Infrared Thermometer
Instruction manual
DIT-220

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.

This unit consist of Optics, Temperature Sensor Signal amplifier, Processing circuit and LCD display. The Optics collected the infrared energy emitted by object and focus onto the Sensor. Then the sensor translates the energy into an electricity signal. This signal will be turned out to be digital shown on the LCD after the signal amplifier and processing circuit.

Warning & Cautions

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.

Distance to Spot Size

1. When take measurement, pay attention to the Distance to Spot Size. As the Distance (D) from the target surface increases, the spot size (S) of the area measured by the unit becomes larger. The Distance to Spot size of the unit is 12:1
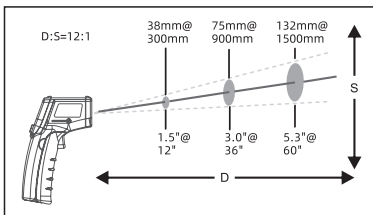
2. Field of view: Make sure the target is larger than the unit's spot size. The smaller the target the closer measure distance. When accuracy is critical, make sure the target is at least twice as large as the spot size.

Emissivity

Most organic materials and painted or oxidized surfaces have an emissivity of 0.95(preset in the unit). Inaccurate readings will result from measuring shiny or polished metal surfaces. To compensate for this, adjust the units emissivity reading or cover the surface to be measured with masking tape or flat black paint. Measure the tape or painted surface when the tape or painted reach the same temperature as the material underneath.

| Marterial	Emissivity	Marterial	Emissivity
Aluminum	0.30	Iron	0.70
Asbestos	0.95	Lead	0.50
Asphalt	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
Ceramic	0.95	Rubber	0.95
Concrete	0.95	Sand	0.90
Copper	0.95	Skin	0.98
Dirt	0.94	Snow	0.90
Frozen food	0.90	Steel	0.80
Hot food	0.93	Textiles	0.94
Glass(plate)	0.85	Water	0.93
Ice	0.98	Wood	0.94

Operation

1. Operating the unit:
1) Open the battery door and insert 2*1.5V AAA batteries properly.
2) Pull the trigger to turn on the unit.
3) Aim at the target surface and pull the trigger, then temperature will be shown on the LCD. This unit is equipped with a laser, which is only used for aiming.

Trigger

Finger indents
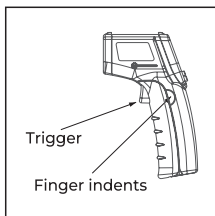
2. Locating a Hot Spot:

To find a hot spot, aim the thermometer outside of interest, then scan across with an up and down motion until you locate the hot spot.
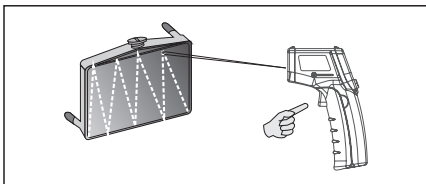
LCD Display & Buttons

1. LCD display
A. Data hold icon
B. Scanning icon
C. Laser on icon
D. Back light on icon
E. Battery power icon
F. Self-calibration icon
G. Emissivity icon
H. Environmental temperature icon
I. Maximum icon
J. Minimum icon
K. Measuring unit
L. Measuring reading
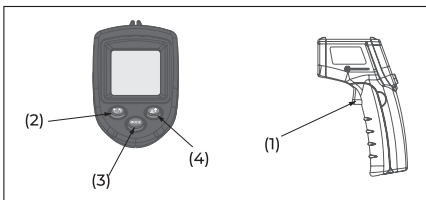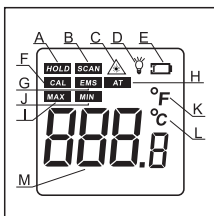
(1) Trigger: press it to display temperature value with SCAN appears at meantime. Release the trigger and enter into HOLD mode to save the data automatically, and the unit turns off automatically if there is no further operation.
(2) key for switching between Celsius and Fahrenheit as well as the up-rolling view for emissivity and self calibration.
(3) Mode switch key:press Mode key to switch modes in turn among MAX - MIN - AT - EMS - CAL - MEAS-URING INTERFACE

a. MAX: measuring maximum temperature
b. MIN: measuring minimum temperature
   Note: In measuring, hold on the Mode key to swtich to Max or
         Min review.
c. AT: current environment temperature
d. EMS: emissivity that can be set between 0.10 and 1.00 with the
   ℃ /℉ key and laser locating key
e. CAL: Under self calibration mode, to calibrate the unit between
   -5.0℃ and +5.0℃
   For example: if the temperature is 26.3℃ and the temperature
         value measured is 25℃, then and 1.3℃ should be increased
         as a calibration value, and after calibration press the mode
         key to return to the measuring mode.
(4) laser locatoin key and backlight switch key(press the 2 keys
    simutaneously for backlight on/off. this key can also be used
    as an self calibration value decrease key.

Maintenence

1. Lens Cleaning:
     Blow off loose particles using clean compressed air. Gently
brush remaining debris away with a moist cotton swab. The
swab may be moistened with water.
2. Case cleaning:
   Clean the case with a damp sponge/cloth and mild soap.
Note:
   1) Do not use solvent to clean plastic lens.
   2) Do not submerge the unit in water.

Specification

Temperature range	-50~530℃(-58~986℉)
Accuracy	0~530℃(32~986℉): ±1.5℃(±2.7℉) or±1.5% -50~0℃(-58~32℉): ±3℃(±5℉) Whichever is greater
Repeatability	1% of reading or 1℃
Response time	500 mSec, 95% response
Spectral response	5~14µm
Emissivity	0.10~1.00 optional (0.95 Preset)
Distance to Spot size	12:1
Operating Temperature	0~40℃(32~104℉)
Operating Humidity	10~90%RH non-condensing, up to 30℃(86℉)
Storage Temperature	-20~60℃(-4~140℉)
Power	1.5V AAA*2 battery
Typical battery life	Laser off: 12 hrs

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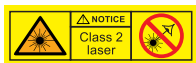
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