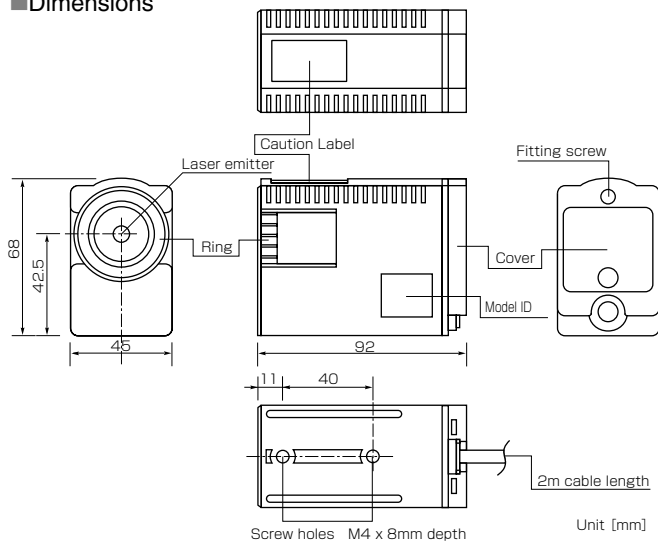


# THERMO-HUNTER BUILT-IN2

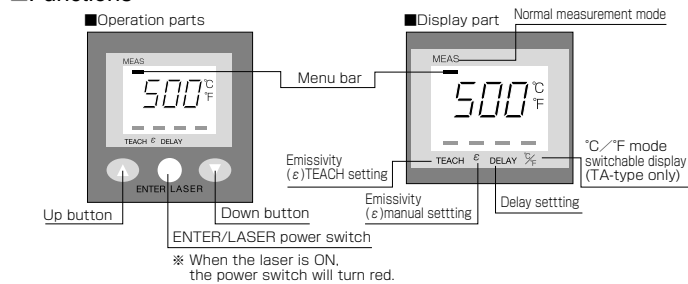
Non-Contact  
Thermometer

## Dimensions and Functions

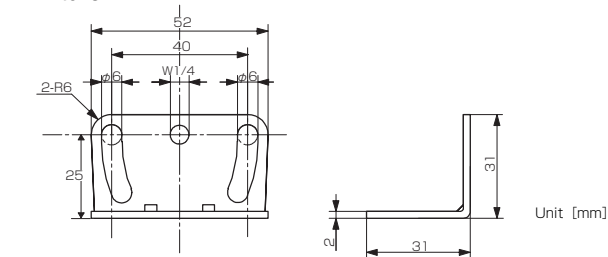
### ■Dimensions



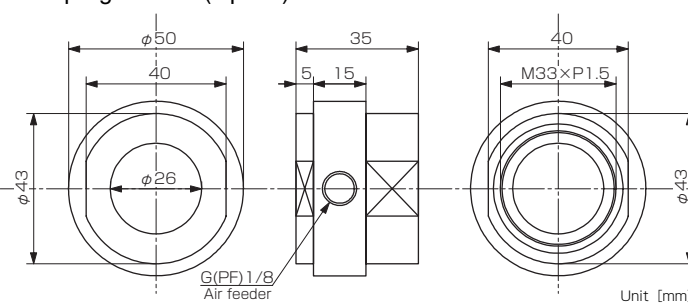
### ■Functions



### ■Fixture



### ■Air purge collar (Option)



### [Option]Black Tape HB-250



●Dimensions :  
60x2000mm  
\*Withstand heat  
up to 250°C

### [Hint for accurate measurement]

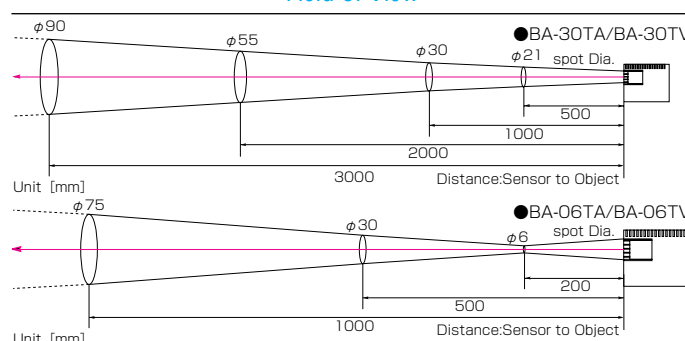
The black tape (HB-250) is designed for more accurate measurement, especially if the target object has a shiny surface. Apply HB-250 on the surface of the target and measure the area covered by HB-250 with emissivity setting at 0.95.

## Specifications

Models	BA-06TV	BA-06TA	BA-30TV	BA-30TA
Measuring Range	0~500℃ (display -20~520℃)			
Field of View	φ6/200mm		φ30/1000mm	
Optics	Silicon lens			
Sensing Element	Thermopile/8~14μm			
Response Time	500ms/90%			
Measuring Accuracy	±1% of reading value or ±2℃, whichever is larger (ε≠1.0)			
Repeatability	±1℃ of reading value			
Display Resolution	1℃			
Analog Output	1mV/℃	4-20mA	1mV/℃	4-20mA
Output Resolution	0.2℃			
Sighting Method	Coaxial laser marker (Class 2)			
Emissivity ratio (ε) Adjustment	0.10~1.20 (0.01/1 step)			
Delay	1 (0.5sec)~200 (Approx 10sec)			
Power Source / Consumption Current	DC12~24V±10%・MAX150mA			
Ambient Temperature	0~50℃			
Ambient Humidity	35~85%RH (without dew condensation)			
Storage Temperature	-10~60℃			
Vibration Resistance	3G (20~50Hz, in accordance with JIS C0911)			
Water Resistance	IP65			
Materials	Ring case: glass-containing PBT, Rear cover: PC			
Weight	350g			

Standard accessories: attachment fittings x 1, attachment screw (M4) x 2  
Optional accessories: Air Purge Collar  
\*Design and specifications are subject to change for product improvement without prior notice.

## Field of View



\*The laser marker is aimed at the center of the measuring area.  
\*The optical resolution values stated in "Field of View" are at 90% energy.  
The size of the target object should be sufficiently larger than the field of view (spot size) shown in the above illustration.

## Safe Usage

<b>⚠ WARNING</b>	Do not look into the laser nor direct it toward the eyes. Even the reflection is harmful. Laser may cause eye injury or damage your health.
<b>⚠ CAUTION</b>	This product is not a clinical thermometer; therefore, it cannot be used for medical purposes.

## Environmental Warnings

- ❶ KEEP THE THERMOMETER AWAY FROM DIRECT SUNLIGHT, DUST, HIGH TEMPERATURES AND HIGH HUMIDITY WHILE IN USE AND STORAGE.  
This may cause irreparable damage or incorrect measurement.
- ❷ DO NOT EXPOSE THE THERMOMETER TO SUDDEN TEMPERATURE CHANGES.  
Sudden temperature change of the environment may cause incorrect measurement. In such cases, wait until the thermometer reaches steady temperature before taking measurement.
- ❸ KEEP THE THERMOMETER AWAY FROM STRONG ELECTROMAGNETIC SOURCES, CORROSIVE OR EXPLOSIVE GASES.  
This may cause irreparable damage or incorrect measurement.

## Usage Warnings

- ❹ AVOID MEASURING SHINY SURFACES.  
Shiny surfaces reflect radiation from surrounding objects. Although the emissivity ratio can be adjusted to compensate for this problem, accurate measurement is difficult.
- ❺ USE THE CORRECT VOLTAGE.  
Applying voltages other than 12-24VDC may cause short-circuit, damages, fire or injury. In such cases, turn the power off immediately.
- ❻ DO NOT LET THE THERMOMETER TOUCH THE OBJECTS THAT IS BEING MEASURED.  
The unit is a non-contact thermometer. Touching or getting too close to the objects with high temperatures may cause irreparable damage or incorrect measurement.
- ❼ DO NOT TOUCH THE LENS.  
Do not touch the lens with anything hard or things with sharp points, which may damage the lens. A damaged lens causes incorrect measurement.
- ❽ KEEP THE THERMOMETER AWAY FROM CHARGED OBJECTS.  
This may cause irreparable damage or incorrect measurement.

Products mentioned in this catalogue are equipped with Class 2 laser.  
In case of re-export to foreign countries, please confirm the relevant regulation for laser products in the destination country.



**OPTEX CO.,LTD.**  
4-7-5 Nionohama Otsu 520-0801 JAPAN  
TEL +81-77-524-6049 FAX +81-77-524-1491  
URL: www.optex.co.jp

No. 74004-07-5581-0307



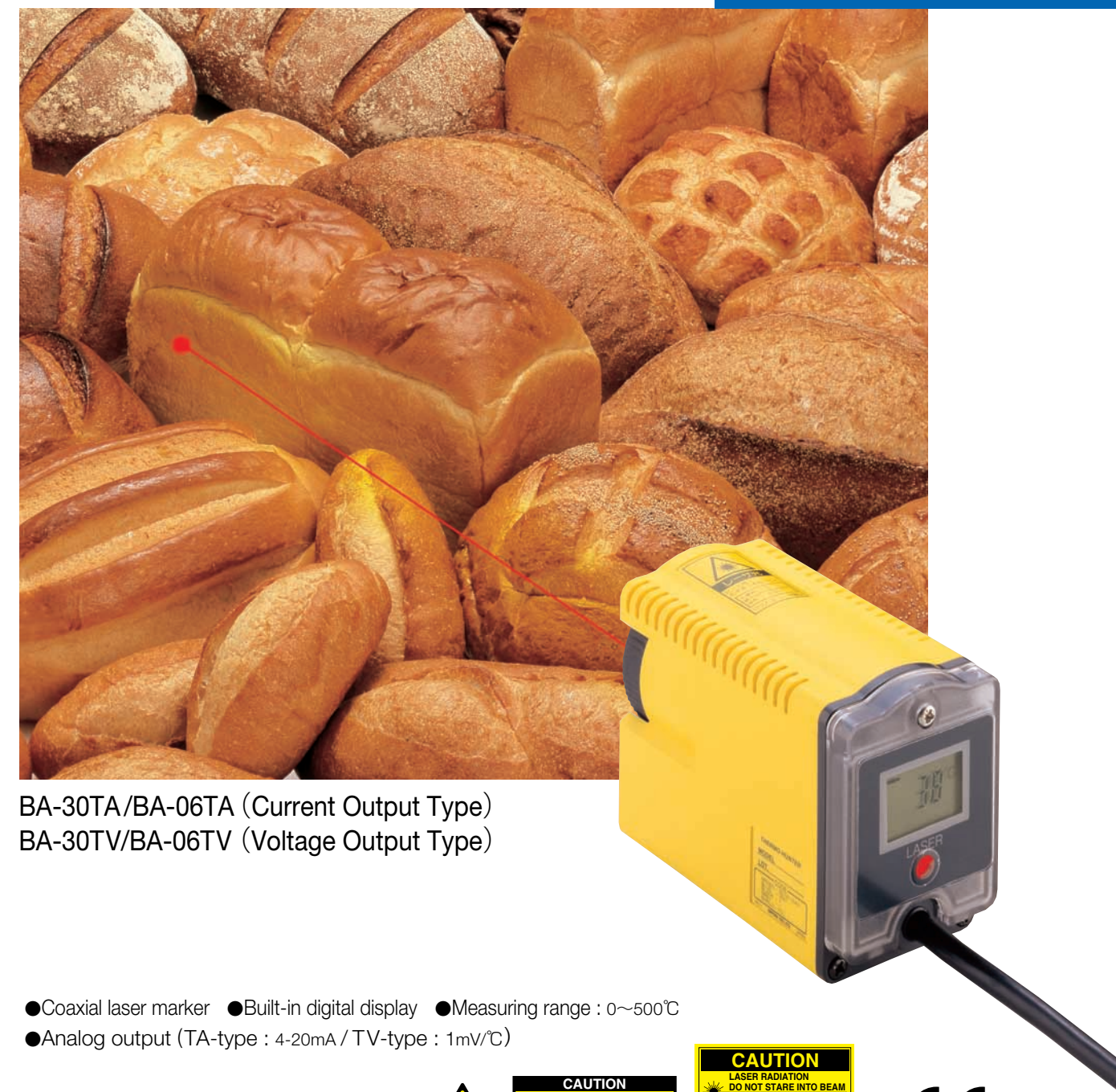
## OPTEX Product Information

## Non-Contact Thermometer

# THERMO-HUNTER BUILT-IN2

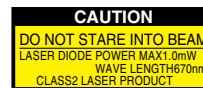
Built-in Amplifier : BA series

A built-in coaxial Laser Marker lets you easily target the object, giving accurate measurement with ε-TEACH function.



