MESTEK®

深圳市迈斯泰克电子有限公司
地址：深圳市龙华区观澜街道观光路1222号创裕金地大科技园5楼
电话：0755-23737637
传真：0755-82790534
邮编：518110
Address： 5/F, 1222 Building, Chuang Yu Jin Science and Technology Park ,Guan Guang Road ,Bao an District, Shenzhen
TEL：0755-23737637
FAX：0755-82790534
Postcode：518110

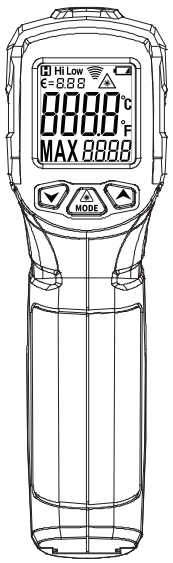
MESTEK®

使用说明书 USERS MANUAL

IR01A/B

INFRARED THERMOMETER

红 外 线 测 温 仪



125X85mm

.声明 1

1.1安全须知

- 在使用测温仪之前，请仔细阅读说明书。
- 请勿使用溶剂清洁测温仪。
- 安全符号：

  ⚠ 有危险的重要信息提示　　CE安全规范

  CE 符合欧州

  本仪器符合以下标准:

  - EN61326-1
  - EN60825-1

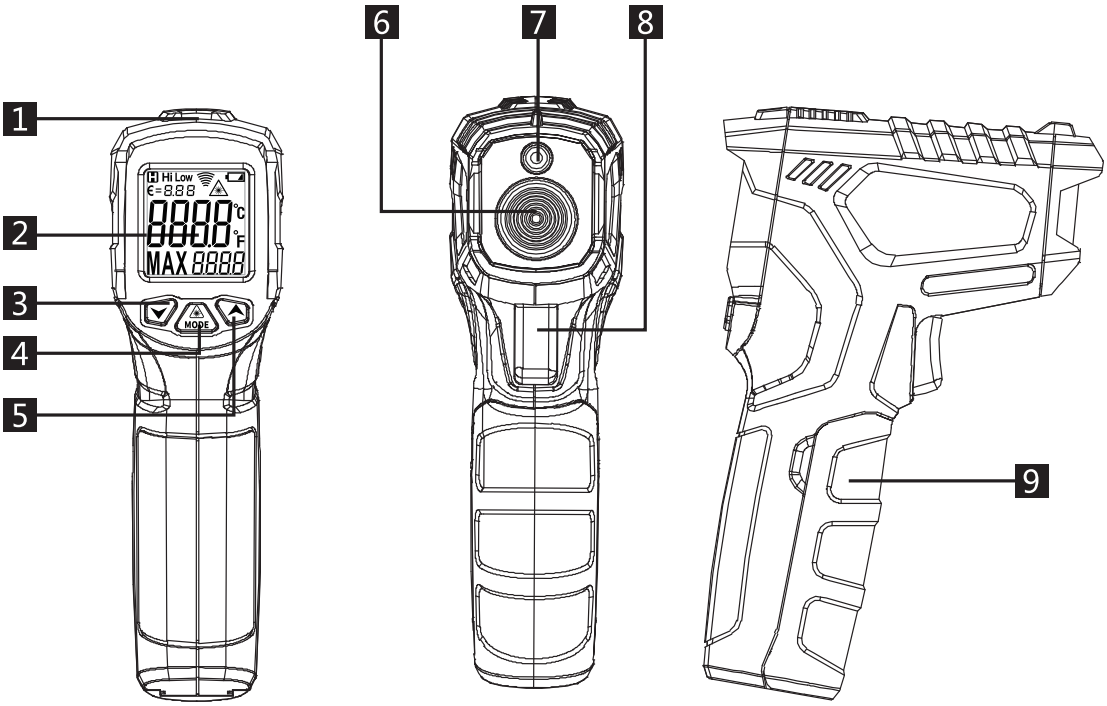
警告 ⚠

请勿将激光对准人眼或反射性平面 2

.注意事项

- 当使用环境温度发生骤变时，须将测温仪在环境中放置 30 分钟，待测温仪内外温度一致时再进行测量。
- 尽量避免电焊和感应加热引起的电磁场。
- 不要将测温仪靠近或放在高温物体上。
- 保持测温仪干净，避免灰尘进入镜筒。

