MUSTOOL MUSTOOL **USERS MANUAL**

NON-CONTACT INFRARED THERMOMETER
MT6300 MT6550

Low Forehead
Hi Surf.

888.8 °C
°F
88888

MODE

EMC

RoHS

CE
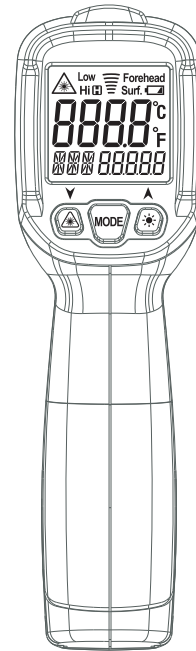
Y01-05-0219 A0

⚠ Before using the instrument,please read this manual carefully,and save it well for future using.

size:125x85mm

MUSTOOL

1. Safety information

- Please read carefully the Operation Manual before operating the instrument
- Don't cleanse the temperature measuring instrument with any solvent
- Safety symbols

  ⚠ Important notices against hazards

  CE Compliant with European CE safety directive

This instrument complies with the standards provided below:

- ■ EN61326-1
- ■ EN60825-1

Warning!

Laser must be prevented from aligning itself towards human eyes or reflective surfaces.

2. Important notices

- When the working environment experiences a sudden change, the temperature measurement meter must be placed in an environment for 30 minutes. The measurement can be resumed only when the temperature inside the meter is consistent with that outside it.
- The electromagnetic field from electric welding and inductive heating must be minimized.

- Don't put the temperature measurement meter close to or onto a hot object.
- The meter must be kept clean so that dust is denied access to lens cone.

3. Physical appearance
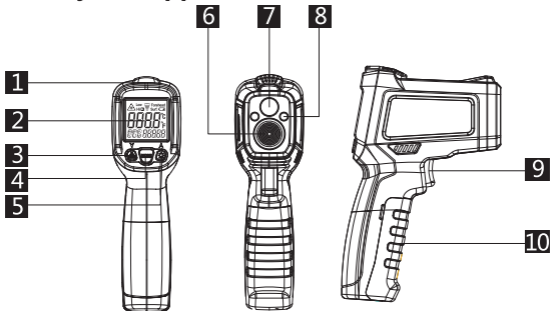
❶ Alarm indicator

❷ LCD screen

❸ Laser control key/numeric adjustment key▼

❹ Mode key

❺ Backlight key/numeric adjustment key ▲

❻ Infrared sensor's sensing area

❼ Laser indicator

❽ Backlight

❾ Measurement trigger

❿ Battery cover

4. LCD screen
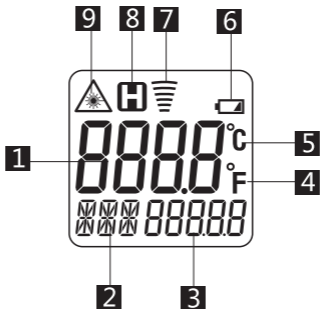
❶ Primary display panel: display the measured temperature.

❷ Functional indication: display Max , HAL (high alarm level), LAL (low alarm level), E (emissivity) $^\psi\varepsilon_\wedge$ (adjust the instrument's emissivity)

❸ Secondary display panel:

❹ Fahrenheit unit

❺ Celsius unit

❻ Battery under-voltage indication

❼ Temperature measurement indication

❽ Data hold

❾ Laser enabling indication

5. Measurement method

1. Set the upper limit value for alarms:

   Press trigger + mode key to set the status for the instrument, switch Mode key to the upper limit set for an alarm. At this moment, the instrument's functional indication area shows HAL and secondary display panel the upper limit for an alarm. Press ▲/▼ key to increase or decrease alarm value. A long press on the ▲/▼ key will mean rapid increase or decrease in the set value.
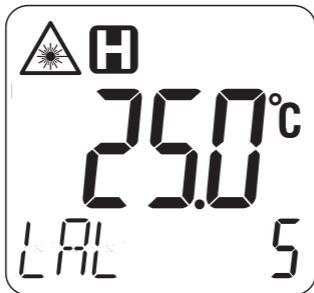
   The default alarm value for this instrument is 5℃.


2. Set low alarm value for the instrument

   Press trigger + mode key to set the status for the instrument, switch Mode key to the low limit set for an alarm. At this moment, the instrument's

functional indication area shows HAL and secondary display panel the low limit for an alarm. Press ▲/▼ key to increase or decrease alarm value. A long press on the ▲/▼ key will mean rapid increase or decrease in the set value. The default alarm value for this instrument is -5℃.


3. Set the emissivity for the instrument

Press trigger + mode key to set the emissivity for the instrument, switch Mode key to the low limit set for an alarm. At this moment, the instrument's functional indication area shows E and secondary display panel the emissivity for an alarm. Press ▲/▼ key to increase or decrease emissivity value. A long press on the ▲/▼ key will mean rapid increase or decrease in the set value.
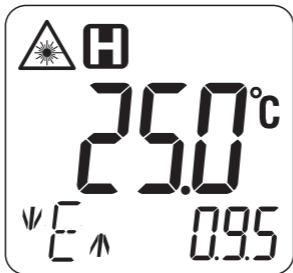
4. Set the temperature unit for the instrument
   Press the Mode key for 2 seconds to switch the temperature measurement unit.
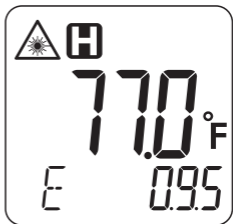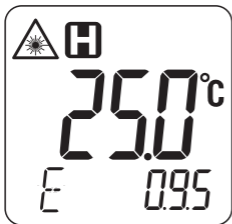

5. Enable/disable laser
   Press ⚠ key to enable or disable laser. The instrument will display the symbol for laser ⚠ .

6. Turn on or off Backlight

   Press ☀ key to turn on or off Backlight.

7. Non-contact temperature measurement

   Target the temperature measurement meter at an object and pull the trigger for a period to carry out continuous measurement of temperature. After display becomes stable, release the trigger to hold measurement results.
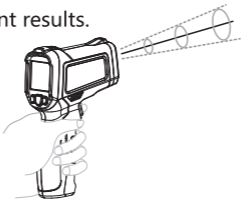

   When the trigger is pressed, the instrument's secondary display panel will first show the set emissivity and then display the measured maximum temperature.
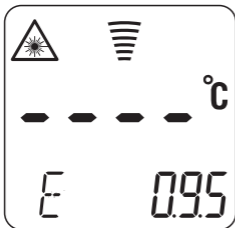
When the measured value is greater than ambient environment + HAL value or less than the ambient environment + LAL value, the red indicator of the instrument will be on to sound an alarm. Otherwise, the green indicator will be on.

6. Proportion between the distance from probe to object and the diameter of the object to be measured (D:S)

Temperature measurement meter has a certain angle and field of vision, as shown in the diagram below:

The object to be measured   lens con   photosensitive element
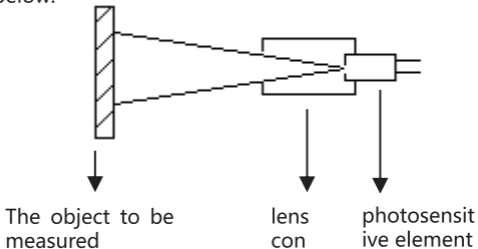
It must be ensured that the object to be measured is fully within the field of vision afforded by the temperature measurement meter, that is, the meter can see nothing but the object to be measured. The greater the object to be measured is, the farther the distance detected by the meter may be. The smaller

the object is, the shorter the distance to be measured must be. The proportion between the distance to be measured and the size of the object to be measured (D:S) is 12: 1, as shown in the diagram below:

Unit : mm

$$D : S = 12 : 1$$
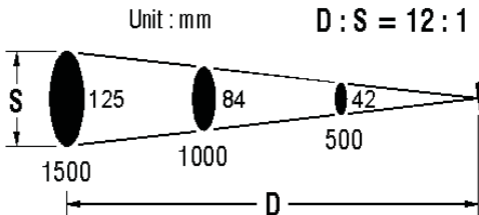
While measuring an object, the instrument will emit an indicative ring. The measured temperature of the surface is the internal temperature of the ring.
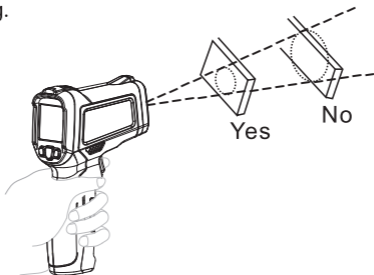
7. Emissivity

Emissivity refers to the ability of an object to emit infrared ray. The greater the emissivity is, the stronger the emission ability of the surface of an object is. The emissivity of most organic substances or oxidized surfaces of metals falls within the range of 0.85~0.98. The default emissivity of this measurement device is 0.95. The instrument's emissivity is set to be consistent with that of the object to be measured at the moment of measurement. The effect of emissivity on measurement result must be noticed at the time of measurement.

The diagram provided below is a reference table for emissivity.

Table 2   Surface emissivity

| Surface measured		Emissivity
Aluminum Metal	Oxidized	0.2~0.4
	A3003AlloyOxidized	0.3
	A3003AlloyRough	0.1~0.3
Brass	Polished	0.3
	Oxidized	0.5
Copper	Oxidized	0.4~0.8
	Electronic terminal Board	0.6

Hastelloy		0.3~0.8
Chromium -Nickel-Iron Alloy	Oxidized	0.7~0.95
	Sandblast	0.3~0.6
	Electro-Polished	0.15
Iron	Oxidized	0.5~0.9
	Rusted	0.5~0.7
Iron(Cast)	Oxidized	0.6~0.95
	No Oxidized	0.2
	Melt & cast	0.2~0.3
iron(Forged) Passivated		0.9
Lead	Rough	0.4
	Oxidized	0.2~0.6
Mo Oxidized		0.2~0.6
Nickel Oxidized		0.2~0.5
Platinum Black		0.9
Steel	Cold rolled	0.7~0.9
	Polished plate	0.4~0.6
	Polished plate	0.1
Zinc	Oxidized	0.1
Asbestos		0.95
Asphalt		0.95
Basalt stone		0.7
Carbon		0.8~0.9
non-oxidized		0.7~0.8

Graphite	0.9
Silicon Carbide	0.95
Clay	0.95
Concrete	0.95
Fabric	0.95
Glass plate	0.85
Sand-gravel	0.95
Gypsum	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 (natural)	0.9~0.95

8. Battery replacement

When the battery's power is low, the battery symbol indicator ▭◢ will be on. At such moment, you must replace the existing battery. What you need to do is to open the battery cover and replace the old battery with a new 9V battery. Refer to the diagram below:
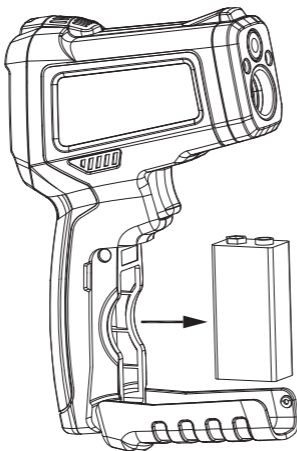
9. Technical parameters

There are six models in this series, which can meet various requirements of different customers. The following table shows the features of the MT6300 and MT6550 of this series.

	MT6300	MT6550
LCD	Color LCD	
D:S	12:1	
Emissivity	0.10~1.00	

Response spectrum	8~14um	
Laser	<1mW /630-670nm Level 2	
Response time	<0.5S	
Automatic shutdown	15 seconds	
Operational temperature	0~40 ℃	
Storage temperature	-10℃~60℃	
Power	9V 6F22 battery	
Measurement range (Non-contact temperature measurement)	-50℃~300℃ (-58℉~572℉)	-50℃~550℃ (-58℉~1022℉)
Precision (non-contact temperature measurement)	-50℃~0℃ ±3℃ 0~300℃ ± (1.5% reading + 2 ℃)	-50℃~0℃ ±3℃ 0~550℃ ± (1.5% reading +2℃/4 ℉)