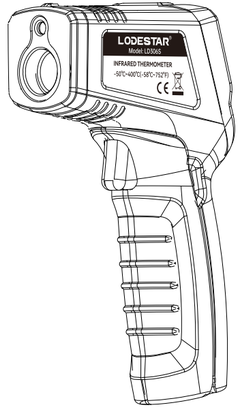
LODESTAR®

手持式红外测温仪

LD306S/LD306S



快速指南(用户手册)

一、介绍

红外测温仪通过测量物体表面辐射的红外能量来确定物体的表面温度，适用于快速测量各种高温、有毒或难于接触的物体表面温度。

本机由光学系统、光电传感器、信号放大器、信号处理电路及LCD显示等部分组成。光学系统汇聚物体表面的红外能量到光电传感器，由光电传感器将能量转换成相应的电信号，该信号经过信号放大器和信号处理电路转化为读数显示在LCD上。

二、安全须知

1.警告

为避免用户可能造成的伤害，请遵照下列指导：

- 请使用本机时不要将激光直接对准眼睛或通过反射面间接射向眼睛。
- 本仪器不能透过透明表面进行测量，如玻璃/塑料等，否则本仪器测得的数值将会是该透明物体表面温度。
- 蒸汽/灰尘/烟或其它粒子会对仪器镜片形成障碍，影响测量的准备性。

2.注意：

为避免损坏测温仪或被测设备，请保护它们免受以下影响：

- 弧焊机和感应加热器等产生的EMF（电磁磁场）
- 热冲击（由于环境温度发生较大或突然改变，在使用前要等待30分钟使测温仪达到稳定状态）
- 切勿将测温仪靠近或放在高温物体上。

三、物距比D:S

1、使用本机测量温度时，要注意考虑距离与测量区域大小之间的比率（简称物距比）。当本机与被测距物体距离增大时，测量区域也会相应增大。本测温仪物距比为12:1（如图1）

***本机配有定位激光用于瞄准被测物体表面

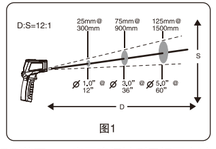


图1

2、观测范围：一定要确保被测目标要大过本机的测量区域。当被测目标越小时与被测目标的距离应越近，要进行精确测量时，必须保证被测目标至少比测量区域大过一倍以上。

四、发射率（普通款为不可调发射频率）

大多数有机材料及油漆或氧化材料的发射率为0.95（无发射率可调的已预设在设备中，有发射率射率可调的在0.1-1之间调整）光滑或打磨的金属表面可能会导致测量值的误差，解决方法是调整仪器的发射率读数（发射率详见下表）或者用黑色袋子或黑色油漆遮盖测量表面，并等待使之与下面的材料的温度一样，然后在进行温度的测量。

发射率对照表

物质	发射率	物质	发射率	物质	发射率	物质	发射率
铝	0.30	铁	0.70	石棉	0.95	铅	0.50
沥青	0.95	石灰石	0.98	玄武岩	0.70	油	0.94
黄铜	0.50	油漆	0.93	砖	0.90	纸	0.95

砚	0.85	塑料	0.95	陶瓷	0.95	橡胶	0.95
混凝土	0.95	砂	0.90	铜	0.95	皮肤	0.98
油泥	0.94	雪	0.90	冷冻食品	0.90	钢	0.80
热食品	0.93	织品	0.94	玻璃（板）	0.85	水	0.93
冰	0.98	木	0.94				

五、操作说明

1.快速测量：（如图2）

（1）打开电池仓，装入2节1.5V AAA电池

（2）扣动扳机开机

（3）通过定位激光瞄准被测物体表面（如不需激光定位，可关掉），扣动扳机目标温度就会显示在LCD上，松开扳机后，温度将保持显示在LCD上。

图2

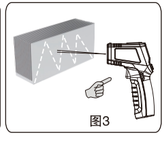


图3

2.高温点定位：

扣住开关扳机（如图3），同时将测温仪激光点慢慢上下移动进行扫描定位。

六、LCD显示及按键功能

1.LCD显示：（如图4）

A.数据保持符号

B.数据读取符号

C.定位激光打开符号

D.背光打开符号

E.电池低电压提示符号

F.温度测量单位符号

G.温度测量读数

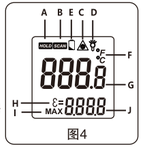


图4

H.发射率符号（仅发射率可调型）

I.最大值符号（仅发射率可调型）

J.发射率与最大值数值（仅发射率可调型）

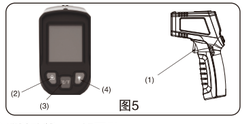


图5

2.按键功能：（如图5）

（1）扳机：扣动扳机显示温度值，“ SCAN “同时显示，松开时为” HOLD “及温度显示，自动保持数据，无操作12秒后自动关机。

（2）定位激光开关切换

（3）短按摄氏与华氏温度切换，长按切换最大值/发射率，开机默认为最大值模式，显示每次按下扳机以来的最大值。长按为发射率模式，此时数值闪烁，按激光键和背光键来调到所需数值。**无发射率可调型，仅作为摄氏与华氏温度切换开关。**

（4）背光灯开关：背光打开情况下，按键操作均有背光延迟直到关机才熄灭。

七、产品保养

1.透镜清洁：用干净的压缩空气吹去杂物，再用驼绒毛刷拭去残留的微小杂物，最后用湿棉布小心将表面擦拭。

2.外壳清洁：拿海绵或软布用肥皂水来清洁。

注意：1）请勿用任何溶剂清洁本塑胶透镜。

2）切勿将测温仪浸入水中。

八、技术参数

型号	LD306S	LD306C
测量温度范围	-50~400℃ (-58~752℉)	-50~600℃ (-58~1112℉)
测量精度	≥0℃（32℉）：±1.5℃（±2.7℉）或±1.5%取最大值 <0℃（32℉）：±3℃（±5.4℉）或±3%取最大值	
发射率	可调	
最大值	有	
重复性	1%的读数或1℃	
响应时间	500mSec，95%响应	
响应波长	8-14um	
环境工作温度	0~50℃（32~122℉）	
相对湿度	10-90%RH不冷凝	
保存温度	-20~60℃（-4~140℉）不包括电池	
电源	1.5V AAA×2 7号电池	
电池寿命	Laser off：12小时	
物距比	12:1	

如规格有更改，恕不另行通知，请与销售人员联系，索取最新说明书

LODESTAR 乐达®

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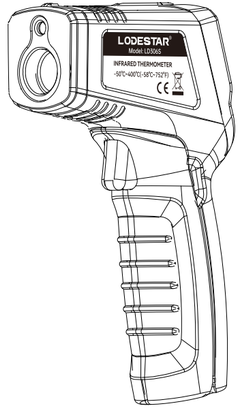
INFRARED THERMOMETER

LD306S/LD306C



Quick Guide (User Manual)

A.INTRODUCTION

This infrared thermometer is used for measuring the temperature of the object's surface, which is applicable for various hot, hazardous or hard-to- reach objects without contact safely and quickly.

B. Warning & C autions

1.Warning:

To avoid the potential situation may cause harm or damage to people, please pay attention to the following items:

1）Before you use this unit, check on the plastic housing carefully. If there is any damage, do not use it.

2）Do not point laser directly at eye or indirectly off reflective surfaces.

3）Do not use this unit in the environment of explosive gas, steam or dusty.

2.Caution：

To avoid the damage of the unit or the target, please protect from the following situations:

1）EMF (electro-magnetic fields) from arc welders, induction heaters.

2）Thermal shock (caused by large or abrupt ambient temperature changes-allow 30 minutes for unit to stabilize before use.

3）Do not leave the unit on or near objects of high temperature

C.Warranty

one year

D. Maintenance

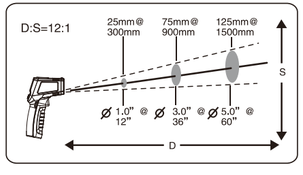
1. Lens cleaning: clean compressed air to blow away the debris, and then use camel hair brush to wipe away the residual small debris, and finally wipe the surface with wet cotton cloth carefully.

2. shell cleaning: use sponge or soft cloth to clean with soap and water.

E. Distance to Spot size

1）When take measurement, pay attention to the Distance to Spot rate. As the Distance (D) from thermometer to the target surface increases, the spot diameter (S) on the target surface becomes larger.

The Distance to Spot rate is about 12:1



2）Scope of observation:

Make sure that the measured target is larger than the measuring area. When the smaller target to be measured, please let infrared thermometer close to the target. In order to measure accurately, it is necessary to ensure that the target to be measured is at least twice as large as the measuring area.

F. Specification

Please pay attention to the different specification, It is a general manual for four models.

