Portable Non-Contact Thermometer

Instruction Manual

THERMO -HUNTER PT -3S

The PT-3S Thermo-hunter is a non-contact thermometer that measures surface temperatures of objects by catching the infrared energy emitted by the target objects. Do not use to measure anything other than surface temperatures.

Thank you for purchasing Optex products.
- Please check to make sure the model you purchased is the model you specified.
- Please read the manual before using the PT-3S Thermohunter in order to use it correctly.
- After reading the manual, please be sure to keep it for future reference.

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"Take Care of the Environmet." This manual uses recycled paper. PRINTED IN JAPAN 0632-5 2008/2

Safe Usage

This instruction manual contains various warnings to ensure safe usage of the product and prevent damage and injury to you and other persons. Please be sure to heed the warnings and strictly follow safety procedures.

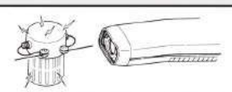
⚠WARNING :This symbol signifies that improper usage may result in injuries.

⚠CAUTION :This symbol signifies that improper usage may result in injuries or damage.

⃠ : This symbol signifies a prohibited action.

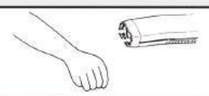
❗ : This symbol signifies a required action.

⚠WARNING



Do not use PT-3S to measure temperature of such targets of high voltage. This is to avoid an electric shock.

⚠CAUTION



This product is not a clinical thermometer and therefore, cannot be used for medical purposes.

Environmental Condition to use

⃠ **KEEP THE THERMOMETER AWAY FROM DROPPING WATER AND DO NOT USE IN WATER.**
This thermometer is not water-proof.

❗ **KEEP THE THERMOMETER AWAY FROM DIRECT SUNLIGHT, DUST, HIGH TEMPERATURES AND HIGH HUMIDITY DURING USE AND STORAGE.**
Otherwise, the optical lens will become dirty or damaged. Such usage or storage will result in incorrect measurements.

❗ **DO NOT APPLY SUDDEN TEMPERATURE CHANGES TO THE THERMOMETER.**
Sudden temperature changes may cause incorrect measuring results. In such cases, leave the thermometer for a moment to let it return to a stable condition prior to the next measurement.

❗ **KEEP THE THERMOMETER AWAY FROM PRODUCTS WHICH PRODUCE STRONG ELECTROMAGNETIC WAVES.**
Usage in such environments will cause irreparable damages to the unit and incorrect measurements.

Operation instructions

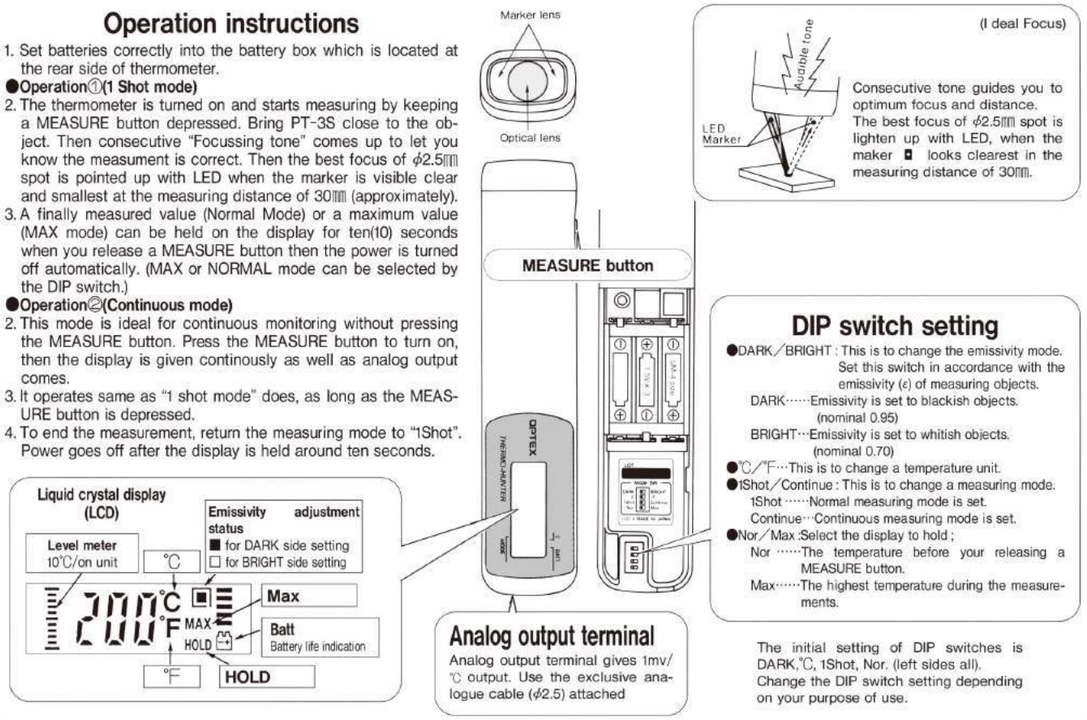
1. Set batteries correctly into the battery box which is located at the rear side of thermometer.

●Operation①(1 Shot mode)

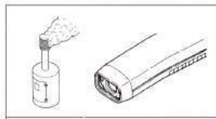
2. The thermometer is turned on and starts measuring by keeping a MEASURE button depressed. Bring PT-3S close to the object. Then consecutive "Focussing tone" comes up to let you know the measument is correct. Then the best focus of ϕ2.5㎜ spot is pointed up with LED when the marker is visible clear and smallest at the measuring distance of 30㎜ (approximately).
3. A finally measured value (Normal Mode) or a maximum value (MAX mode) can be held on the display for ten(10) seconds when you release a MEASURE button then the power is turned off automatically. (MAX or NORMAL mode can be selected by the DIP switch.)

●Operation②(Continuous mode)

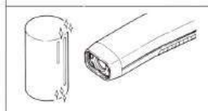
2. This mode is ideal for continuous monitoring without pressing the MEASURE button. Press the MEASURE button to turn on, then the display is given continously as well as analog output comes.
3. It operates same as "1 shot mode" does, as long as the MEASURE button is depressed.
4. To end the measurement, return the measuring mode to "1Shot". Power goes off after the display is held around ten seconds.



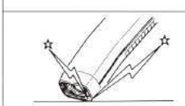
Cautions on usage



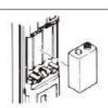
❗ **Never bring PT-3S close to the target with hich temperature nor aim the wider area than the field of view specified.**
PT-3S is for measurement of temperature of small targets. Incorrect measurements will occur.



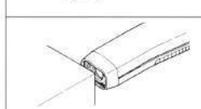
❗ **AVOID MEASURING SHINY OBJECTS.**
Shiny objects reflect surrounding temperatures. Although the emissivity rate of the unit can be adjusted to compensate for this problem, incorrect measurements will still result.



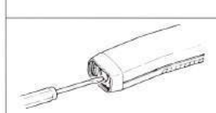
⃠ **DO NOT DROP THE THERMOMETER OR APPLY VIOLENT SHOCKS.**
Otherwise, irreparable damages or incorrect measurements will result.



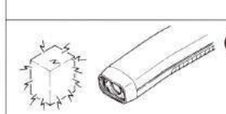
⃠ **DO NOT USE WITH NON-STANDARD VOLTAGE.**
Using the unit with currents outide the 12～24 voltage range may result in damage to the unit, shorts, fires and injuries. In such cases, immediately switch the unit off.



⃠ **DO NOT TOUCH TO THE OBJECT THAT IS BEING MEASURED.**
The unit is a non-contact thermometer. Touching the unit to objects with high temperatures will result in irreparable damages in the shape of the unit and incorrect measurements.

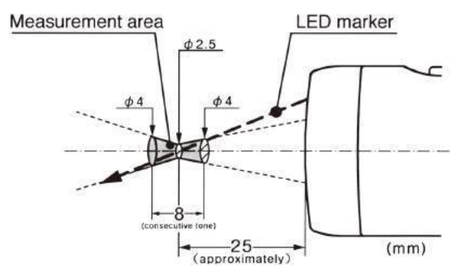


⃠ **DO NOT TOUCH THE LENS.**
Do not touch the lens with hard or sharp objects. Do not insert foreign objects into the light receiving part. Otherwise, damage to the lens or incorrect measurements will occur.



❗ **DO NOT USE NEAR OBJECTS ELECTRICALLY CHARGED.**
Otherwise, irreparable damages or incorrect measurements will result.

