USER'S MANUAL

Made in china

CE RoHS M101040075

⚠ Please read this manual carefully before using this product,and keep it properly for future use!

USER'S MANUAL

INFRARED THERMOMETER



⚠ Please read this manual carefully before using this product,and keep it properly for future use!

120*90mm

Safety instructions/Attention

1.Safety instructions

- Please read the instructions carefully before using the instrument.
- Safety symbols:

⚠	Important information tips of danger.
CE	Comply with European CE safety standards.

- EN60825-2014

Warning!

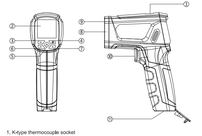
⚠	**Do not aim the laser at human eyes or reflective surfaces.**

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.
- Please avoid placing the instrument near or on high-temperature objects.
- Please 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.

The appearance

3. 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

LCD display

4. LCD display



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

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 → (ε) emissivity setting → (℃/℉) 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 (ε) emissivity setting. Then, the instrument emissivity (ε) flashes. Please refer to (emissivity parameter table) and short press the ▲/▼ key for setting the required emission 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 (℃/℉) unit, The unit symbol (℃/℉) on the display flashes, press the ▲/▼ key to set the required temperature unit, and pull the trigger to save the setting.)

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.

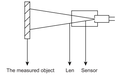
10.K-type thermocouple temperature measurement

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.

The target distance ratio (D:S)

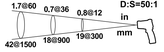
6.The target distance ratio (D:S)

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:S50: 1.

As shown in the figure below:



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.

Emissivity reference table

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

Emissivity

Iron	Oxidate	0.5~0.9
	Get rusty	0.5~0.7
Iron (casting)	Oxidate	0.6~0.95
	Uncoxidized	0.2
	Fuse and cast	0.2~0.3
Passivation of iron (forging)ate		0.9
Lead	Electrical terminal board	0.4
	Coarse	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
	Polished steel plate	0.4~0.6
	Polished steel plate	0.1
Zinc (Zn)	Oxidate	0.1
Asbestos		0.95
Asphalt		0.95
Basalt		0.7

Emissivity

Carbon (uncoxidized)	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

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	□ -40~1200°C	□ -40~1600°C	□ -40~2000°C
	-40~2192°F	-40~2912°F	-40~3632°F
Illumination accuracy	-40~0°C ±(3°C/6°F)		
	0~800°C ±(1.5%+2°C)		
	800~1200°C±(3%°C)		
	1200°C ~ 2000°C±(5%°C)		
K-type temperature range	-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		
Weight	About 280g (excluding battery)		

Battery replacement

9. 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 1.5V/2 AA battery. See the figure below:

