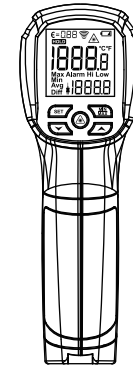


INFRARED THERMOMETER



Have product questions? Need technical support? Please feel free to contact us: **Technical Support and E-Warranty Certificate**

This is the original instruction, please read all manual instructions carefully before operating. Reserve a clear interpretation of our user manual. The appearance of the product shall be subject to the product you received. Please forgive us that we won't inform you again if there are any technology or software updates on our product.

1

Safety instructions/Attention

1.Safety instructions

Please read the instructions carefully before using the instrument.

Warning: To reduce the risk of injury, user must read instructions manual carefully.

Safety symbols:

Important information tips of danger

Comply with European CE safety standards.

This instrument meets the following standards:

EN60825-2014

Warning!

Do not aim the laser at human eyes or reflective surfaces.

CAUTION:

- While the product is in operation, be careful not to expose your eyes to the emitting laser beam (red light source). Exposure to a laser beam for an extended time may be hazardous to your eyes.
- Glasses may be supplied in some of the laser tool kits. These are NOT certified safety glasses. These glasses are ONLY used to enhance visibility of beam in brighter environments or at greater distances from adequate protection.

WARNING:

- The following label/print samples are placed on the product to inform of the laser class for your convenience and safety.

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CAUTION
AVOID EXPOSURE - LASER RADIATION IS EMITTED FROM THIS APERTURE

→ LASER RADIATION-DO NOT STARE INTO BEAM
OUTPUT < 1mW 620-690nm
IEC 60825-1:2014MADE IN CHINA



- Do not stare directly into the beam or view directly with optical instruments or set up the laser at eye level.
- Do not disassemble the laser tool. There are no user serviceable parts inside.
- Do not modify the laser in any way. Modifying the tool may result in hazardous Laser Radiation Exposure.
- Do not operate the laser around children or allow children to operate the laser.
- Serious eye injury may result.
- An exposure to the beam of a Class 2 laser is considered safe for a maximum of 0.25 seconds. Eyelid reflexes will normally provide adequate protection.

2.Attention

- When the ambient temperature changes greatly or suddenly, please wait for 20 minutes before using the instrument to make the temperature of the instrument reach a stable state.
- Please avoid electromagnetic fields caused by electric welding and induction heating.

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- Please avoid placing the instrument near or on high-temperature objects.
- Keep the instrument clean and avoid dust from entering the lens barrel.
- Lens cleaning: clean the dust on the lens surface with clean compressed air, and then wipe the surface with a wet cotton swab.
- Do not use solvents to clean the instrument.
- FCC INFORMATION

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment!
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This product may cause harmful interference. (2) This product must accept any interference received, including interference that may cause undesired operation.
WARNING: Changes or modifications to this product not expressly approved by the party responsible for compliance could void the user's authority to operate the product.

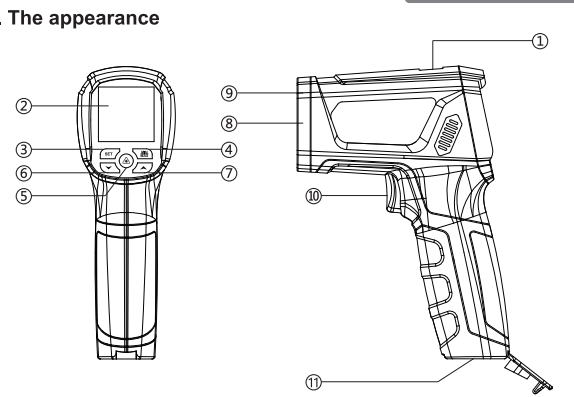
Note: This product has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This product generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this product does cause harmful interference to radio or television reception, which can be determined by turning the product off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the distance between the product and receiver.
- Connect the product to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for assistance.

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CORRECT DISPOSAL

This product is subject to the provision of European Directive 2012/19/EU. The symbol showing a wheeled bin crossed through indicates that the product requires separate refuse collection in the European Union. This applies to the product and all accessories marked with this symbol. Products marked as such may not be discarded with normal domestic waste, but must be taken to collection point for recycling electrical and electronic devices.