Field of View



The measurement area depends upon 90% energy limit of optical responce. The object size should be larger than the above area. The maximum spot size is ϕ4 ㎜ in the above measuring area.

Trouble shooting

Problem	Cause	Action
No display	No battery or wrong setting of batteries.	Replace batteries or set batteries again in correct direction.
The measured value seemes incorrect.	Optical lens becomes dirty.	Clean up an optical lens referring to the maintenance clause of this document.
	The measured area is disaligned.	Target the spot maker at the center of the area.
	The object is with lustrous metallic surface.	Reading error is inevitable by this model. Use another model(x-400)
The measured value is unstable.	The unit is affected by rapid of environmental temperature change.	Leave the unit for some time until the display temperature becomes stable.
Focussing guide is not audible	The marker lens becomes contaminated.	Clean up an optical lens refferring to the maintenance clause of this document.
	The view field is blocked	Remove an obstruction.

In case of no recovery from the symptom even if you take the above actions, there is a possibility of some defects with the thermometer. In this case, please contact your local dealer for service.

Maintenance

Optical Lens Dust, dirt and scratches on the optical lens cause incorrect measurements. In case of dirty lenses, please remove the dust on the lens with a blower, etc. for lens cleaning use. If the dust or dirt can not be removed with a blower, lightly wipe the lens with a cotton swab or special lens cleaning cloth.

Main Unit The main unit is made of PBT and polycarbonate. When it becomes dirty, lightly wipe with a soft cloth which haws been soaked in soapy neutral water and then well wrung. Do not apply chemical solvents such as thinner, benzine and alcohol to remove the dirt since these chemicals may cause erosion of the casing surface, or disappearance of printed characters.

Check We recommend that you check the temperature reading once a year. Please inquire at your local dealer for service.

Batteries

1) Battery box is located on the back of the thermometer. Slightly push and slide the battery box cover so that it can be taken off.
2) Set the batteries into the battery box in the correct direction according to the polarity marks in the box.

Replace the batteries when the battery life indicator starts blinking. Replace both batteries with new ones to avoid using old and new batteries together.

Caution
1) Do not throw used batterise into a fire. Do not recharge them.
2) Follow the local laws or regulations when disposing the batteries.
3) Take the batteries out of the thermometer when you do not use it for a long time.

Reference

○ Emissivity ratio (ε)
The emissivity ratio is the rate of the energy emitted from the surface of the object. All objects possess a particular emissivity ratio which changes according to the object's surface conditions or temperature. Our thermometer allows the emissivity ratio to be set at a fixed rate, enabling the surface temperatures of the following objects to be almost precisely measured :
0.95 (DARK) ···rubber, plastic, paper, food, painted surfaces, etc.
0.70 (BRIGHT) ···oxidized metallic surfaces, etc. can be measured correctly.
In the case of objects with different emissivity ratios than the objects listed above, discrepancies in measurement will occur. In such cases, take other measured figures as approximate values.
By placing our separately sold black tape (=0.95) onto the object to be measured, the object can be almost precisely measured. (～150° C)

Specifications

Model	PT-3S
Temperature Measuring Range	0～200° C(display range－30～230° C)
Field of View	ϕ2.5／25mm
Optics	Silicon lens
Detection Element/Wavelength	Thermopile／8～14μm
Response Time	1.5s／90%
Accuracy	±3° C of reading (ε=0.95)
Repeatability	±1° C of reading value
Display Resolution	0～200° C : 0.1° C／0.2° F(～0° C,200° C～: 1° C／° F)
Sighting Method	Red LED spot marker
Emissivity ratio (ε) Adjustment	DARK／BRIGHT (Switchable)
Temperature Unit	° C／° F (Switchable)
Measuring Mode	NORMAL／MAX (Switchable)
Power supply	UM-4 dry cell × 3pcs
Battery Life	Approx. 40 hours with Alkaline Battery
Ambient Temperature	0～50° C
Ambient Humidity	35～85%RH (without dew condensation)
Storage Temperature	－20～70° C
Dimensions	H×W×D=175×38×25.5mm
Weight	120g (including batteries)

Standard accessories : UM-4 Alkaline dry cell × 3pcs
Analog output cable × 1, Pouch × 1
Optional sccessories : black tape

Specifications are subject to change for product improvement without prior notice.