Model	LD306S		LD306C	
Temperature range	0.95 Preset, Unadjustable		0.95 Preset, Adjustable from 0.01 to 1.00	
Emissivity	-50~400℃ (-58~752℉)	-50~600℃ (-58~1112℉)	-50~400℃ (-58~752℉)	-50~600℃ (-58~1112℉)
Accuracy	≥0℃(32℉):±1.5℃(±2.7℉) or ±1.5% Take the maximum <0℃(32℉):±3℃ (±5.4℉) or ±3%Take the maximum			
Spectral response	8-14um			
Resolution	1% of reading or 1℃			
Response time	500mSec, 95% response			
Distance to Spot Rate	12:1			
Max value display	NO		YES	
Operating Temperature	0~50℃（32~122℉）			
Operating Humidity	10-90%RH non-condensing			
Storage Temperature	-20~60℃（-4~140℉） Without Batteries			
Power	-20~60℃（-4~140℉） Without Batteries			

Remark:

Different material have different emissivity. The emissivity for most material is listed as bellow. For more accurate value, please choose adjustable thermometer, adjust right emissivity when measuring.

Emissivity parallel table

Material	Emissivity	Material	Emissivity	Material	Emissivity	Material	Emissivity
Aluminum	0.30	Iron	0.70	Asbestos	0.95	brick	0.50
Bituminous	0.95	Limestone	0.98	Basalt	0.70	Oil	0.94
Brass	0.50	Paint	0.93	brick	0.90	Paper	0.95
Carbon	0.85	Plastic	0.95	Ceramics	0.95	Rubber	0.95
Concrete	0.95	Sand	0.90	Copper	0.95	Skin	0.98
Oil sludge	0.94	Snow	0.90	Frozen items	0.90	Steel	0.80
Hot food	0.93	Textile	0.94	Glass	0.85	Water	0.93
Ice，	0.98	Wood	0.94				

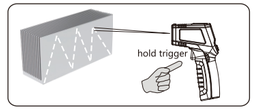
G. Operation

Model:

1）Open the battery compartment and insert the 2pcs 1.5V AAA batteries.

2）Single measuring: Pull and loose the trigger, laser point will open to find target (the laser is used for aiming only), The temperature of the target will be displayed on the LCD.

3）Continuous measuring: Pull the trigger and do not loose it, slowly move the thermometer, the thermometer scan the temperature of target and display the temperature on the LCD continuously.



Indication:

A. Hold: when Single measuring to loose trigger(1), the symbol display, it means get the current temperature value.

B. Scan: when Continuous measuring to hold trigger, the symbol display, it means the thermometer is measuring continuously.

C. Laser point: Press key(2) to turn on or turn off the symbol, the laser point is used for aiming target only.

D. Backlight: Press key(4) to turn on or turn off the symbol, it means switch on/off backlight of LCD.

E. Power: Battery capacity indication.

F. Temperature Unit: Press key(3) to switch centidegree and Fahrenheit degree.

G. Temperature value.

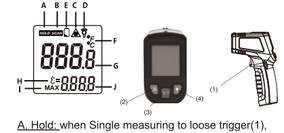
Model:

1）Open the battery compartment and insert the 2pcs 1.5V AAA batteries.

2）Single measuring: Pull and loose the trigger, laser point will open to find target (the laser is used for aiming only), The temperature of the target will be displayed on the LCD.

3）Continuous measuring: Pull the trigger and do not loose it, slowly move the thermometer, the thermometer scan the temperature of target and display the temperature on the LCD continuously. And the max temperature value also display on the LCD during continuous measuring.

Indication:



A. Hold: when Single measuring to loose trigger(1), the symbol display, it means get the current temperature value.

B. Scan: when Continuous measuring to hold trigger, the symbol display, it means the thermometer is measuring continuously. And temperature value will be displayed at “G” position, Max temperature value during continuous measuring will be displayed at “J”

C. Laser point: Press key(2) to turn on or turn off the symbol, the laser point is used for aiming target only.

D. Backlight: Press key(4) to turn on or turn off the symbol, it means switch on/off backlight of LCD.

E. Power: Battery capacity indication.

F. Temperature Unit: Press key(3) to switch centidegree and Fahrenheit degree.

G. Temperature value.

J. Max temperature value or Emissivity: long press key(3) , preset emissivity 0.95 will be displayed at “J” position, press key(2) or key(4) to increase or reduce emissivity, then press key(3) to save emissivity.

H. Emissivity symbol.

I. Max symbol.