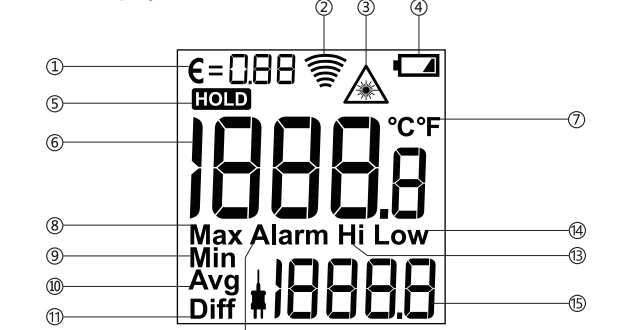
The appearance



- 1. K-type thermocouple socket
- 2. LCD display
- 3. SET key
- 4. Max maximum /Min minimum /Avg average /Diff temperature conversion key.
- 5. Laser control key
- 6. Up key
- 7. Down key
- 8. Laser transmitter
- 9. Infrared emitter
- 10. Measurement trigger
- 11. Battery cover

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4. LCD display



- 1.Emissivity
- 2.Measurement indication
- 3.Laser indication
- 4.Battery undervoltage indication
- 5.Data locking
- 6.Radiation measurement temperature value
- 7.Temperature unit
- 8.Maximum locking
- 9.Minimum locking
- 10.Average value
- 11.Temperature difference value
- 12.Alarm
- 13.High alarm
- 14.Low alarm
- 15.K-type thermocouple temperature

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Measuring methods

5. Measuring methods

Pull the instrument trigger to light up the screen, long press the SET key to enter the SET mode, and short press the SET key to select Alarm Hi → Alarm Low → () emissivity setting → (C/F) temperature setting.
In SET mode: long press the ▲/▼ key to quickly increase or decrease the set value.

1. Alarm Hi:
Long press the SET key to enter the Alarm Hi by default. When the value flashes, press the ▲/▼ key to set the required alarm value, and pull the trigger to save the setting. The buzzer sounds an alarm when the measured temperature exceeds the set value.

2.Alarm Low:
Long press the SET key to enter the setting, and short press the SET key to change the Alarm Low. When the value flashes, press the ▲/▼ key to set the required alarm value, and pull the trigger to save the setting. The buzzer sounds an alarm when the measured temperature exceeds the set value.

3.Emissivity setting:
Long press the SET key to enter the setting, and short press the SET key to switch to () emissivity setting. Then, the instrument emissivity () flashes. Please refer to (emissivity parameter table) and short press the ▲/▼ key for setting the required emissivity value, and pull the trigger to save the setting.

4. Temperature unit setting:
Long press the SET key for a long time to enter the setting, and short press the SET key to switch to (C/F) unit. The unit symbol (C/F) on the display flashes, press the ▲/▼ key to set the required temperature unit, and pull the trigger to save the setting.]

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Measuring methods

5. Laser setting:

The laser aiming function can be turned on or off by short pressing () when the instrument screen is on or at the measuring state.

6.MAX maximum measurement:
When the instrument screen is on or at the measurement state, short press the Max key to display the MAX symbol on the screen, and the instrument locks the maximum measurement value .

7.MIN minimum measurement:
When the instrument screen is on or at the measurement state, short press the MIN key until the Min symbol is displayed on the screen. Then, the instrument locks the minimum measurement value.

8.Avg average measurement:
When the instrument screen is on or at the measurement state, short press the MAX key until the Avg symbol is displayed on the screen. Then, the instrument locks the average measured value.

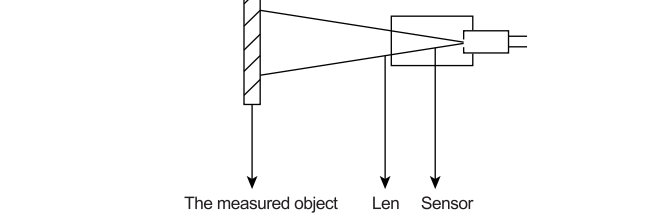
9.Diff temperature difference measurement:
When the instrument screen is on or at the measurement state, short press the MAX key until the screen displays the Diff symbol. Then, the instrument locks the measured temperature difference value.

10.K-type thermocouple temperature measurement
Insert the K-type thermocouple plug into the thermocouple socket of the instrument according to the positive and negative signs, and pull the trigger to display the symbol () on the screen. During measurement, the thermocouple probe touches the measured object, and the screen displays the temperature and irradiation temperature of the K-type thermocouple.

