All ThermoMart manuals and guides**