3.外观说明



1.报警指示灯

2.液晶显示屏

3. 激光控制键/数字调节减小键▼

4. 模式键

5. 背光/数字调节增加键▲

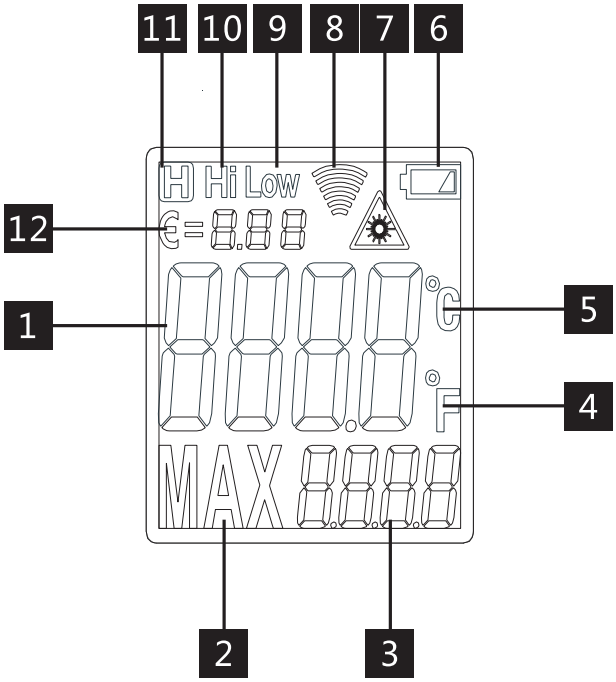
6. 红外传感器感应区

7. 激光指示灯

8. 测量扳机

9. 电池盖

4.液晶显示屏说明



1：主显示屏：显示测量温度值

2：功能指示：MAX(最大值)

3：显示最大值

4：华氏度单位

5：摄氏度单位

6：低电压指示

7：激光指示

8：测量指示

9：低报警

10：高报警

11：数据保持

12：辐射率指示

5.测量方法

1. 设定仪表报警上限值：

按住Mode 键2秒，进入仪表设定状态，按MODE键切换到设定报警上限状态，此时仪表功能指示区显示Hi，显示区报警上限值闪烁。**按**▲/▼键增加或减小报警值，长按▲/▼键快速增加或减小设定值。

2：设定仪表低报警值

按住Mode 键2秒，进入仪表设定状态，按MODE键切换到设定报警下限状态，此时仪表功能指示区显示Low,副显示区报警下限值闪烁。按▲/▼键增加或减小报警值长按▲/▼键快速增加或减小设定值。

3：设定仪表辐射率

按住Mode 键2秒，进入仪表设定状态，按MODE键切换到设定仪表辐射率状态，此时仪表辐射率指示区闪烁显示按▲/▼键增加或减小辐射值，长按▲/▼键快速增加或减小设定值。