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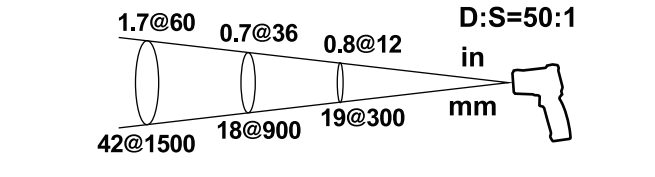
The target distance ratio (D:S)

The instrument has a certain visual angle and field of view, as shown in the following figure:



It is necessary to ensure that the measured object fills the field of view of the instrument, that is, the thermometer only "sees" the measured object and "cannot see" other objects. The larger the measured object, the farther the measurement distance, the smaller the measured object and the closer the measurement distance. The ratio of the measuring distance to the measured target size is D:S/50: 1.

As shown in the figure below:



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Emissivity

7. Emissivity

Emissivity is the ability of an object surface to radiate infrared rays. The greater the emissivity, the stronger the radiation ability of the object surface. The emissivity of most organic or metal oxidized surfaces is between 0.85 and 0.98. The emissivity of this thermometer is 0.95 by default. When measuring, set the emissivity of the thermometer consistent with the emissivity of the measured object. Please pay attention to the influence of emissivity on the measurement results during measurement.

Measured surface	Radiance
Metallic aluminum	Oxide 0.2-0.4 A3003 alloy (oxidation) 0.3 A3003 alloy (rough) 0.1-0.3
Brass	Polish 0.3 Oxide 0.5
Copper	Oxide 0.4-0.8 Electrical terminal board 0.6
Hastelloy B-2	Oxide 0.3-0.8 Oxide 0.7-0.95 Sand blast 0.3-0.6 Electropolishing 0.15

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Emissivity

Iron	Oxide 0.5-0.9 Get rusty 0.5-0.7
Iron (casting)	Oxide 0.6-0.95 Unoxidized 0.1-0.3 Fuse and cast 0.2 Oxide 0.2-0.3
Passivation of iron (forging)	0.9
Lead	Electrical terminal board 0.4 Coarse 0.2-0.6
Nickel alloy	Oxide 0.7-0.95
Molybdenum oxidation	0.2-0.6
Nickel oxidation	0.2-0.5
Platinum black	0.9
Steel	Cold rolling 0.7-0.9 Polished steel plate 0.4-0.6
Zinc (Zn)	Polished steel plate 0.1 Oxide 0.1
Asbestos	0.95
Asphalt	0.95
Basalt	0.7

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Emissivity

Carbon (unoxidized)	0.8-0.9
Graphite	0.7-0.8
Carborundum	0.9
Pottery and porcelain	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
Plastic	0.95
Soil	0.9-0.98
Water	0.93
Wood	0.9-0.95

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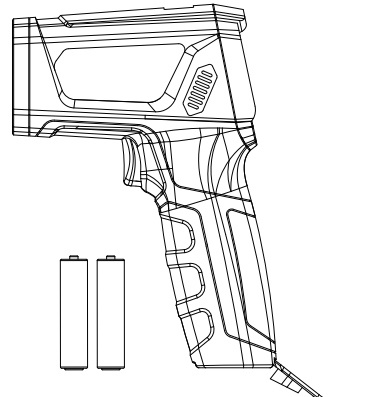
Technical parameters

8. Technical parameters	
Indicator	VA reverse display color screen
D:S	50 : 1
Spectral response	8-14um
Resolution ratio	0.1°C/0.1°F
Emissivity	0.10 ~ 1.00
Laser	< 1mw/620-690 nm Grade 2
Response time	<0.5S
Automatic shut-down	About 35 seconds
Irradiation temperature range	-50°C ~ 1500°C (-58°F ~ 2732°F)
Illumination accuracy	-50°C ~ 0°C ± 3°C/6°F
	0 ~ 800°C ± (1.5%+2°C)
K-type temperature range	800°C ~ 1500°C ± (3%°C)
	-10°C ~ 500°C (14°F ~ 932°F)
K-type accuracy	± (1.5% + 2°C/4°F)
Operational environment	0 ~ 50°C/10% - 90%RH
Storage temperature	-20°C ~ 60°C
Size	180x120x60mm
Power Supply	2x1.5V AA battery

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Battery replacement

When the battery power is insufficient, the screen displays () undervoltage symbol, and the battery must be replaced. Open the battery cover and replace it with a new 1.5Vx2 AA battery. See the figure below:



Address: Baoshanqu Shuangchenglu 803long 11hao
1602A-1609ahi Shanghai
EC REP: SHUNSHUN GmbH, Römerdacker 9 22021,
76531 Linkenheim-Hochstetten, Germany
UK REP: Pooleas Group Ltd. Unit 5 Albert Edward House,
The Pavilions Preston, United Kingdom
Imported to USA: Saiven Technology Ltd. Suite 250, 9166 Anaheim
Place, Rancho Cucamonga, CA 91730
Made In China

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