BA-30TA/BA-06TA (Current Output Type)  
BA-30TV/BA-06TV (Voltage Output Type)

- Coaxial laser marker ●Built-in digital display ●Measuring range : 0~500°C
- Analog output (TA-type : 4-20mA / TV-type : 1mV/°C)





# Measure Objects Quickly and Accurately keeping a Safety Distance

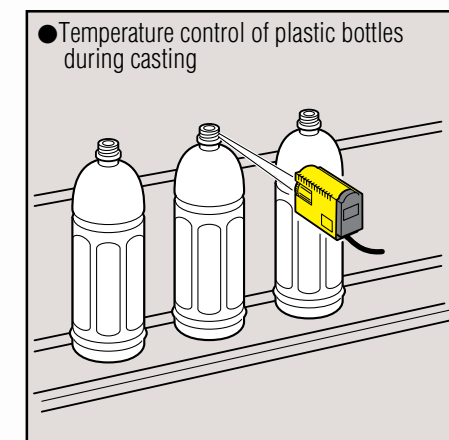
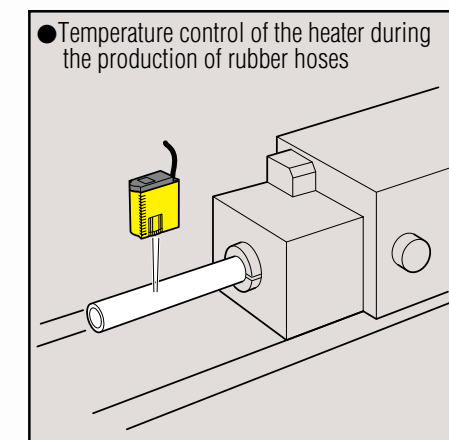
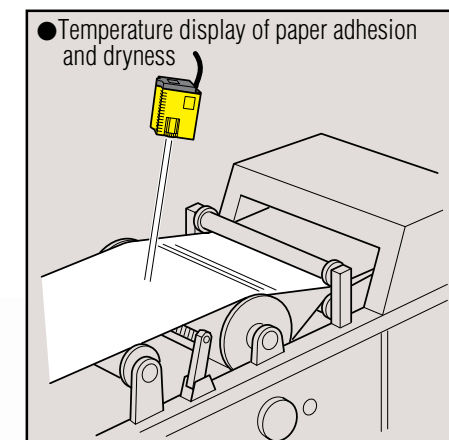
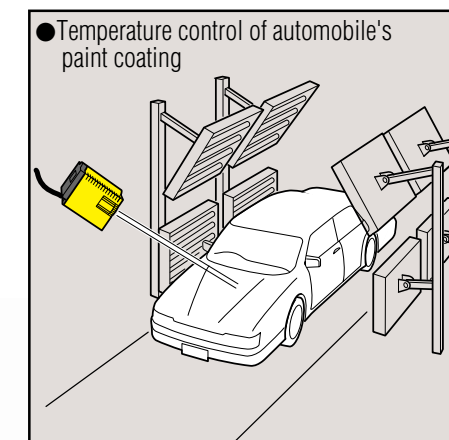
## --Spot measuring within a temperature range of 0~500°C at ±1% level of precision

Optex's Built-In 2 Thermo-Hunter is the first non-contact thermometer of its class incorporating a digital display. Plus, it comes in a compact body packed with many built-in user-friendly features to help you to measure objects with high precision.

The  $\epsilon$ -TEACH function lets you easily adjust the emissivity ratio.

The Coaxial Laser Marker allows you to confirm the measuring area.

### Non-contact measuring and the digital display offer a wide range of applications



Adaptable to dusty environments  
Air purge collar(Option)

**BA-AP1**



Air purge collar is used to keep dust, moisture, airborne particles and vapors away from the lens.

#### Specifications

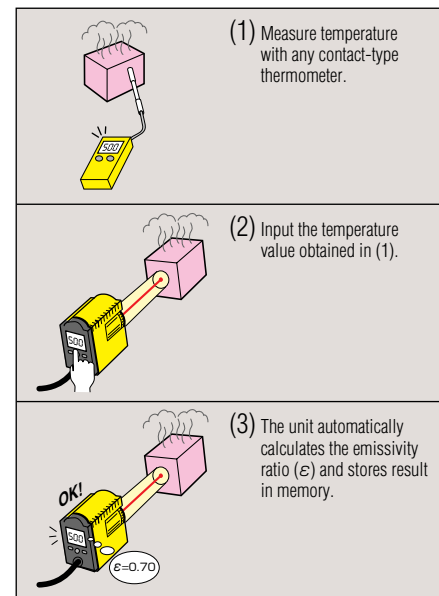
Air pressure	Max.0.2MPa(2Kgf/cm <sup>2</sup> )
Air flow	50 to 150Nℓ/min
Ambient temperature and air	0 to 50°C
Conduit aperture	G(PF)1/8
Weight	About 90g
Material	Aluminium

**THERMO-HUNTER  
BUILT-IN2**

#### New Features

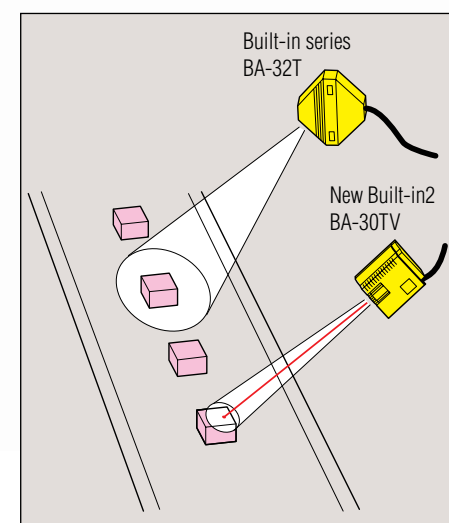
#### $\epsilon$ -TEACH Function Simplifies Emissivity Adjustment

Enter the temperature measured by a contact-type thermometer (thermocouples, etc.) just once and the rest is automatic. The unit calculates the emissivity ratio( $\epsilon$ ) and memorizes the result.(You may also manually adjust emissivity ratio)



#### Precise spot measurement in sharp field of view from a safety distance

You can precisely measure small targets within a narrow area from a distance. You can measure an object's temperature with accuracy just like a spot-light aiming at the object.



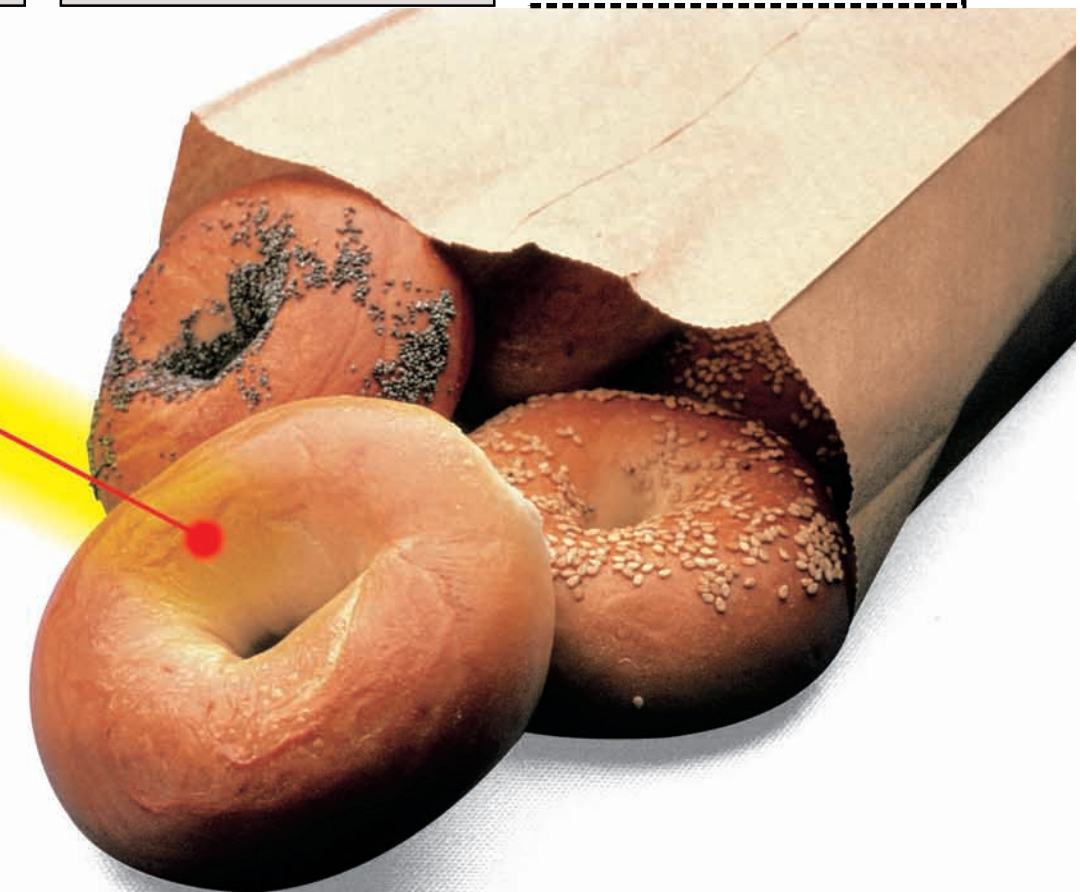
#### Coaxial laser marker lets you assure the target with your own eyes

The built-in coaxial laser marker allows you to check the field of view. It also enables you to focus quickly and easily on the object with precision since it aims at the center of the object, preventing the thermometer from slipping slightly off into the wrong axis.



#### 2-type analog output

You can choose an analog output from the two types : TV-type(1mV/°C) which can be connected to devices such as a panel meter or a TA-type(4-20mA) which is suitable for long-distance transmissions.







## Non-Contact Thermometer

**SA-80T-2A** [ Temperature range : 0~200°C ]

**SA-80T-4A** [ Temperature range : 0~400°C ]

# High-speed response 100ms

Full size



Silicon lens



SUS Body

**70°C**  
Heatproof



**IP67**  
Waterproof



**4-20mA**  
Analog output

### Features

#### ■ Quick response time

- High-speed response time 100ms/ 90%

#### ■ Tough and Heavy-Duty

- Waterproofing ability in compliance with IP67
- High heat resistance up to 70°C of ambient temperature
- High noise resistance and accurate temperature measurement with stable operation due to SUS body and silicon lens
- Analog output of 4-20mA highly resistant to noise

#### ■ Compact

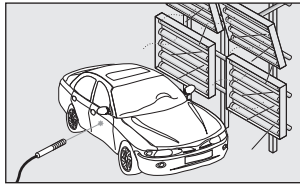
- Cylindrical shape enabling installation in a limited space

#### ■ Wide-range & long-focus setting

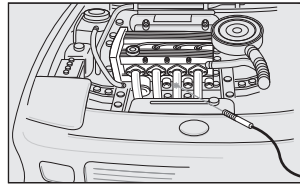
- Temperature measurement range: 0-400°C (SA-80T-4A)
- Area size:  $\phi$  80mm/ 500mm

## Applications

### 1.For automobile industry

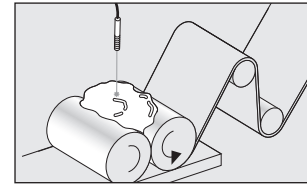


For checking dehydration temperature in baking finishing



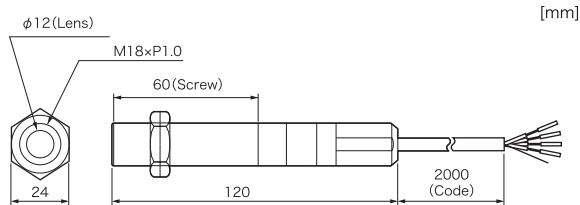
For checking abnormal heat in engine / drive

### 2.For rubber/ plastic industry

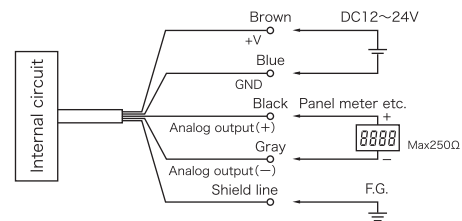


For checking temperature in processing / forming management

## Outside dimension



## Connection Diagram

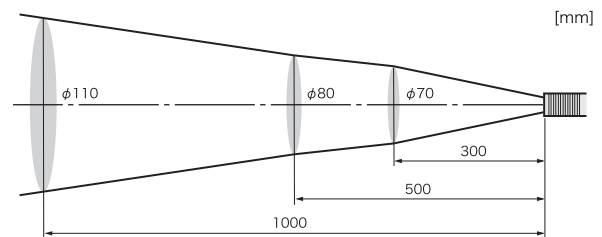


## Specifications

Models	SA-80T	
	2A	4A
Temperature Range	0~200°C	0~400°C
Area Size	φ 80 / 500mm	
Optics	Silicon Lens	
Spectral Response	Thermopile / 8~14 μm	
Response Speed	100ms / 90%	
Accuracy	0~200°C:±2°C 201~400°C:±1%	
Repeatability	±1°C of reading value	
Analog Output	4~20mA	
Emissivity ratio (ε) Adjustment	0.95	
Power Supply	DC12~24V±10% / MAX 70mA	
Ambient Temperature	0~70°C	
Environmental Humidity	35~85%Rh (without dew condensation)	
Storage Temperature	-20~70°C	
Vibration Resistance	10-55Hz, amplitude 1.5mm, two hours each in the direction of X,Y, Z	
Water Resistance	IP67	
Materials	SUS / AI	
Weight	180g	

Accessories : M18 Nutx 2pcs. Optional : Blackbody tape  
※ Specifications may change without prior notice.

## Field of View



The optical resolution values stated in "Field of View" are at minimum 90% energy.  
The size of measuring object should be sufficiently larger than the field of view (spot size) shown in the above illustration.

## Safe Usage

This instruction manual contains various warnings for your safety and proper usage to avoid possible personal injury.  
Please be sure to heed the warnings and strictly follow safety instructions.

**Caution** : This symbol signifies that improper usage may result in injuries or damage.

**Prohibited** : This symbol signifies a prohibited action. **Required** : This symbol signifies a required action.

## Caution

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

## Maintenance

### Lens

Dust or dirt adhering to the lens and flaws on the lens may cause incorrect measurement. When the lens is dirty, remove the adhering objects from the lens using a blower for lens cleaning, etc. If dirt remains, wipe the lens softly using a cotton swab or lens wiping cloth moistened with a small amount of ethyl alcohol.

### Unit

When the unit is dirty, wipe it off using a cloth moistened with a small amount of ethyl alcohol.