4：设定仪表温度单位

按住MODE键2秒，进入仪表设定状态，按MODE键切换到设定仪表温度测量单位，显示屏单位符号闪烁显示，按▲/▼键更改符号单位。

5：退出设定状态

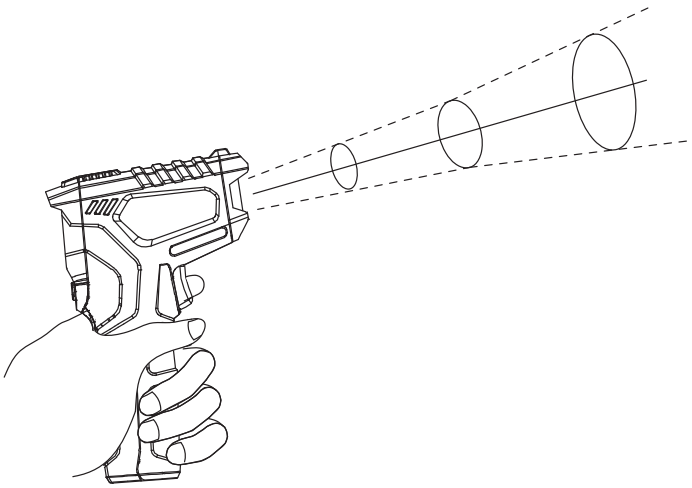
按下扳机或长按MODE键，退出仪表设定状态。

6:开启关闭激光

短按MODE键，打开或关闭激光，仪表会显示激光符号

7：非接触温度测量

将测温仪瞄准物体, 扣动扳机不放，进行温度的连续测量。显示稳定后，放开扳机则保持测量的结果.

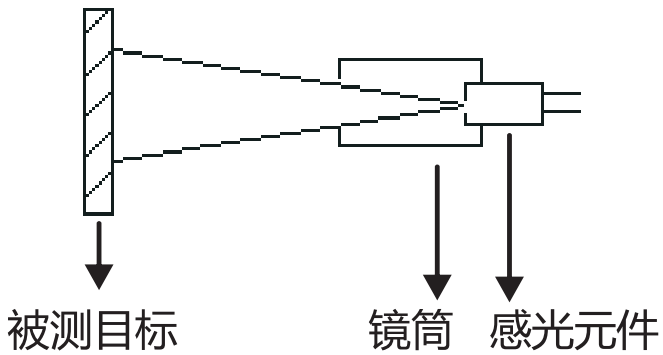


按住扳机时，仪表副显示屏显示测量温度的最大值。

当测量值大于高报警上限值或者测量值小于低报警下限值时,仪表亮红色报警灯报警。

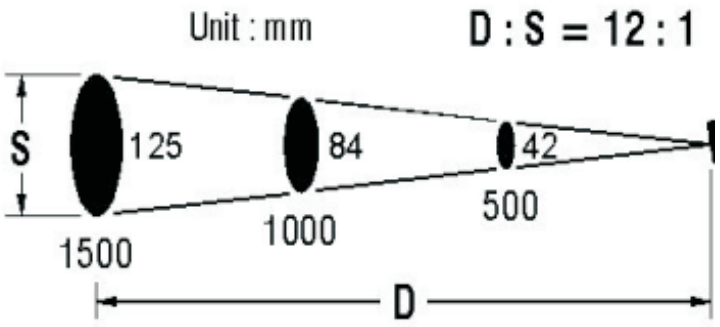
6.目标距离比(D:S 比)

测温仪有一定的视角和视场，如下图所示:



目标距离比(D:S比)

要确保被测物体充满测温仪的视场， 即让测温仪只“看”到被测物体而“看不到”其它物体。物体越大，测温的距离可以越远；物体越小，测量的距离必须越近。测量距离与被测目标尺寸的比值即D:S比为12 :1，如下图所示：



7.辐射率

辐射率表征物体辐射红外线的能力。辐射率越大，物体表面的辐射能力越强 。 大部分有机物或金属氧化表面的辐射率都在0.85~0.98之间。本测温度仪辐射率默认为0.95。测量时应将仪表的辐射率与被测物体的辐射率设为一致。测量时请注意发射率对测量结果的影响。

下表为辐射率参考表

所测表面		辐射率
金属铝	氧化	0.2~0.4
	A3003 合金（氧化）	0.3
	A3003 合金（粗糙）	0.1~0.3
黄铜	抛光	0.3
	氧化	0.5
铜	氧化	0.4~0.8
	电气端子板	0.6
哈氏合金		0.3~0.8
镍铁合金	氧化	0.7~0.95
	喷砂	0.3~0.6

