USER'S MANUAL

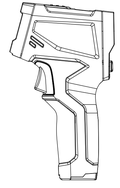
Made in China

CE RoHS M101040115 A2

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

USER'S MANUAL

infrared thermometer



120*90mm

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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.

This instrument meets the following standards:
- EN60825-2014

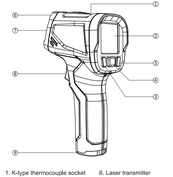
Warning!

⚠	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.

3. The appearance



1. K-type thermocouple socket
2. LCD display
3. Down key▼
4. Laser control key /MODE
5. Up key ▲
6. Laser transmitter
7. Infrared emitter
8. Measurement trigger
9. Battery cover

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、Hi high alarm
10、Low low alarm
11、K-thermocouple temperature

5. Measuring methods

Pull the instrument trigger to light up the screen, long press the SET key to enter the MODE, and short press the MODE key to select Hi → 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 MODE key to enter the 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 MODE key to enter the setting, and short press the MODE key to change the 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 MODE key to enter the setting, and short press the MODE 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 MODE key for a long time to enter the setting, and short press the MODE 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.]

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 is in measurement, it will automatically lock the maximum value of this measurement. For the next measurement, it will lock the value again.

7.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.

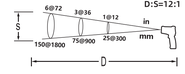
6.The target distance ratio (D:S)

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 doser the measurement distance. The ratio of the measuring distance to the measured target size is D:S/12: 1.

As shown in the figure below:



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

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	Coarse	0.4
	Oxidate	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

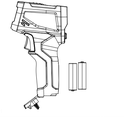
Carbon (unoxidized)	0.8~0.9
Graphite	0.7~0.8
Carborundum	0.9
Pottery and porcelain	0.95
Clay	0.95
Concrete	0.95
Cloth	0.95
Glass plate	0.85
Gravel	0.95
Plaster	0.8~0.95
Ice	0.98
Limestone	0.98
Paper	0.95
Plastic	0.95
Soil	0.9~0.98
Water	0.93
Wood	0.9~0.95

8. Technical parameters

Indicator LCD display	VA reverse display color screen	
D:S	12:1	
Spectral response	8~14um	
Resolution ratio	0.1℃/0.1℉	
Emissivity	0.10~1.00	
Laser	< 1mW/620 ~ 690 nm Grade 2	
Response time	<0.5S	
Automatic shut-down	About 30 seconds	
	☐	☐
Irradiation temperature range	-40℃~650℃	-40℃~800℃
	-40℉~1202℉	-40℉~1472℉
Illumination accuracy	-40℃~0℃ ±3℃/5.4℉	
	0~800℃ ±(1.5%.+2℃/3.6℉)	
K-type temperature range	-40℃~650℃（-40℉~1202℉）	
K-type accuracy	±(2.0%+2℃/3.6℉)	
Operational environment	0~50℃/10%~90%RH	
Storage temperature	-20℃~60℃	
Size	173×102×54mm	
Power Supply	2x1.5V AA battery	
Weight	About 207g (excluding battery)	

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:



10. Accessories

1、Infrared Thermometer	×1
2、Instruction Manual	×1
3、Type K thermocouple (optional)	×1
4、Two 1.5V AA batteries	×2
5、Instrument storage bag	×1