## Troubleshooting

Problems	Cause	Solution
Unmeasurable	The power source is not connected properly.	Check the lead wires and the connection.
	The power voltage is low it to the DC12~24V range	Check the power voltage and adjust it to the DC12~24V range.
The measured figure is odd.	The lens is dirty.	Clean the lens referring to the lens section under "Maintenance".
	The measuring area is off center.	Aim the target which should be within the area of view field of the sensor.
	Near the object to be measured is another object emitting high temperatures, affecting the temperature reading.	Block the heat source using a board, etc.
The measured figure is not stable.	The sensor is vibrating.	Prevent the vibration.
	The temperature of the sensor changes suddenly.	Put the sensor aside for a while to stabilize the sensor's temperature.

When the above symptoms are not removed even after the corresponding countermeasure has been taken, the thermometer may have a fault. In such cases, contact the shop in which you purchased the product or OPTEX.



We use recycled paper. (100% used paper content)

## Environmental Warnings

**KEEP THE THERMOMETER AWAY FROM DIRECT SUNLIGHT, DUST, HIGH TEMPERATURES AND HIGH HUMIDITY DURING USE AND STORAGE.**  
This may cause irreparable damage or incorrect measurement.

**KEEP THE THERMOMETER AWAY FROM SUDDEN CHANGE IN AMBIENT TEMPERATURE.**  
Sudden temperature change may cause incorrect measurement. Start measurement when temperature has become stable after leaving the meter for a while.

**KEEP THE THERMOMETER AWAY FROM STRONG ELECTROMAGNETIC SOURCES.**  
Usage in such environments may cause irreparable damage or incorrect measurement.

## Usage Warnings

**AVOID MEASURING SHINY OBJECTS.**  
Shiny objects reflect surrounding temperatures. As this thermometer's sensitivity to emissivity is fixed, the displayed temperature could differ from the actual temperature of objects that have different emissivity values.

**ONLY RATED SUPPLY SHOULD BE USED FOR POWER SOURCE.**  
Using other than direct current of 12-24V will cause damage, short circuit, fire and injury. In this case, immediately shut off the power.

**DO NOT LET THE THERMOMETER TOUCH THE OBJECT THAT IS BEING MEASURED.**  
This product is a non-contact thermometer. Touching high-temperature object may cause deformation of the meter, irreparable damage or incorrect measurement.

**DO NOT TOUCH THE FILTER.**  
Do not let a solid or sharp object touch the filter and do not insert foreign objects into the filter. These may cause incorrect measurement.

**DO NOT BRING THE THERMOMETER CLOSE TO ELECTRICALLY CHARGED OBJECTS.**  
This may cause irreparable damage or incorrect measurement.







## OPTEX'S Unique Non-Contact Temperature Sensor

Checking, counting, and detecting  
the temperature change of objects  
from the pre-set value shown on  
the LCD display.

**NEW**

OPTEX Product Information  
Non Contact Thermometer

THERMO-HUNTER  
BUILT-IN2

**BA-30TC**  
**BA-06TC**

photo MOS relay output type



**CAUTION**  
DO NOT STARE INTO BEAM  
LASER DIODE POWER MAX1.0mW  
WAVE LENGTH670nm  
CLASS2 LASER PRODUCT

**CAUTION**  
LASER RADIATION  
DO NOT STARE INTO BEAM  
670nm/1.0mW MAX  
CLASS II LASER PRODUCT  
THIS PRODUCT COMPLIES WITH  
21 CFR 1040.10 AND 1040.11

■ Measuring range : 0~500°C  
(Detecting temperature range)

■ Coaxial laser marker

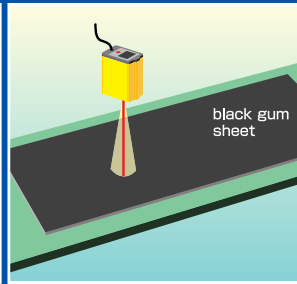
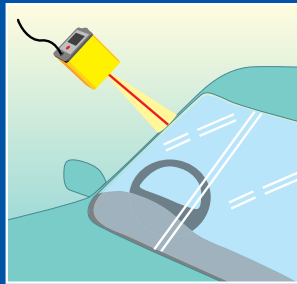
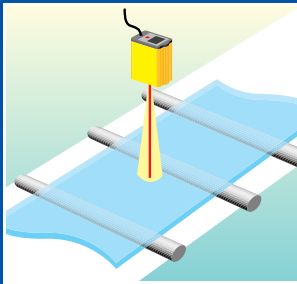
■ Built-in digital display

■ photo MOS relay output

Application example  
Presence detection of the lid of ice cream

# THERMO-HUNTER BUILT-IN2 BA-30TC/BA-06TC

(photo MOS relay output type)



Temperature detecting of a transparent film. Temperature check of glass adhesion. Presence detection of gum sheet.

## BA series Information

Analogue output Type.

**BA-30TA/BA-30TV**  
**BA-06TA/BA-06TV**  
TA type...4-20mA output  
TV type...1mV/C output



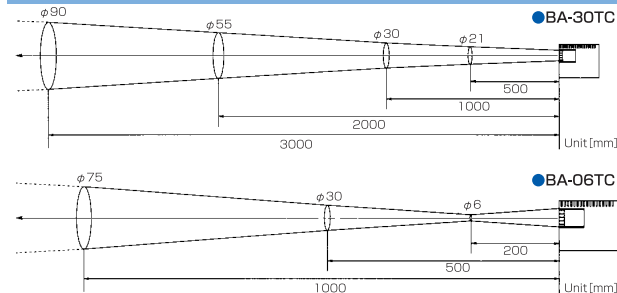
### Specifications

Model	BA-30TC	BA-06TC
Temperature Range	0~500°C (display ~20~520°C)	
Area Size	φ30mm/1000mm	φ6mm/200mm
Optics	Silicon lens	
Sensing element/wavelength	Thermopile/8~14μm	
Response Time	500ms/90%	
Accuracy	±1% of reading value or ±2°C±1 digit, whichever is greater (ε≠1.0)	
Repeatability	±1°C of reading value	
Display Resolution	1°C	
Relay output	Photo Mos relay output, 350mA-DC100V Max	
Output renewal interval	50msec	
Sighting Method	Coaxial laser marker	
Emissivity ratio (ε) Adjustment	0.10~1.20	
Delay Function	1~200(0.5~10sec) Variable	
Power Supply	DC12~24V±10%/MAX150mA	
Ambient temperature	0~50°C	
Environmental Humidity	35~85%RH (without dew condensation)	
Storage Temperature	-10~60°C	
Vibration Resistance	3G(20~50Hz, according to JIS C0911)	
Water Resistance	IP65	
Materials	Ring case : glass-containing PBT, Rear cover : pc	
Weight	360g	

Accessories : Attachment Fitting×1, M4 screw×2

\*Design and specifications are subject to change for product improvement without prior notice.

### Field of View



\*The laser marker is aimed at the center of the measuring area.  
\*The optical resolution values stated in "Field of View" are at 90% energy.  
\*The size of measuring object should be sufficiently larger than the "Field of View" (spot size) shown in the above illustration.

### Option

#### <Option>Black Tape



**HB-250**

- Dimensions 60mm×2000mm
- Withstand heat up to 250°C

#### [Hint for accurate measurement]

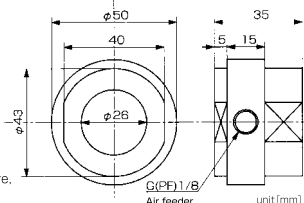
The black tape (HB-250) is designed for more accurate measurement, especially if the target object has a shiny surface. Apply HB-250 on the surface of the target and measure the area covered by HB-250 with emissivity setting at 0.95.

#### Adaptable to dusty environments Air purge collar

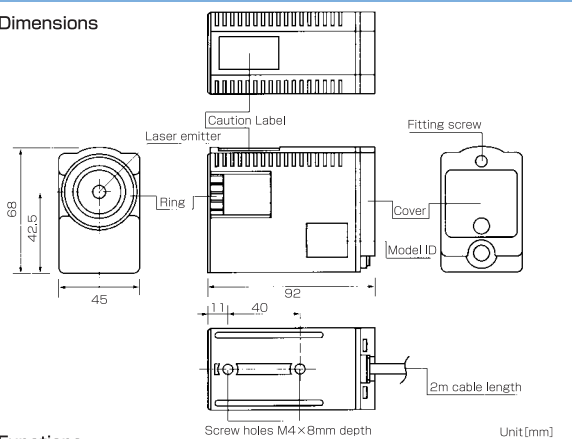


**BA-AP1**

Air purge collar is used keep dusts, moisture, airborne particles and vapors away from the lens.

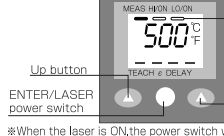


### Dimensions



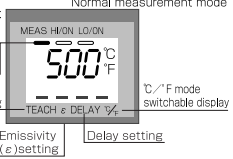
### Functions

#### Operation parts

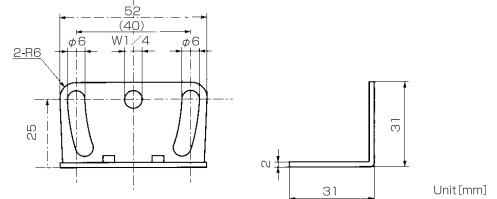


\*When the laser is ON, the power switch will turn red.

#### Display part



### Fixture



### Safe Usage

**WARNING**

Do not look into the laser or direct it toward the eyes. Even the reflection is harmful. Laser may cause eye injury or damage your health.

**CAUTION**

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

### Environmental Warnings

- KEEP THE THERMOMETER AWAY FROM DIRECT SUNLIGHT, DUST, HIGH TEMPERATURES AND HIGH HUMIDITY WHILE IN USE AND STORAGE. This may cause irreparable damage or incorrect measurement.
- DO NOT EXPOSE THE THERMOMETER TO SUDDEN TEMPERATURE CHANGES. Sudden temperature change of the environment may cause incorrect measurement. In such cases, wait until the thermometer reaches steady temperature before taking measurement.
- KEEP THE THERMOMETER AWAY FROM STRONG ELECTROMAGNETIC SOURCES, CORROSIVE OR EXPLOSIVE GASES. This may cause irreparable damage or incorrect measurement.

### Usage Warnings

- AVOID MEASURING SHINY SURFACES. Shiny surfaces reflect radiation from surrounding objects. Although the emissivity ratio can be adjusted to compensate for this problem, accurate measurement is difficult.
- USE THE CORRECT VOLTAGE. Applying voltages other than 12-24VDC may cause short-circuit, damages, fire or injury. In such cases, turn the power off immediately.
- DO NOT LET THE THERMOMETER TOUCH THE OBJECTS THAT IS BEING MEASURED. The unit is a non-contact thermometer. Touching or getting too close to the objects with high temperatures may cause irreparable damage or incorrect measurement.
- DO NOT TOUCH THE LENS. Do not touch the lens with anything hard or things with sharp points, which may damage the lens. A damaged lens causes incorrect measurement.
- KEEP THE THERMOMETER AWAY FROM CHARGED OBJECTS. This may cause irreparable damage or incorrect measurement.

Products mentioned in this catalogue are equipped with Class 2 laser.  
In case of re-export to foreign countries, please confirm the relevant regulation for laser products in the destination country.

**R100**



**OPTEX**

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TEL +81-77-524-6049 FAX+81-77-524-1491  
URL : www.optex.co.jp/meas  
e-mail : meas@optex.co.jp

No.74078-00-11142-0212



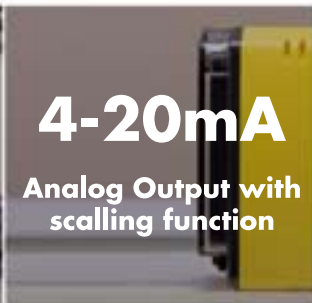
Wide Range Measurement

**400 to 1200°C**



**2 · 5 · 10m**

3 types of Fiber length



**4-20mA**

Analog Output with  
scaling function



**M16**

Compact  
Sensor Head



**150°C**

Heatproof  
(Sensor Head)



**Teach  
function**

Teach function

## Features

### ■ Reliable Functions

- 400 to 1200°C Wide Range Measurement
- 4 to 20mA Analog Output with scaling function
- ε-TEACH function for automatic emissivity adjustment
- High-speed response time 50ms / 90%

### ■ Tough and Heavy-Duty

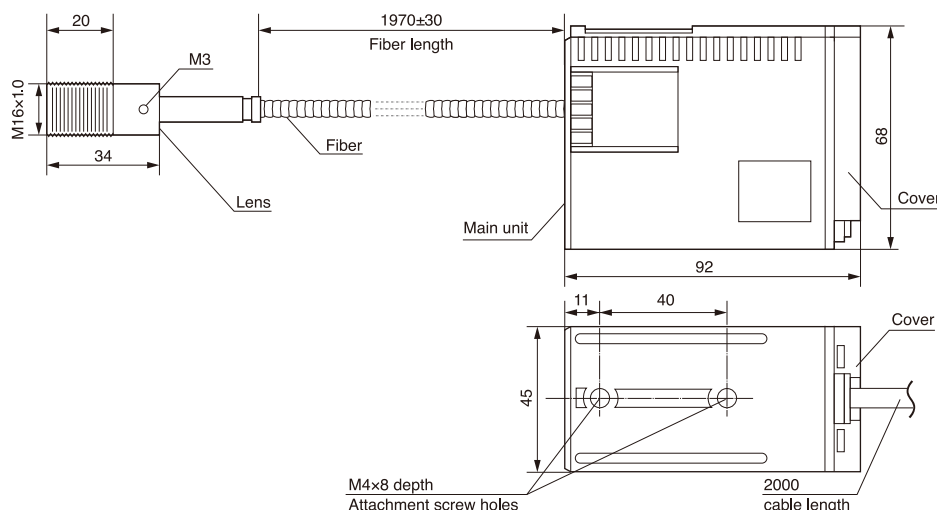
- Sensor head withstands up to 150°C (302°F) ambient temperature without the need for additional cooling
- Compact design allows installation in small confined spaces
- Tough fiber optic cable assembly for harsh environments
- 3 fiber optic cable lengths are available (2m Standard, 5 and 10m optional)

## Dimensions

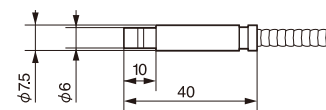
Unit [mm]

### Main Unit

〈with BFL-30/Standard lens〉



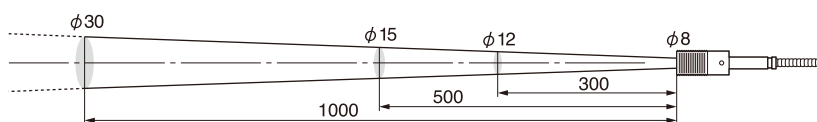
〈without lens〉



## Field of View

Unit [mm]

### BFL-30/standard lens

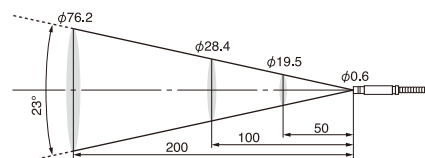


\*Calibration at the factory is done with BFL-30 standard lens.