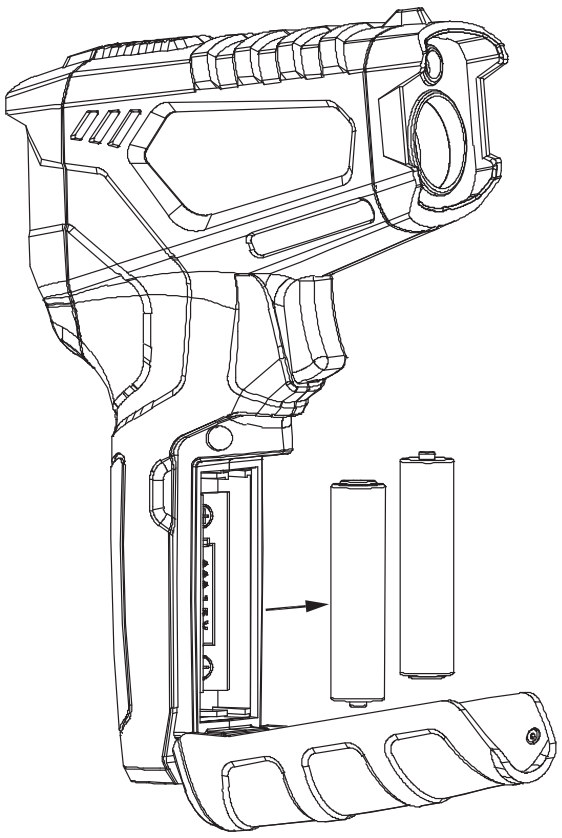
	电抛光	0.15
铁	氧化	0.5~0.9
	生锈	0.5~0.7
铁（铸造）	氧化	0.6~0.95
	未氧化	0.2
	熔铸	0.2~0.3
铁（锻造）钝化		0.9
铅	粗糙	0.4
	氧化	0.2~0.6
钼氧化		0.2~0.6
镍氧化		0.2~0.5
铂黑色		0.9
钢	冷轧	0.7~0.9
	打磨钢板	0.4~0.6
	抛光钢板	0.1
锌	氧化	0.1
石棉		0.95

沥青	0.95
玄武岩	0.7
碳（未氧化）	0.8~0.9
石墨	0.7~0.8
碳化硅	0.9
陶瓷	0.95
粘土	0.95
混凝土	0.95
布料	0.95
玻璃板	0.85
砂砾	0.95
石膏	0.8~0.95
冰	0.98
石灰石	0.98
纸张	0.95
塑料	0.95
土壤	0.9~0.98

水	0.93
木材	0.9~0.95

8.更换电池

当电池电力不足时， 电池符号 点亮，此时必须更换电池。用手拉开电池盖，换上一枚新的1.5Vx2AAA电池即可。参见下图：



9.技术指标

	IR01A/B
LCD 显示	彩色 LCD 显示
D:S	12：1
辐射率	0.10~1.00
响应光谱	8~14um
激光	<1mW /630-670nm 等级 2
反应时间	<0.5S
自动关机	30 秒
使用温度	0~40 度
存储温度	-10℃~60℃
电源	1.5Vx2AAA电池
IR01A测量范围（非接触测温）	-50℃~0℃ ±3℃ 0~380℃ ±(1.5%读数+2℃) (-58℉~716℉)
IR01B测量范围（非接触测温）	-50℃~0℃ ±3℃ 0~550℃ ±(1.5%读数+2℃/4℉) (-58℉~1022℉)
精度（非接触测温）	-50℃~0℃ ±3℃ 0~550℃ ±(1.5%读数+2℃/4℉)

1. Safety notices

- Before using the thermodetector, please read the manual carefully.
- Do not use any solvent to clean the thermodetector.
- Safety symbols:

  ⚠ Important information prompt for danger

  CE Complies with European CE safety specification

  The instrument complies with the following standards:

  - EN61326-1
  - EN60825-1

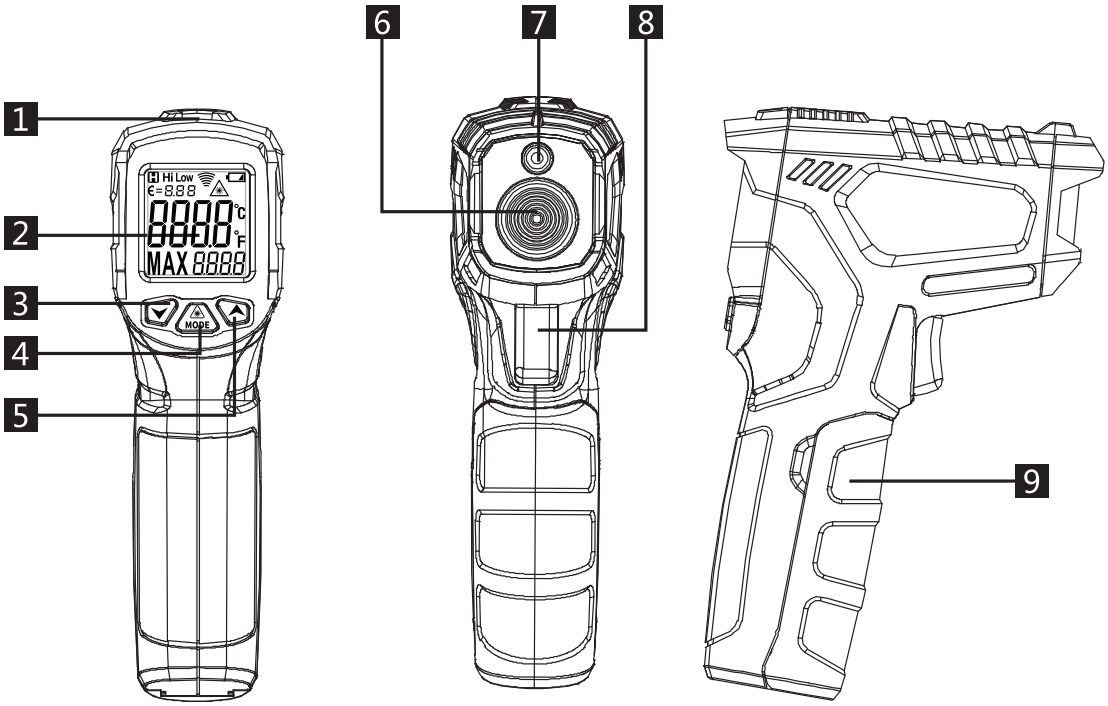
Warning! ⚠

Do not align the laser to human eyes or reflective surface

2. Notes

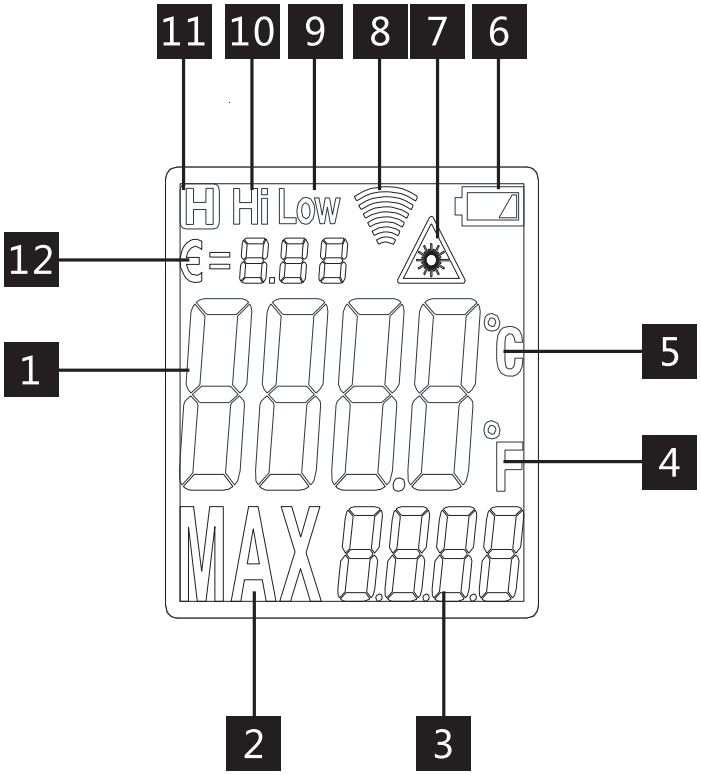
- When the ambient temperature changes in a sudden, it is required to place the thermodetector in the environment for 30 minutes, and measure when internal and external temperatures of the thermodetector coincide.
- Try to avoid any electromagnetic field caused by electric welding and induction heating.
- Do not place the thermodetector close to or on a high temperature object.
- Keep the thermodetector clean, and avoid dust from entering the tube.

3. Appearance description



1. Alarm indicator
2. Liquid crystal display
3. Laser control key/digital turn down key ▼
4. Mode key
5. Back-light/digital turn up key ▲
6. Infrared sensor induction zone
7. Laser indicator
8. Measurement trigger
9. Battery cover

4. Liquid crystal display description



1: Primary display: Displays measured temperature.
2: Function indication: MAX (Maximum value)
3: Displays the maximum value
4: Fahrenheit degree
5: Centigrade degree
6: Low voltage indication
7: Laser indication
8: Measurement indication
9: Low alarming
10: High alarming
11: Data hold
12: Radiance indication

5. Measurement methods

1. Set the upper limit of the instrument alarm:

Press and hold the Mode key for 2 seconds, to enter instrument setting, and press MODE key to shift to alarm upper limit setting, in this case, Hi is displayed in the instrument function indication zone,and the alarm upper limit value is displayed in the zone, the value blink . Press ▲/▼ key to increase or decrease the alarm value, and long press ▲/▼ key to accelerate the increase or decrease of the set value.

2: Set the low alarm value of the instrument

Press and hold the Mode key for 2 seconds, to enter instrument setting, and press MODE key to shift to alarm lower limit setting, in this case, Low is displayed in the instrument function indication zone, and the alarm lower limit value is displayed in the zone, the value blink . Press ▲/▼key to increase or decrease the alarm value, and long press ▲/▼ key toaccelerate the increase or decrease of the set value.

3: Set the instrument radiance

Press and hold the Mode key for 2 seconds, to enter the instrument setting, and press the MODE key to shift to the instrument radiance setting, in this case, the instrument radiance indication zone flashes. Press the ▲/▼ key to increase or decrease the radiation value, and long press the ▲/▼ key to accelerate the increase or decrease of the set value.

4: Set the instrument temperature unit

Press and hold the MODE key for 2 seconds, to enter the instrument setting, and press the MODE key to shift to the instrument temperature measurement unit, the unit symbol on the display flashes, and press the ▲/▼ key to change the unit symbol.

5: Exit the setting

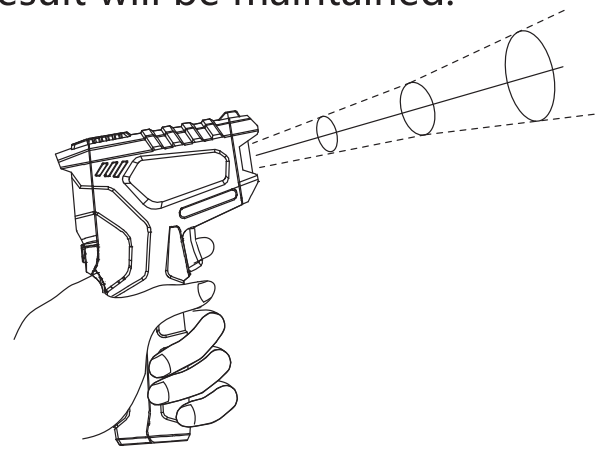
Press the trigger or long press the MODE key, to exit the instrument setting.