The optical resolution values stated in "Field of View" are at minimum 90% energy.

The size of measuring object should be sufficiently larger than the field of view (spot size) shown in the above illustration.

### without lens



## Specifications

Model	BF-30I-A
Measuring temperature range	400-1200°C
Area size	φ30 / 1000mm
Optics	Infrared sensor head
Spectral response	InGaAs / 1.2-2.6μm
Response speed	50ms / 90%
Accuracy	±2% of reading value
Repeatability	±1°C
Display resolution	1°C
Analog output	4-20mA
Output resolution	0.1-0.5°C (Depending on the setting value <100-800°C> of "High Limit"-"Low Limit")
Emissivity ratio (ε) adjustment	0.10-1.20
Delay function	Normal 1-200 variable
Power supply	DC12-24V±10% / MAX100mA
Ambient temperature	0-50°C (32-122°F) (Amplifier unit) 0-150°C (32-302°F) (Sensor head)
Environmental humidity	35-85%Rh (without dew condensation)
Storage temperature	-10 to +60°C (14 to 140°F)
Vibration resistance	10-55Hz, amplitude 1.5mm, two hours each in the direction of X, Y, Z
Water resistance	IP65
Materials	Ring, Case : glass-containing PBT, Rear : PSF, Cover : PC, Fiber : SUS, Lens attachment : BS/Ni-M
Weight	500g
Accessories	Attachmentx1, M4 screwx2, Nut for lens (M16) x2

※Design and specification are subject to change for product improvement without prior notice.

## Cautions

This product is made from Glassfiber and extremely sensitive to shock and bending. The followings are the instruction so you would not break the fiber optics by rough treatment.

1. DO NOT PULL THE FIBER.
2. DO NOT GIVE SHOCK.
3. BENDING RADIUS= min.50mm

## Safe Usage

This user's 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.

- ⚠ This symbol signifies a prohibited action.
- Ⓢ This symbol signifies a required action.

## Environmental Warnings

- ⚠ **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 CHANGE OF ENVIRONMENTAL TEMPERATURES TO THE THERMOMETER.**  
Sudden temperature changes of environments 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 measurements.
- ⚠ **KEEP THE THERMOMETER AWAY FROM PRODUCTS WHICH PRODUCE STRONG ELECTROMAGNETIC WAVES. DO NOT USE IN AN ATMOSPHERE CONTAINING CORROSIVE GASES OR EXPLOSIVE GASES.**  
Usage in such environments will cause irreparable damages to the unit and incorrect measurements.

## Usage Warnings

- ⚠ **AVOID MEASURING SHINY OBJECTS.**  
Shiny objects reflect surrounding temperatures. The emissivity rate of the unit can be adjusted to compensate for this problem.
- ⚠ **DO NOT USE WITH NON-STANDARD VOLTAGE.**  
Using the unit out of DC 12-24V 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 ELECTRIFIED OBJECTS.**  
Otherwise, irreparable damages or incorrect measurements will result.

## Note On Export

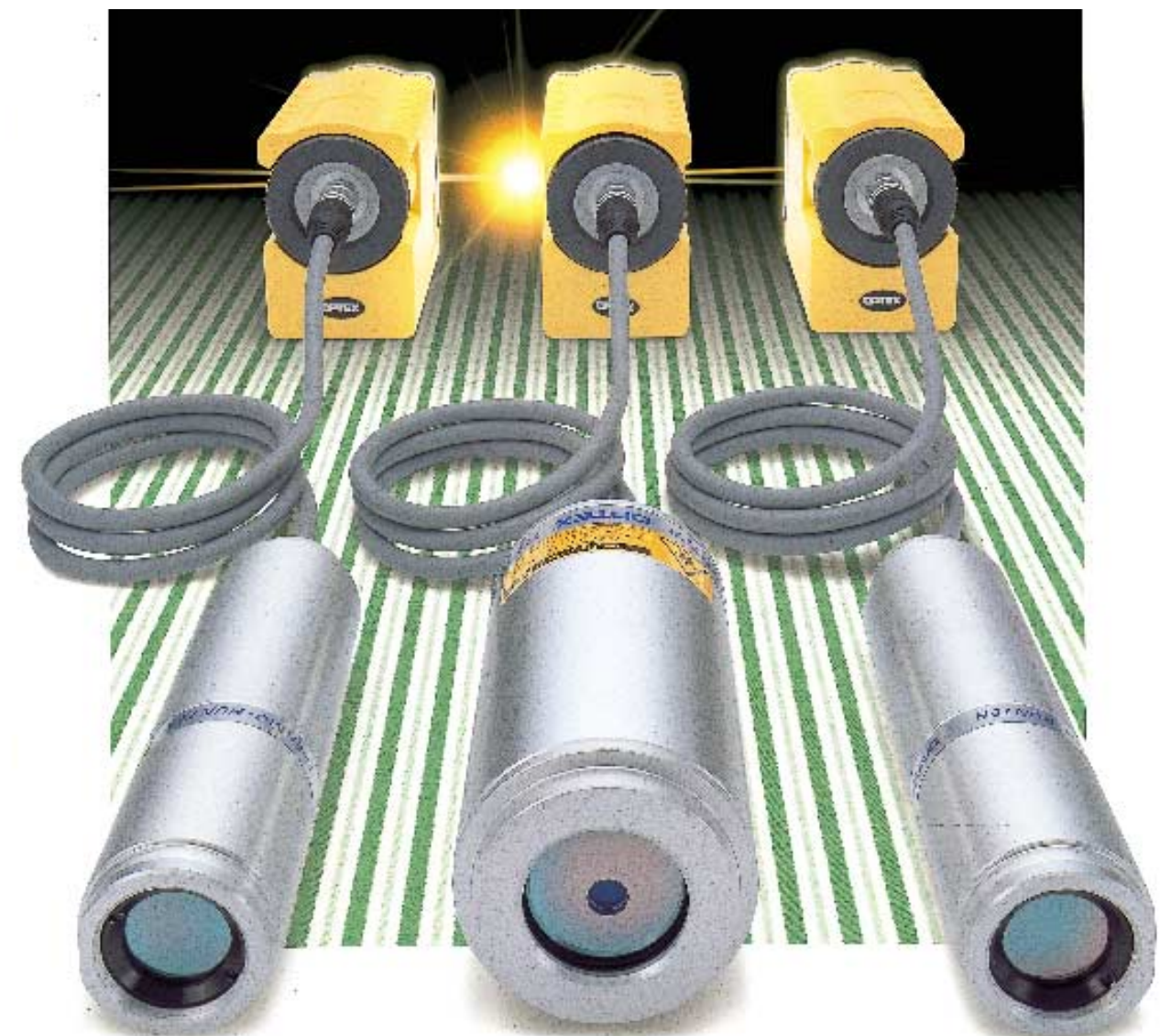
Please note that the fiber, which is the material of this product, falls under the regulated item of the Export Trade Control Order.





## Separate Sensor for Flexible Installation

3 Different Sensor Models for Standard Focus, Narrow Focus and Fine Spot Measurement



- Measuring range: 0 to 500°C
- Quick response: 500msec
- Amplifier unit with integrated digital display
- ε-TEACH function for easy emissivity adjustment
- Analog output: 4—20mA or 1mV/°C

BS-30T Sensor  
 BS-05T Sensor  
 BS-02T Sensor  
 BS-A Amplifier  
 BS-V Amplifier



Note: A sensor and an amplifier form one complete set. They do not function individually.

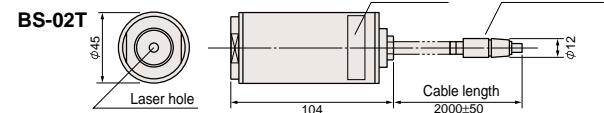
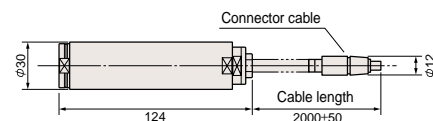
### SPECIFICATIONS

Sensor head				Amplifier		
Model	BS-30T	BS-05T	BS-02T	Model	BS-V	BS-A
Field of view	ø30/500mm	ø5/100mm	ø2/50mm	Measuring range	0 to 500°C	
Optics	Silicon lens			Display range	-20 to 520°C	
Sensing element/Wavelength	Thermopile/8 to 14µm			Response time	500msec./90%	
Sighting method	N/A		Coaxial laser marker (Class 2)	Accuracy (± 1.0)	±1% of reading value or ±2°C whichever is greater	
Ambient temperature	0 to 65°C (0 to 150°C: with optional cooling jacket)		0 to 50°C	Repeatability	±1°C of reading value	
Environmental humidity	35 to 85%RH (without dew condensation)			Display resolution	1°C	
Storage temperature	-20 to 70°C		-20 to 60°C	Analog output	1mV/°C	4 — 20mA
Vibration resistance	3G (20 — 50Hz, in accordance with JIS C0911)			Output resolution	0.2°C	
Water resistance	IP67			Emissivity ratio (ε) adjustment	0.10 to 1.20 (0.01/1 step)	
Weight	300g		400g	Delay setting	1 (0.5sec) to 200 (approx. 10sec) variable	
Optional accessories	Refer to the Optional Accessory Table of the previous page			Power supply/Current consumption	DC12 — 24V±10%/Max 100mA	
* A sensor and an amplifier form one complete set. They do not function individually.				Ambient temperature	0 to 50°C	
* Specifications may change without prior notice.				Environmental humidity	35 to 85%RH (without dew condensation)	
				Storage temperature	-20 to 60°C	
				Vibration resistance	3G (20 — 50Hz, in accordance with JIS C0911)	
				Water resistance	IP65	
				Weight	320g	
				Standard accessories	Fixture x 1, M4 screw x 2	

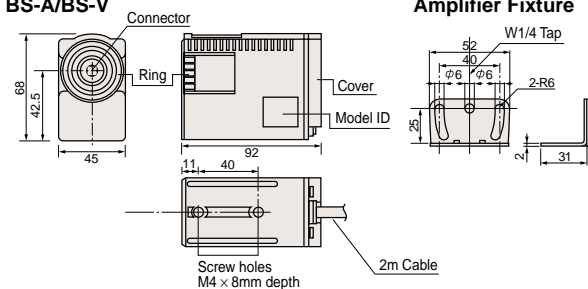
\* A sensor and an amplifier form one complete set.  
 They do not function individually.  
 \* Specifications may change without prior notice.

### DIMENSIONS

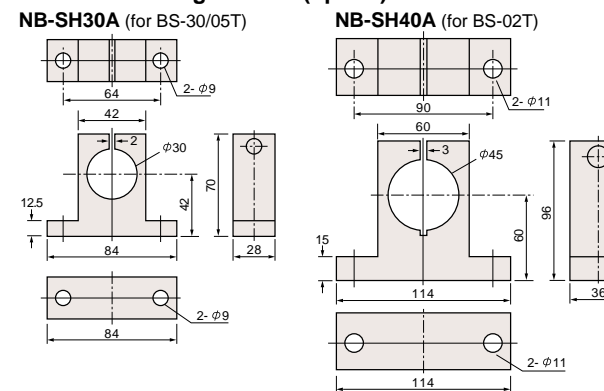
#### • Sensor Head BS-30T/BS-05T



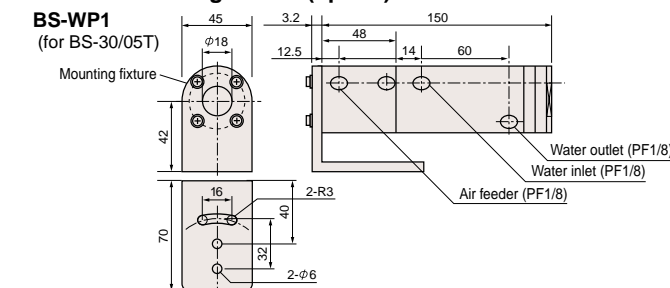
#### • Amplifier BS-A/BS-V



#### • Sensor Mounting Bracket (option)



#### • Air/Water Cooling Jacket (option)



#### Safety Guidelines



BS-02T is Class 2 laser products.

Products mentioned in this catalogue are equipped with Class 2 laser.  
 In case of re-export to foreign countries, please confirm the relevant regulation for laser products in the destination country.

<b>WARNING</b>	Do not look into the laser nor direct it toward the eyes. Even the reflection is harmful. Laser may cause eye injury or damage your health.
<b>CAUTION</b>	This product is not a clinical thermometer; therefore, it cannot be used for medical purposes.

#### Environmental Warnings

- KEEP THE THERMOMETER AWAY FROM DIRECT SUNLIGHT, DUST, HIGH TEMPERATURES AND HIGH HUMIDITY WHILE IN USE AND STORAGE.  
This may cause irreparable damage or incorrect measurement.
- DO NOT EXPOSE THE THERMOMETER TO SUDDEN TEMPERATURE CHANGES.  
Sudden temperature change of the environment may cause incorrect measurement. In such cases, wait until the thermometer reaches steady temperature before taking measurement.
- KEEP THE THERMOMETER AWAY FROM STRONG ELECTROMAGNETIC SOURCES, CORROSIVE OR EXPLOSIVE GASES.  
This may cause irreparable damage or incorrect measurement.

#### Usage Warnings

- AVOID MEASURING SHINY SURFACES.  
Shiny surfaces reflect radiation from surrounding objects. Although the emissivity ratio can be adjusted to compensate for this problem, accurate measurement is difficult.
- USE THE CORRECT VOLTAGE.  
Applying voltages other than 12-24VDC may cause short-circuit, damages, fire or injury. In such cases, turn the power off immediately.
- DO NOT LET THE THERMOMETER TOUCH THE OBJECTS THAT IS BEING MEASURED.  
The unit is a non-contact thermometer. Touching or getting too close to the objects with high temperatures may cause irreparable damage or incorrect measurement.
- DO NOT TOUCH THE LENS.  
Do not touch the lens with anything hard or things with sharp points, which may damage the lens. A damaged lens causes incorrect measurement.
- KEEP THE THERMOMETER AWAY FROM CHARGED OBJECTS.  
This may cause irreparable damage or incorrect measurement.



No. 74040-03-09785-0306

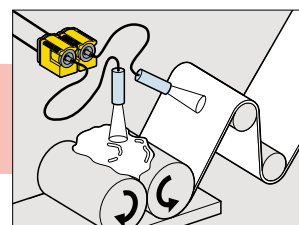
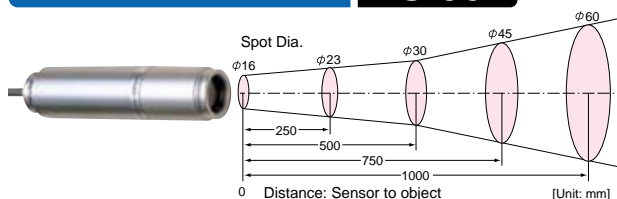


# 3 Types Of Field Of View Covers A Wide Range Of Applications

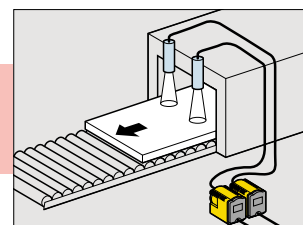
The BS Series are non-contact thermometers with separate sensor and amplifier units. The connector cable can be extended with optional cable. The TEACH function that simplifies emissivity adjustment and the integrated display unit of amplifiers make operation so much easier. You can choose from 3 types of sensor and 2 amplifier units along with a wide variety of optional parts to match your requirements. OPTEX is the answer to your special needs.

## Standard Focus Type

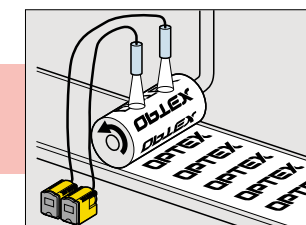
**BS-30T**



Temperature control during rubber forming



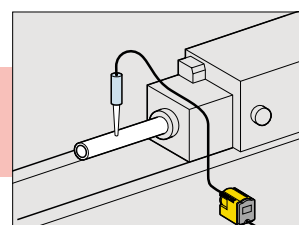
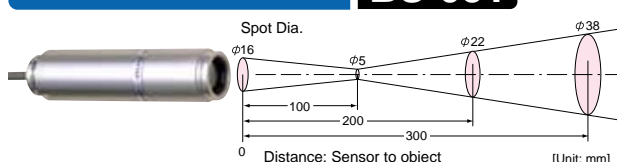
Temperature measurement of painted surface



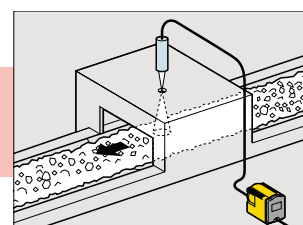
Temperature monitoring of a printing roller

## Narrow Focus Type

**BS-05T**



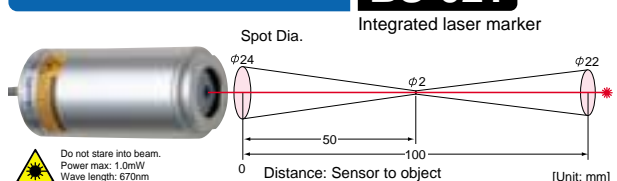
Temperature check in rubber hose manufacturing



Overheating check of coal

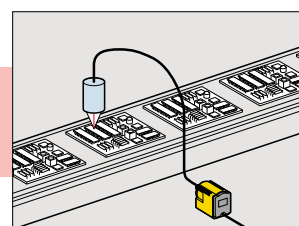
## Fine Spot Type

**BS-02T**



### Remarks

The optical resolution values stated in "Field of View" are at 90% energy. The size of the target object should be sufficiently larger than the field of view (spot size) shown in the above illustration. Especially, the fine spot type BS-02T requires the target object should be approx. 1.5 times larger than the spot size.



Abnormal heating check of printed boards

## 8m Extension Cable

**BS-EC8**

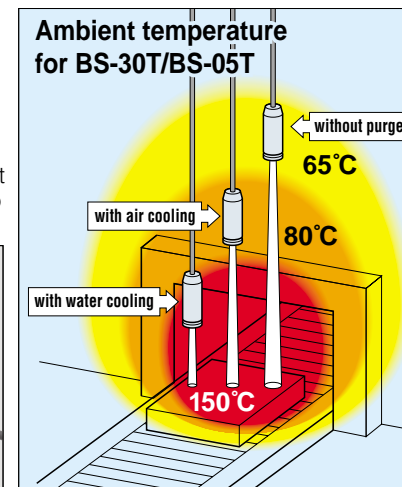
Just as the 2m cable that comes with all sensor models, this 8m cable can also withstand heat up to 150°C. 10m cable length gives enough room for all the twists and turns to make installation easier.



## Air Purge/Water Cooling Jacket

**BS-WP1** (BS-30T/BS-05T)

Use of an air purge/water cooling jacket significantly improves sensor's ability to operate in various environment.



## Water cooling

Water cooling only. Air purge can be used simultaneously for blowing dust away.

Ambient temperature: up to 150°C  
Water flow: 0.5 to 2l/min  
Water temperature: 30°C or less  
Water pressure: 1kgf/cm<sup>2</sup> or less

## Air cooling

Blown air also removes dust from the lens, besides cooling.

Ambient temperature: up to 80°C  
Air flow: 50 to 150 Nl/min  
Air temperature: 20°C  
Air pressure: 2kgf/cm<sup>2</sup>

## (Option) Black Tape

**HB-250**



### Hint for accurate measurement

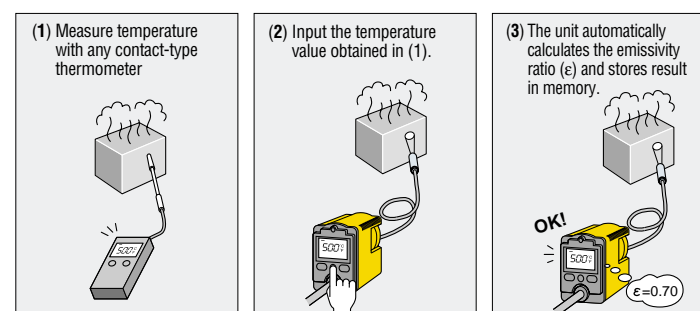
The black tape (HB-250) is designed for more accurate measurement especially if the target object has a shiny surface. Apply HB-250 on the surface of the target and measure the area covered by HB-250 with emissivity setting at 0.95.

- Dimensions 60mm x 2000mm
- Withstand heat up to 250°C

## BS-A/BS-V

### TEACH Function Simplifies Emissivity Adjustment

Enter the temperature measured by a contact-type thermometer (thermocouples, etc.) just once and the rest is automatic. The unit calculates the emissivity ratio ( $\epsilon$ ) and memorizes the result. (You may also manually adjust emissivity ratio)



### Integrated Digital Display

The large and easy-to-see integrated digital display on the amplifier unit makes remote operation easy.

### 2 Types of Analog Output

Choose one of 2 types of amplifier unit, the current output type BS-A (4—20mA) and the voltage output type BS-V (1mV/°C) whichever suits your control device.

## Sensor Mounting Bracket

**NB-SH30A**  
(BS-30T/BS-05T)  
**NB-SH40A**  
(BS-02T)



Sensor mounting brackets are different in size. Please refer to the DIMENSIONS on the back cover.

## Optional Accessory Table

Sensor	BS-30T	BS-05T	BS-02T
Option			
BS-EC8	●	●	●
BS-WP1	●	●	N/A
NB-SH30A	●	●	N/A
NB-SH40A	N/A	N/A	●





## Non-contact thermometer

High performance in harsh environment  
Compact and rugged sensor head

**THERMO-HUNTER®**

# CS series

-40 to 500°C

# CS-HT series

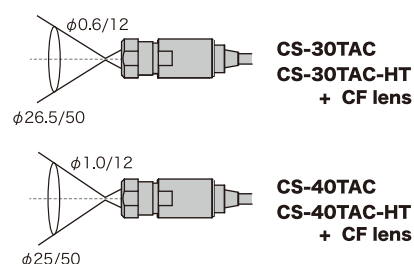
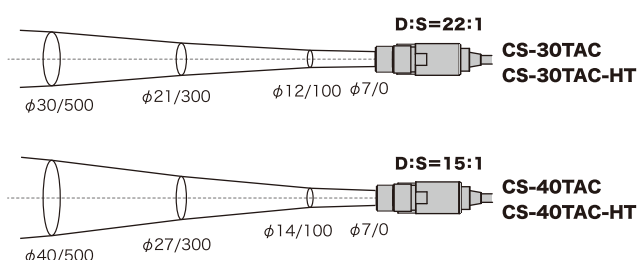
0 to 1000°C



## Features

- Smallest sensor head worldwide, installable in a limited space
- Usable up to 180°C ambient temperature without cooling
- Highest waterproof rating IP69K
- Unique water repellent coating, easy maintenance
- 4 kinds of Optical specification
- Large digital display with 7-segment LED
- Easy temperature adjustment - 2 points teaching function

## Optical Specifications



(mm)

- ※ The optical resolution value stated above are at minimum 90% energy.
- ※ The size of measuring object should be sufficiently larger than the spot size.
- ※ CF lens requires the target object should be approx. 1.5 times larger than the spot size.

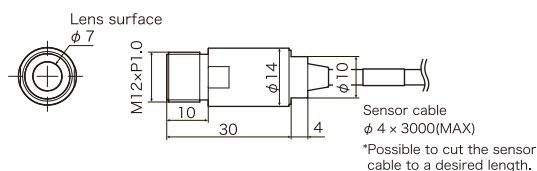
## Specifications

Model	CS-30TAC	CS-40TAC	CS-30TAC-HT	CS-40TAC-HT
Temperature range	−40 to 500°C		0 to 1000°C	
Optical resolution (D:S)	ϕ30/500mm (22:1)	ϕ40/500mm (15:1)	ϕ30/500mm (22:1)	ϕ40/500mm (15:1)
Sensing element/Spectral response	Thermopile / 8 to 14μm			
System accuracy	−40 to 0°C:±3°C 1 to 500°C:±1% of reading or ±2°C, whichever is greater		±1% of reading or ±2°C, whichever is greater	
Repeatability	±0.5% of reading or ±0.5°C, whichever is greater			
Emissivity adjustment (ε)	0.1 to 1.2			
Temperature resolution	1°C			
Response time	150msec/90%			
Outputs	Analog output / 4-20mA(Output resolution 0.5°C) accuracy:±0.5% or ±1% Updating time:10msec Allowable load: 250Ω Impedance:47Ω Contact output / Photo MOS FET x2 (c contact x2), 300mA/30VDC or less			
Interface	Digital output			
Inputs	Synchronous trigger/Wave trigger/Bank switching function (4BANK)			
Display	7 segments LED			
Power supply	12 to 24VDC ±10%			
Current consumption	120mA (Normal) / Less than 80mA (ECO mode)			
Ambient temperature	0 to 100°C (Sensing head)		0 to 180°C (Sensing head)	
Relative humidity	35 to 85%Rh (non-condensing)			
Protection class	IP69K (Sensing head) / IP40 (Amp.)			
Vibration resistance	10 to 55Hz, amplitude 1.5mm, 2hours each in any axis			
Materials	Stainless (Sensing head) /ABS (Amp.)			
Cable length	3m			
Installation	Pannel mounted / DIN rail attached			
Dimension	M12(ϕ14)×34mm(Sensing head)/ 35×52×38.5mm(Amp.)			
Weight	100g (Sensing head), 200g (amp.)			

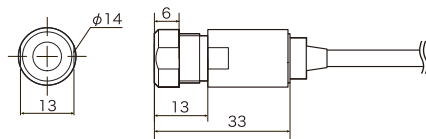
\*Specifications subject to change without notice.