6: Turn on/off laser

Press the Mode Button to turn on or off the Laser, and the instrument will display the laser symbol ⚠

8: Non-contact temperature measurement

Aim the thermodetector at the object, and hold the trigger, to conduct continuous measurement of temperature. After displaying stably, release the trigger, and the measurement result will be maintained.

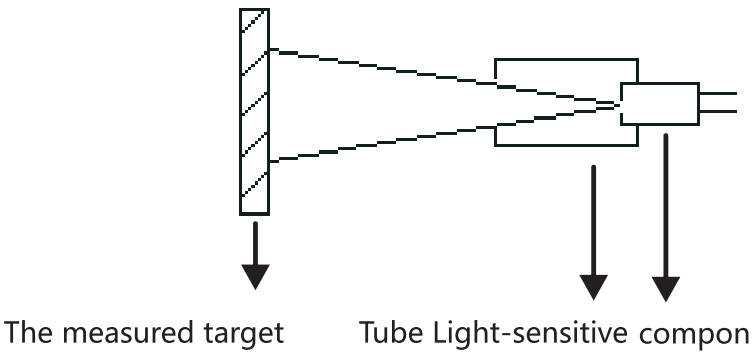


When holding the trigger, the secondary display of the instrument will display the maximum value of the measured temperature.

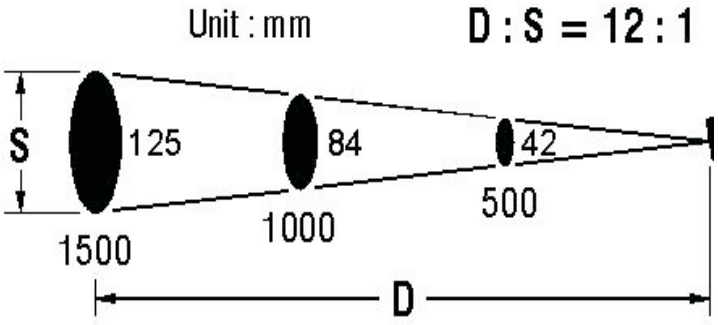
When the measured value is greater than the upper limit of high alarm or the measured value is less than the lower limit of low alarm, the red alarm indicator will turn on to alarm.

6. Target distance ratio (D:S ratio)

The thermodetector has a certain visual angle and visual field, as shown in the following figure.



In order to guarantee the measured object fills in the visual field of the thermodetector, which means the thermodetector only "sees" the measured object rather than other objects. Larger objects may cause larger temperature measurement distances; for smaller objects, the measurement distances must be close. The ratio of measurement distance to the measured target (D:S) is 12:1, as shown in the following figure:



7. Radiance

The radiance characterizes the ability of an object to radiate infrared ray. Larger radiance will lead to stronger radiation ability on the object surface.

Radiance of the majority of organic matters or metal oxidized surfaces ranges between 0.85 and 0.98. The radiance of the thermodetector is 0.95 by default. During measurement, set the radiance of the instrument the same with the radiance of the measured object. During measurement, please pay attention to the impact of emissivity on measurement results. The following table is the radiance reference table.

Measured surface		Radiance
Aluminum	Oxidized	0.2~0.4
	A3003 alloy (oxidized)	0.3
	A3003 alloy (coarse)	0.1~0.3

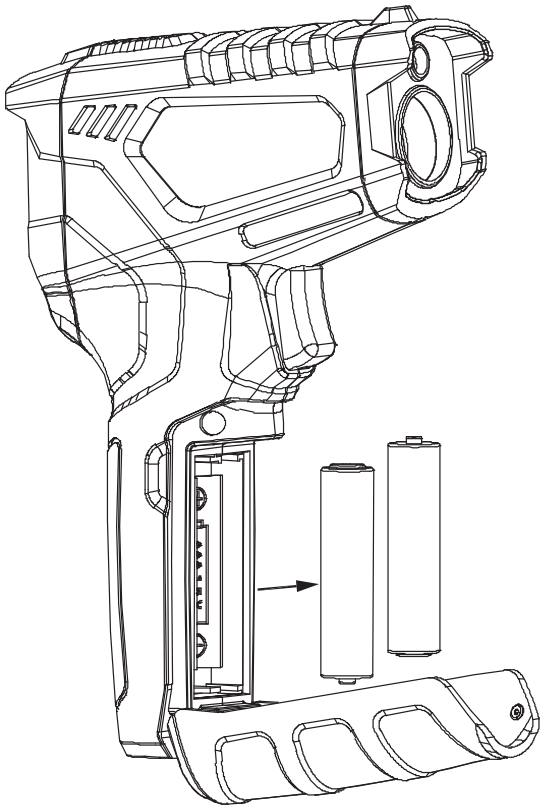
Brass	Polishing	0.3
	Oxidized	0.5
Copper	Oxidized	0.4~0.8
	Electrical terminal board	0.6
Hastelloy		0.3~0.8
Ferro-nickel	Oxidized	0.7~0.95
	Abrasive blasting	0.3~0.6
	Electropolishing	0.15
Iron	Oxidized	0.5~0.9
	Rust	0.5~0.7
Iron (casting)	Oxidized	0.6~0.95
	Unoxidized	0.2
	Fusion cast	0.2~0.3
Iron (casting)	passivation	0.9
Lead	Coarse	0.4
	Oxidized	0.2~0.6
Molybdenum oxidation		0.2~0.6

Nickel oxidation		0.2~0.5
Platinum black		0.9
Steel	Cold rolling	0.7~0.9
	Grinding steel plate	0.4~0.6
	Polished steel plate	0.1
Zinc	Oxidized	0.1
Asbestos		0.95
Asphalt		0.95
Basalt		0.7
Carbon (unoxidized)		0.8~0.9
Graphite		0.7~0.8
Silicon carbide		0.9
Ceramics		0.95
Clay		0.95
Concrete		0.95
Cloth		0.95
Glass plate		0.85
Gravel		0.95

Plaster	0.8~0.95
Ice	0.98
Limestone	0.98
Paper	0.95
Plastics	0.95
Soil	0.9~0.98
Water	0.93
Timber	0.9~0.95

8. Replacement of battery

When battery is low, the battery symbol will light up, in this case, it is required to replace the battery. Open the battery cover with your hands, and replace with a new 1.5Vx2AAA battery. Refer to the following figure:



9.Technical indexes

LCD display	Color LCD display
D:S	12 : 1

Radiance

	0.10~1.00
Response spectrum	8~14um
Laser	<1mW /630-670nm Level 2
Response time	<0.5S
Automatic shutdown	30 seconds
Service temperature	0~40 degrees
Storage temperature	-10℃~60℃
Power supply	1.5Vx2AAAbattery
IR01A：Measurement range (non-contact temperature measurement)	-50℃~0℃ ±3℃ 0~380℃ ±(1.5% +2℃) (-58℉~716℉)

IR01B: Measurement range (non-contact temperature measurement)	-50℃~0℃ ±3℃ 0~550℃ ±(1.5% +2℃/4℉) (-58℉~1022℉)
Precision (non-contact temperature measurement)	-50℃~0℃ ±3℃ 0~550℃ ±(1.5% reading + 2℃/4℉)