## Dimensions

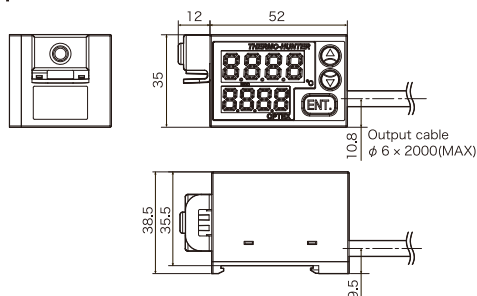
### ● Sensor head



### ● Sensor head + CF lens



### ● Amplifier



[mm]

## Optional Accessories



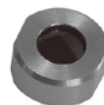
Air Purge Collar



Laser Marker



Sensor Mounting Bracket



CF lens



Protection Jacket for amplifier

# OPTEX CO., LTD.

5-8-12 Ogoto Otsu, Shiga, 520-0101 Japan  
Tel : +81-77-579-8680 Fax : +81-77-579-8199  
URL : <http://www.optex.co.jp>





Single  
Touch

**Quick!**  
Non-Contact Temperature Measurement  
Easy-to-Carry Pocket-Sized Body

Compact

CE

## OPTEX Product Information

Portable  
Non-Contact  
Thermometer

*THERMO-HUNTER*

**PT-2 series**

(1°C display resolution)

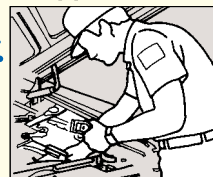
**PT-02 series**

(0.1°C display resolution)

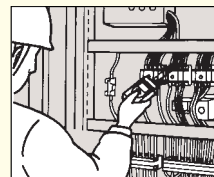
Made  
in  
Japan

- Measuring temperature range  
PT-2 series : -40 to 510° C  
PT-02 series : -40 to 200° C
- Quick response : 0.8sec (PT-2 series)
- Display resolution : 0.1° C (PT-02 series)
- Field of View : □100/1000mm
- Large, easy-to-view LCD display
- Laser beam guide & backlight  
(PT-2LD & PT-02LD)

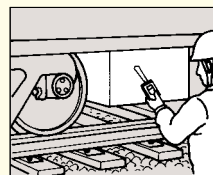
### Applications



Motor/Machine



Electric Wiring / Transformer



Transport/Automotive



Freezer / Refrigerator



**CAUTION**  
DO NOT STARE INTO BEAM  
LASER DIODE POWER MAX1.0mW  
WAVE LENGTH 670nm  
CLASS2 LASER PRODUCT

**CAUTION**  
LASER RADIATION  
DO NOT STARE INTO BEAM  
670nm/1.0mW MAX  
CLASS 2 LASER PRODUCT  
THIS PRODUCT COMPLIES WITH  
21 CFR 1040.10 AND 1040.11

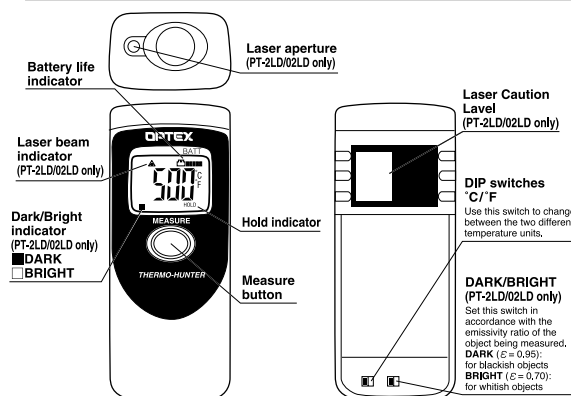
# PT-2/02series Portable Non-Contact Thermometer

## Specifications

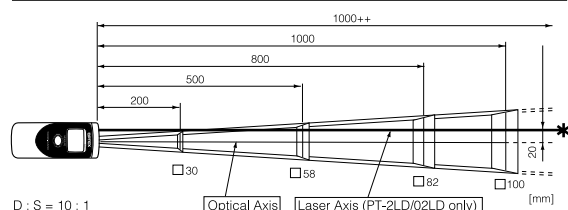
Model	PT-2L	PT-2LD	PT-02L	PT-02LD
Measuring range	-40 to 510°C (-40 to 950°F)		-40 to 200°C (-40 to 392°F)	
Display range	-51 to 538°C (-60 to 1000°F)		-50 to 230°C (-58 to 446°F)	
Field of view	□ 100/1000mm (D: S=10:1) square spot			
Optics	mirror/silicon filter			
Sensing element/Wavelength	Thermopile/8 to 14μm			
Response time	0.8sec/90%		1.5sec/90%	
Accuracy ( ε ≒ 0.95, at 25°C ±3°C )	Less than 0°C : ±3°C; 0°C to 200°C : ±2°C; Above 200°C: ±1% of reading value (Less than 32°F : ±6°F; 32 to 400°F : ±4°F; Above 400°C: ±1% of reading value)		Less than 0°C : ±3°C; 0°C to 200°C : ±2°C (Less than 32°F : ±6°F; 32 to 400°F : ±4°F)	
Repeatability	±1°C (2°F) of reading value		±0.5°C (1°F) of reading value	
Display resolution	1°C / °F		0.1°C / °F (Above 200°C / °F: 1°C / °F)	
Sighting method	N/A	Blinking laser marker	N/A	Blinking laser marker
Emissivity ratio (ε) adjustment	0.95	0.95/0.7 (Switchable)	0.95	0.95/0.7 (Switchable)
Back-light function	N/A	Available	N/A	Available
Temperature unit	°C/°F (Switchable)			
Power supply	AA (Alkaline battery) x 2pcs.			
Battery life (Alkaline)	Approx. 60 hours	Approx. 30 hours	Approx. 60 hours	Approx. 30 hours
Ambient temperature	0 to 50°C (32 to 120°F)			
Ambient humidity	35 to 85%RH (Without dew condensation)			
Storage temperature	-10 to 60°C (14 to 140°F)			
Dimensions	H x W x D = 140 x 56 x 37mm			
Weight (Incl. battery)	175g	180g	175g	180g

Standard accessories : "AA" (Alkaline Battery) x 2pcs. Optional accessories : Black tape, Protective pouch  
\* Design and specifications may change for product improvement without prior notice.

## Display and Functions



## Field of View



D : S = 10 : 1  
\* The laser axis (PT-2LD/02LD only) is located 20mm left from the optical axis.  
\* The optical resolution values stated in "Field of View" are at 90% energy. The size of target object should be sufficiently larger than the field of view (spot size) shown in the above illustration.

## Safe Usage

<b>WARNING</b>	Do not look into the laser beam, nor point it directly at eyes. Even the reflection is harmful. This laser may cause eye injury or damage to your health. (PT-2LD/02LD only)
<b>CAUTION</b>	This product is not a clinical thermometer; therefore, cannot be used for medical purposes.

## Environmental Warnings

- ⚠ **AVOID GETTING THE THERMOMETER WET. DO NOT USE IN WATER.**  
This thermometer is not waterproof.
- ⚠ **KEEP THE THERMOMETER AWAY FROM STRONG ELECTROMAGNETIC SOURCES OR LARGE ELECTROMAGNETIC FIELDS.**  
Usage in such environments may cause irreparable damage or incorrect measurement.
- ⚠ **KEEP THE THERMOMETER AWAY FROM DIRECT SUNLIGHT, DUST, HIGH TEMPERATURES AND HIGH HUMIDITY DURING USE AND STORAGE.**  
This may cause irreparable damage or incorrect measurement.
- ⚠ **DO NOT EXPOSE THE THERMOMETER TO SUDDEN TEMPERATURE CHANGES.**  
Sudden temperature change of the environment may cause incorrect measurement. In such cases, wait until the thermometer reaches steady temperature before taking measurement.

## Usage Warnings

- ⚠ **AVOID MEASURING SHINY OBJECTS.**  
Shiny objects, of which emissivity value is low, reflect surrounding temperatures. As this thermometer's sensitivity to emissivity is fixed at 0.95/0.70, the displayed temperature could differ from the actual temperature of the object, which has the different emissivity value. When you wish to measure shiny objects like metals, put a piece of optional black tape or apply black paint/marker on the surface and measure the masked area using emissivity setting of 0.95.
- ⚠ **DO NOT LET THE THERMOMETER TOUCH THE OBJECT THAT IS BEING MEASURED.**  
This is a non-contact thermometer. Touching or getting too close to the objects with high temperatures may cause irreparable damage or incorrect measurement.

Products mentioned in this catalogue are equipped with Class 2 laser.  
In case of re-export to foreign countries, please confirm the relevant regulation for laser products in the destination country.

### [Option] Black Tape HB-250



- Dimensions: 60 x 2000mm
- Withstand heat up to 250°C

### [Hint for accurate measurement]

The black tape (HB-250) is designed for more accurate measurement, especially if the target object has a shiny surface. Apply HB-250 on the surface of the target and measure the area covered by HB-250 with emissivity setting at 0.95.

### [Option] PH-3



Protective Pouch for PT-2&3 with tear window & belt clip.



Easy to carry with detachable belt clip.



No. 74037-03-0909-0304



# PT-3LF

Portable Non-contact Thermometer

## Specifications

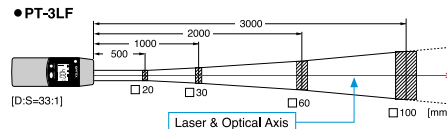
Model	PT-3LF
Measuring Range	-20 to 400°C (Display -30 to 430°C)
Field of View	□30/1000mm
Optics	Silicon Lens
Sensing element/Wavelength	Thermopile/8 to 14 μm
Response time	1.5sec/90%
Accuracy (ε=0.95, at 25°C ±3°C)	±1% of reading value or ±2°C ±1 digit, whichever is greater
Repeatability	±1°C of reading value
Display resolution	1°C / F
Sighting method	Coaxial laser marker (Class 2)
Emissivity ratio (ε) Adjustment	DARK (ε=0.95)/BRIGHT (ε=0.70) Switchable
Back-light function	Auto ON/OFF
Temperature unit	°C / F Switchable
Measuring mode	NORMAL/MAX Switchable
Power supply	AA (Alkaline battery) x 2pcs.
Battery life (with alkaline battery)	Approx. 100 hours with back-light and laser marker OFF
Ambient temperature	0 to 50°C
Ambient humidity	35 to 85%RH (Without dew condensation)
Storage temperature	-20 to 60°C
Dimensions	162(H) x 52(W) x 32(D) mm
Weight (incl. batteries)	200g

Standard Accessory: "AA" (Alkaline Battery) x 2pcs.

Optional Accessory: Black tape, Protective pouch

\* Design and specifications may change for product improvement without prior notice.

## Field of View



\* The optical resolution values stated in "Field of View" are at 90% energy.

\* The size of the target object should be sufficiently larger than the Field of View (spot size) shown in the above illustration.

[Option]

PH-3



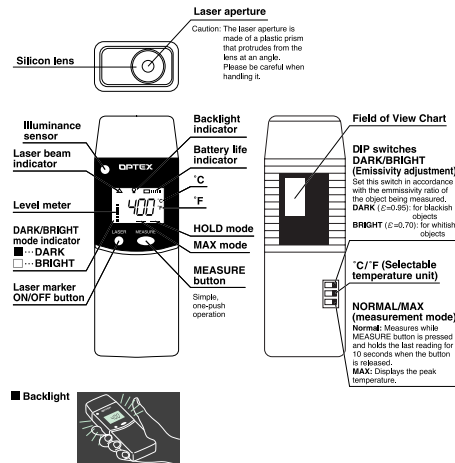
Able to operate without taking out of pouch. Just open the top flap and push MEASURE button.

Protective Pouch for PT-3LF with tear window & belt clip.



Easy to carry with detachable belt clip.

## Display and Functions



## Safe Usage

<b>WARNING</b>	Do not look into the laser beam, nor point it directly at eyes. Even the reflection is harmful. This laser may cause eye injury or damage to your health.
<b>CAUTION</b>	This product is not a clinical thermometer; therefore, cannot be used for medical purposes.

## Environmental Warnings

⚠ AVOID GETTING THE THERMOMETER WET. DO NOT USE IN WATER.  
This thermometer is not waterproof.

● KEEP THE THERMOMETER AWAY FROM STRONG ELECTROMAGNETIC SOURCES OR LARGE ELECTROMAGNETIC FIELDS.  
Usage in such environments may cause irreparable damage or incorrect measurement.

● KEEP THE THERMOMETER AWAY FROM DIRECT SUNLIGHT, DUST, HIGH TEMPERATURES AND HIGH HUMIDITY DURING USE AND STORAGE.  
This may cause irreparable damage or incorrect measurement.

● DO NOT EXPOSE THE THERMOMETER TO SUDDEN TEMPERATURE CHANGES.  
Sudden temperature change of the environment may cause incorrect measurement. In such cases, wait until the thermometer reaches steady temperature before taking measurement.

## Usage Warnings

● AVOID MEASURING SHINY OBJECTS.  
Shiny objects, of which emissivity value is low, reflect surrounding temperatures. As this thermometer's sensitivity to emissivity is fixed at 0.95(0.70), the displayed temperature could differ from the actual temperature of the object, which has the different emissivity value. When you wish to measure shiny objects like metals, put a piece of optional black tape or apply black paint/marker on the surface and measure the masked area using emissivity setting of 0.95.

● DO NOT LET THE THERMOMETER TOUCH THE OBJECT THAT IS BEING MEASURED.  
This is a non-contact thermometer. Touching or getting too close to the objects with high temperatures may cause irreparable damage or incorrect measurement.

Products mentioned in this catalogue are equipped with Class 2 laser. In case of re-export to foreign countries, please confirm the relevant regulation for laser products in the destination country.



"Take Care of the Environment"  
This catalogue uses recycled paper

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URL: www.optex.co.jp

No. 74065-01-0909-0109



## Best Seller

Portable Non-Contact Thermometers



### Features

- Measuring temperature range: -20 to 400°C
- Adjustable Emissivity (DARK/BRIGHT mode)
- Auto backlight ON/OFF display

**C**oaxial laser marker pinpoints the center of the measuring area.

**P**recise measurement with high optical resolution: □30mm at 1m distance

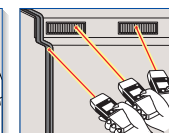
## Applications



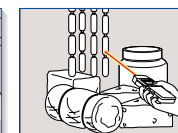
Electric Wiring



Motor/Machine



HVACR



Freezer/Refrigerator



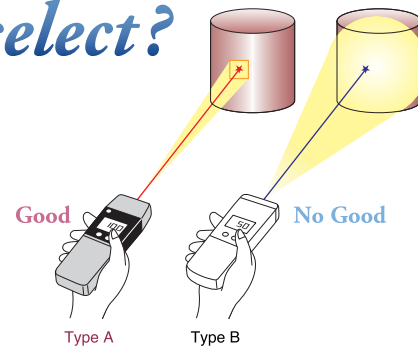
**CAUTION**  
DO NOT STARE INTO BEAM  
LASER RADIATION (MAX 1.0mW)  
CLASS II LASER PRODUCT

**CAUTION**  
LASER RADIATION  
DO NOT STARE INTO BEAM  
POWER 5mW MAX  
CLASS II LASER PRODUCT  
THIS PRODUCT COMPLIES WITH  
21 CFR 1040.10 AND 1040.11



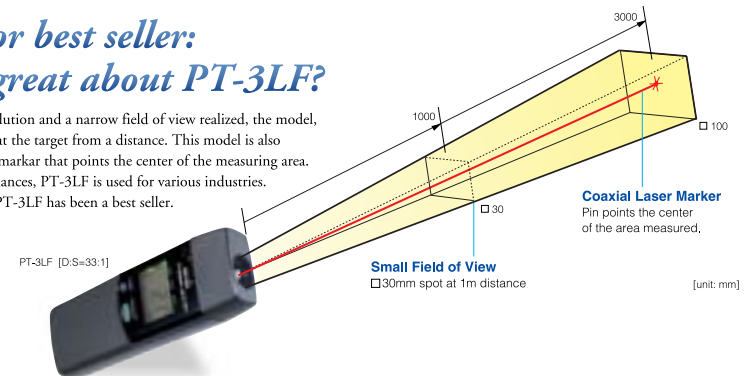
## Which do you select?

If you are going to get Portable Non-contact Thermometer, you had better choose the one which can measure small target from a distance. As the type A has narrow field of view, only the object can be measured. If you need precise measurement, you will select Type A.



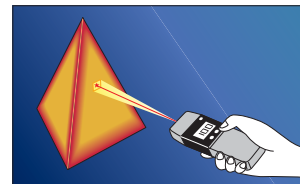
## Reason for best seller: What is great about PT-3LF?

With a high optical resolution and a narrow field of view realized, the model, PT-3LF enables to aim at the target from a distance. This model is also equipped with the laser marker that points the center of the measuring area. Because of such performances, PT-3LF is used for various industries. That is the reason why PT-3LF has been a best seller.



## What is a non-contact infrared thermometer?

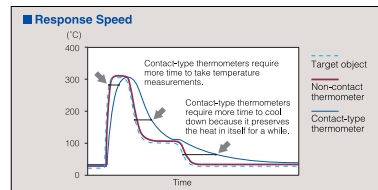
Every object emits invisible infrared (IR) energy from its surface. Non-contact thermometers instantly detect and convert the amount of infrared energy into a temperature value. The value indicated on LCD display is the average temperature within the area measured.



## The advantages of non-contact thermometer

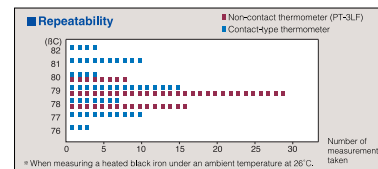
### Quick

It's so quick and easy — just press a button, and get the temperature in about a second. It is an ideal tool to improve your work efficiency.



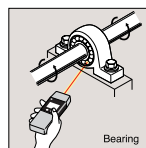
### Reliable

Repeatability is one of the important factors to prove how reliable a thermometer is. Unlike contact-type thermometers, the same temperature reading can be repeatedly measured even when it is taken by another person.



### Safe

Since it's non-contact, you can check the temperature of machinery in operation and equipments with high voltage or high temperatures from a safe distance.



### Clean

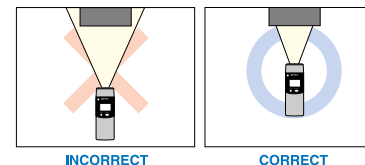
A non-contact thermometer enables you to detect temperatures of food and valuables without damaging them. It's absolutely non-contamination, hygienically clean.



## Questions & Answers

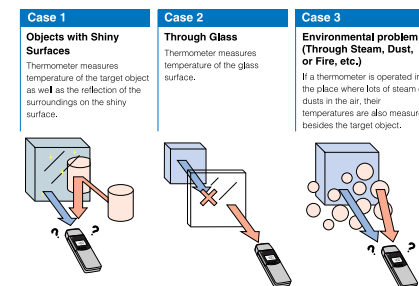
**Q1** How far can non-contact thermometer measure?  
Any difference in temperature according to the distance?

**A1** Non-contact thermometers can measure temperature from any distance. However, the farther the thermometer is to the object, the bigger the spot size. Please make sure the size of the target object should be sufficiently larger than the Field of View (spot size) shown in the illustration below.



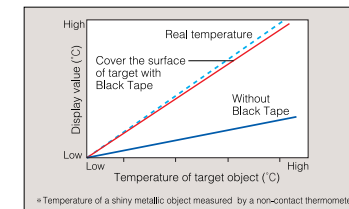
**Q2** Can non-contact thermometers measure any object?

**A2** Non-contact thermometers can measure the surface temperatures of any objects, liquid or solid, except for the cases shown below.



**Q3** How to measure shiny metallic surfaces?

**A3** As shiny objects like metals reflect surrounding infrared energy, the thermometer detects both reflected and emitted energy of the shiny object itself. When you wish to measure temperature of shiny object correctly, put a piece of optional black tape [HB-250 ( $\epsilon = 0.95$ )] on the surface; then measure the area covered by the black tape with emissivity setting at 0.95 (DARK mode).



[Option] Black Tape  
HB-250



• Dimensions: 60 x 2000mm  
• Withstand heat up to 250°C

### Emissivity ( $\epsilon$ )

Emissivity ratio is a value that indicates the infrared energy emitted from the surface of an object. Every object has its own emissivity value and it varies depending on the surface condition or the temperature of the object. Emissivity value ranges from 0.00 (shiny mirror) to 1.00 (black body), and the most common is 0.95. OPTEX non-contact thermometer PT-3LF is equipped with emissivity adjustment function of DARK ( $\epsilon = 0.95$ ) and BRIGHT ( $\epsilon = 0.70$ ) mode.

*Pen-type  
Non-contact Infrared  
Thermometer*

**$\phi$  2.5mm spot**

*of heat is measured.*

**Audible focussing  
guide** lets you  
know the best  
focus **lighten up**  
with **LED marker**.

**THERMO-HUNTER**

**PT-3S**



PHOTO: Actual Size



**Typical Application**

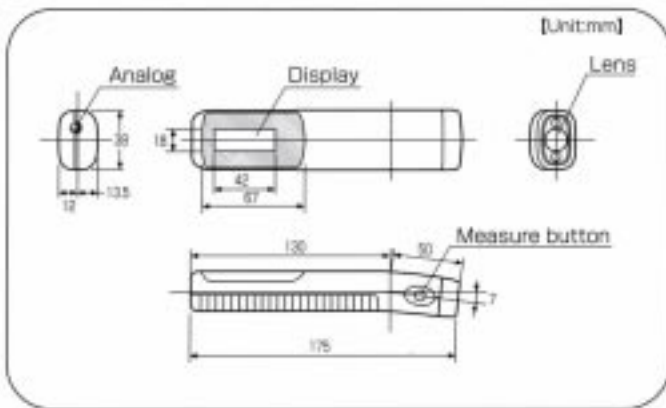
**Electric  
PC.Board**

- Minimum Spot Size :  $\phi$  2.5mm
- Audible Focussing Guide
- LED Spot Marker
- Display Range : -30 to 230°C
- Resolution : 0.1°C/°F
- Repeatability :  $\pm 1^\circ\text{C}$
- Analogue Output : (1mV/°C)

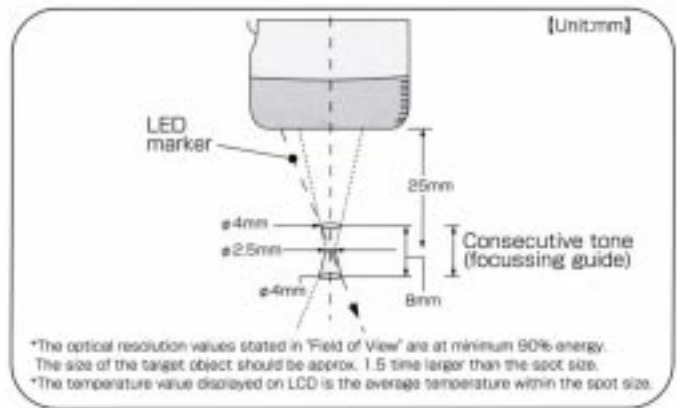




## Dimensions



## Field of View



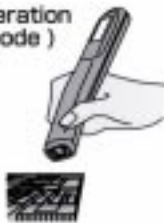
## Specifications

Model	PT-3S
Measuring range	0 to 200°C
Display range	-30 to 230°C
Field of view	φ2.5/25mm
Sensing element/ Wavelength	Thermopile/ 8 to 14μm
Response time	1.5sec./90%
Accuracy (ε=0.95 at 25°C±3°C)	±3°C of reading value
Repeatability	±1°C of reading value
Sighting method	Red LED spot marker
Display resolution	-30.0 to 199.9°C : 0.1°C 200 to 230°C : 1°C

Emissivity (ε) adjustment	DARK/BRIGHT (Switchable)
Temperature unit	°C/°F (Switchable)
Analog output	1mV/°C (°F)
Hold function	Normal/Max (Switchable)
Power supply	AAA alkaline dry battery x 3 piece
Battery life	Approx. 40 hours with alkaline battery
Ambient temperature	0 to 50°C
Weight	120g

Standard accessories: AAA alkaline dry battery x 3 piece, Analog output cable x 1, Pouch x 1  
Optional accessories: Flexible stand: S-01, Black tape: HB-100  
\*Specifications are subject to change for product improvement without prior notice.

## Easy operation (1 shot mode)



1 Press the Measure button to turn on the power.



2 Bring PT-3S close to the object with pressing the button. Consecutive tone guides you to optimum focus and distance.



3 The best focus of φ2.5mm spot is lightened up with LED when the marker looks clearest in the measuring distance of 25mm.



4 The display is held by releasing the button.

## Option

### Flexible Stand S-01



### Black Tape HB-100

[Basic Usage and Principles]

(3-inch for accurate measurement)  
The black tape (HB-100) is designed for more accurate measurement, especially if the target object has a shiny surface.  
Apply HB-100 on the surface of the target and measure the area covered by HB-100 with emissivity setting at 0.95.

●Dimensions: 60 x 2000mm  
●Withstand heat up to 150°C



## CAUTION

This product is not a clinical thermometer; therefore, can not be used for medical purposes.

## Environmental Warnings

- ⚠️ **AVOID GETTING THE THERMOMETER WET. DO NOT USE IN WATER.**  
This thermometer is not waterproof.
- ⚠️ **KEEP THE THERMOMETER AWAY FROM STRONG ELECTROMAGNETIC SOURCES.**  
Usage in such environments may cause irreparable damage or incorrect measurement.
- ⚠️ **KEEP THE THERMOMETER AWAY FROM DIRECT SUNLIGHT, DUST, HIGH TEMPERATURES AND HIGH HUMIDITY DURING USE AND STORAGE.**  
This may cause irreparable damage or incorrect measurement.

## Usage Warnings

- ⚠️ **AVOID MEASURING SHINY OBJECTS.**  
Shiny objects, of which emissivity value is low, reflect surrounding temperatures. As this thermometer's sensitivity to emissivity is fixed at 0.95/0.85, the displayed temperature could differ from the actual temperature of objects, which has different emissivity value. When you wish to measure shiny object like metals, put a piece of optional black tape or apply black paintmarker on the surface of the measuring object.
- ⚠️ **DO NOT LET THE THERMOMETER TOUCH THE OBJECT THAT IS BEING MEASURED.**  
The unit is a non-contact thermometer's. Touching or getting too close to the objects with high temperatures may cause irreparable damage or incorrect measurement.



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URL: www.optex.co.jp



**THERMO-HUNTER®**  
**PT-5LD**

Non-Contact Thermometer

# Tough!

Water proof



## Optex New Standard

Multifunction for Versatile Applications



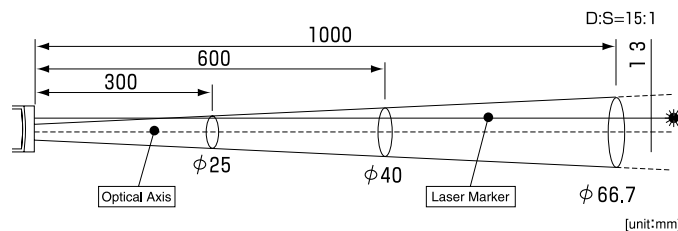
**CAUTION**  
DO NOT STARE INTO BEAM  
LASER DIODE POWER MAX 1.0mW  
WAVE LENGTH 630-670nm  
CLASS2 LASER PRODUCT

# PT-5LD

## Portable Non-Contact Thermometer

Specification			
Model	PT-5LD	Emissivity( $\epsilon$ ) Adjustment	DARK ( $\epsilon=0.95$ ) / BRIGHT ( $\epsilon=0.70$ ) Selectable
Measuring range	0 to 500°C	Continuous measurement mode	ON/OFF Selectable
Display range	-10 to 650°C	High/Low Alarm LED/Buzzer	ON/OFF Selectable
Optics	mirror/silicon filter	Memory	99-point memory
Sensing element/Wavelength	Thermopile/8 to 14 $\mu\text{m}$	Power supply	9V layer-built alkaline dry battery (1 piece)
Response time	0.7sec./90%	Battery life	12 Hours (With alkaline battery, max load)
Accuracy ( $\epsilon \approx 0.95$ at 25°C $\pm 3^\circ\text{C}$ )	0~200°C: $\pm 2^\circ\text{C}$ , 201~500°C: $\pm 1^\circ\text{C}$	Ambient temperature	0 to 50°C
Temperature unit	°C/°F Selectable	Ambient Humidity	35 to 85%Rh (Without due condensation)
Display resolution	1°C	Storage temperature	-10 to 60°C
Repeatability	$\pm 1^\circ\text{C}$ of reading value	Protective structure	IP67
Sighting method	Laser beam marker (Class2)	Material	ABS (Hygienic body)
HOLD time	15 seconds	Dimension	H×W×D=160×44×42mm
Back-light function	Available	Weight	200g (incl.Battery)

Field of view



Remarks

- ※ The laser marker Points 13mm off to the left from the optical axis.
- ※ The optical resolution values stated in "Field of View" are at minimum 90% energy. The size of measuring object should be sufficiently larger than the field of view (spot size) shown in the illustration.
- ※ The temperature value displayed on LCD is the average temperature within the spot size.

Accessories: 9V layer-built alkaline dry battery(1 piece), Quick Reference card.

※Design and specifications are subject to change for product improvement without prior notice.

### LED Display & Overview of features

#### HI/LO Alarm

High Alarm  
LED(red)  
& Buzzer(high tone)  
Low Alarm;  
LED(green)  
& Buzzer(low tone)

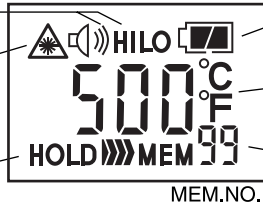
#### LASER Indicator

#### HOLD

Hold the last  
reading for 15sec.

### THERMO-HUNTER

LASER ALARM BATT.



MEM.NO.

#### Battery Level Indicator

°C/°F  
Selectable

99-point Data Memory  
Internal memory stores  
up to 99 reading

Emissivity( $\epsilon$ )  
0.95 or 0.70  
selectable

#### Backlight



### Environmental Warnings

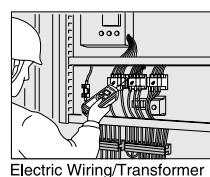
- ⚠ **KEEP THE THERMOMETER AWAY FROM DROPPING WATER AND DO NOT USE IN WATER.**  
This thermometer has waterproofing, but it cannot be operated in the water. Water drops on the filter or the area around it may cause incorrect measurement. Wipe up the filter and the area around it completely before taking measurement.
- ⚠ **KEEP THE THERMOMETER AWAY FROM STRONG ELECTROMAGNETIC SOURCES.**  
Usage in such environments may cause irreparable damage or incorrect measurement.
- ⚠ **KEEP THE THERMOMETER AWAY FROM DIRECT SUNLIGHT, DUST, HIGH TEMPERATURES AND HIGH HUMIDITY DURING USE AND STORAGE.**  
This may cause irreparable damage or incorrect measurement.

### Usage Warnings

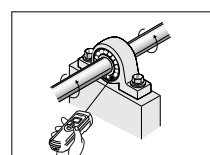
- ⚠ **AVOID MEASURING SHINY OBJECTS.**  
Shiny objects, of which emissivity value is low, reflect surrounding temperatures. As this thermometer's sensitivity to emissivity is fixed at 0.95/0.70, the displayed temperature could differ from the actual temperature of objects, which has different emissivity value. When you wish to measure shiny object like metals, put a piece of optional black tape or apply black paint/marker on the surface of the measuring object.
- ⚠ **DO NOT LET THE THERMOMETER TOUCH THE OBJECT THAT IS BEING MEASURED.**  
The unit is a non-contact thermometer's. Touching or getting too close to the objects with high temperatures may cause irreparable damage or incorrect measurement.

Product mentioned in this catalogue equips a laser element classified Class2. In case of re-export to foreign countries, please confirm the relevant regulation for laser products in the destination country.

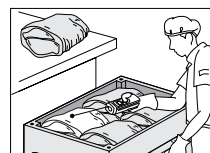
### Applications



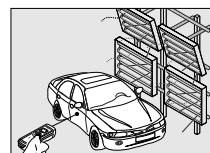
Electric Wiring/Transformer



Bearing



Freezer/Refrigerator



Motor/Machine

### Safe Usage



#### WARNING

Do not look into the laser beam, nor point it directly at eyes. Even the reflection is harmful. This laser may cause eye injury or damage to your health.



#### CAUTION

This product is not a clinical thermometer; therefore, can not be used for medical purposes.



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URL: www.optex.co.jp





# Multifunction

PT-7LD offers reliability as a measuring instrument equipped for practical application requests in the field.

## New Product Information

### Portable Non-Contact Thermometer

## THERMO-HUNTER PT-7LD

NEW

**Waterproof: IP67**

#### New Function

Hi/Lo Alarm: Buzzer & LED

99-Point Data Memory

Normal/Continuous mode

#### Features

Measuring Range: -30.0 to 200.0°C

Resolution: 0.1°C/°F

Quick Response: 0.7sec.

Laser Marker

2-mode Emissivity

Back Light

Hygienically Clean Body



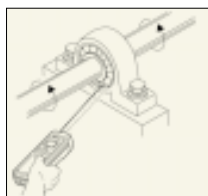
#### Application



Freezer/Refrigerator



Electric Wiring/Transformer



Bearing



Motor/Machine

# PT-7LD

## Portable Non-Contact Thermometer

### Specification

Model	PT-7LD
Measuring range	- 30.0 to 200.0 ( - 22.0 to 392.0°F )
Display range	- 40.0 to 220.0 ( - 40.0 to 428.0°F )
Optics	mirror/silicon filter
Sensing element/Wavelength	Thermopile/8 to 14μm
Response time	0.7sec./90%
Accuracy( 0.95 at 25 ±3 )	- 0.0 : ±3.0 , 0.1 to 100.0 : ±1.0 , 100.1 to 200.0 : ±2.0
Temperature unit	°C/°F Selectable
Display resolution	0.1 °F
Repeatability	± 1.0 of reading value
Sighting method	Laser beam marker( Class2 )
HOLD time	15 seconds
Back-light function	Available
Emissivity( ) Adjustment	HOT( = 0.95 )/COLD( = 0.85 )Selectable
Continuous measurement mode	ON/OFF Selectable
High/Low Alarm LED/Buzzer	ON/OFF Selectable
Memory	99-point memory
Power supply	9V layer-built alkaline dry battery( 1 piece )
Battery life	15 Hours( With alkaline battery, max load )
Ambient temperature	0 to 50
Ambient Humidity	35 to 85%RH( Without due condensation )
Storage temperature	- 10 to 60
Protective structure	IP67
Material	ABS( Antibacterial )
Dimension	H × W × D = 160 × 44 × 42mm
Weight	200g( incl. Battery )

Accessories: 9V layer-built alkaline dry battery(1 piece), Quick Reference card.  
Design and specifications are subject to change for product improvement without prior notice.

### INTERNATIONAL PROTECTION

A rating system defined by the standards of IEC (International Electrotechnical Commission) to determine grades of protection pertaining enclosures for various environments.

#### IP67

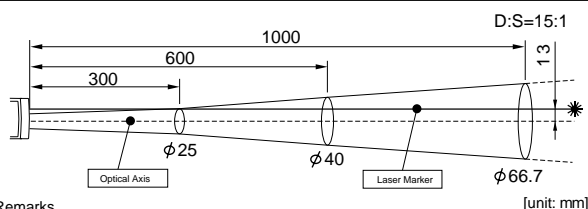
Protection against accidental contact by the human body and foreign bodies  
**IP6 : No dust comes inside the body**  
NOTE: Dust Protection herein means against dusts under 75μm

Protection against the penetration of liquids  
**IP 7: No water comes inside the body by immersing in water for 30 minutes in 1m depth.**

### OPTEX infrared non-contact thermometers " Quality assured "

Calibration certificates are available as options for OPTEX non-contact thermometers. OPTEX non-contact thermometers are carefully checked and calibrated to ensure the conformity to the specifications, and the instrumentation used for calibration can be traceable to Japan Electric Meters Inspection Corporation (JEMIC), the authorized calibration institution in Japan. Ask your nearest distributor for details.

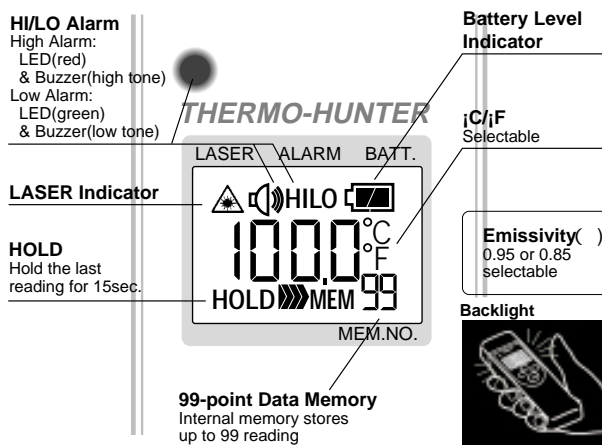
### Field of view



#### Remarks

The laser marker points 13mm off to the left from the optical axis.  
The optical resolution values stated in " Field of View " are at minimum 90% energy.  
The size of measuring object should be sufficiently larger than the field of view (spot size) shown in the above illustration.  
The temperature value displayed on LCD is the average temperature within the spot size.

### LCD Display & Overview of features



### Safe Usage

WARNING	Do not look into the laser beam, nor point it directly at eyes. Even the reflection is harmful. This laser may cause eye injury or damage to your health.
CAUTION	This product is not a clinical thermometer; therefore, can not be used for medical purposes.

### Environmental Warnings

- ⊘ KEEP THE THERMOMETER AWAY FROM DROPPING WATER AND DO NOT USE IN WATER.  
This thermometer has waterproofing, but it cannot be operated in the water. Water drops on the filter or the area around it may cause incorrect measurement. Wipe up the filter and the area around it completely before taking measurement.
- ❗ KEEP THE THERMOMETER AWAY FROM STRONG ELECTROMAGNETIC SOURCES.  
Usage in such environments may cause irreparable damage or incorrect measurement.
- ❗ KEEP THE THERMOMETER AWAY FROM DIRECT SUNLIGHT, DUST, HIGH TEMPERATURES AND HIGH HUMIDITY DURING USE AND STORAGE.  
This may cause irreparable damage or incorrect measurement.

### Usage Warnings

- ❗ AVOID MEASURING SHINY OBJECTS.  
Shiny objects, of which emissivity value is low, reflect surrounding temperatures. As this thermometer's sensitivity to emissivity is fixed at 0.95/0.85, the displayed temperature could differ from the actual temperature of objects, which has different emissivity value. When you wish to measure shiny object like metals, put a piece of optional black tape or apply black paint/marker on the surface of the measuring object.
- ❗ DO NOT LET THE THERMOMETER TOUCH THE OBJECT THAT IS BEING MEASURED.  
The unit is a non-contact thermometer's. Touching or getting too close to the objects with high temperatures may cause irreparable damage or incorrect measurement.

Product mentioned in this catalogue equips a laser element classified Class2. In case of re-export to foreign countries, please confirm the relevant regulation for laser products in the destination country.



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URL: www.optex.co.jp

74063-01-11142-0305



## Specification

Model	PT-S80	PT-U80 (with USB output)
Measuring range	-30 to 600°C	
Field of view	30 mm / 1000 mm (D:S = 33:1)	
Optics	Si lens	
Sensing element	Thermopile	
Wavelength	8 to 14 $\mu$ m	
Response time	0.5 sec. / 90 %	
Accuracy ( $\epsilon \approx 0.95$ )	-30.0 to 0°C: $\pm 3^\circ\text{C}$ , 0.1°C to 200°C: $\pm 2^\circ\text{C}$ , 201°C to 600°C: $\pm 1\%$	
Repeatability	$\pm 1^\circ\text{C}$ of reading value	
Display resolution	-30.0 to 199.9°C: 0.1°C, 200 to 600°C: $\pm 1\%$	
Sighting method	Coaxial Laser marker (Class 2)	
HOLD time	15 seconds	
Continuous measurement mode	N / A	ON/OFF Selectable
USB output	N / A	Available
Data storing	Single memory	35-point memory (max 150-point)
Back light	EL back light	
High / Low alarm	Alarm LED, Buzzer, (ON/OFF Selectable)	
Emissivity (E) adjustment	0.95 / 0.85 / 0.70 Selectable	$\epsilon$ (0.3 to 1.20 / 0.01 step)
Display function	NOR/MAX/MIN	
Power supply	AA alkaline battery (2 pieces)	
Battery life	15 hours (with max load)	
Ambient temperature	0 to 50°C	
Ambient humidity	35 to 85 % RH (no condensation)	
Storage temperature / humidity	- 10 to 60°C / 35 to 85 % RH	
Material	ABS / TEEE	
Dimensions	H x W x D = 182 x 56 x 38 mm	
Weight	Approx. 230 g (including batteries)	

**Accessories:** Size AA alkaline battery (two) for operation check, Instruction manual, Protective case for PT-S80/U80, USB cable (for PT-U80 only), Optional: Black body tape HB-250  
**\*Specifications are subject to change for product improvement without prior notice.**

- \*1) The exclusive software for PT-U80 is available at Optex Website. It is not provided with hardware.  
 \*2) We recommended use with Personal Computer and Windows 2000 or XP operating system, equipped with USB connector for a proper function. USB Rev1.1 conformity.  
 \*3) Operation may fall depending on peripheral devices connected to the PC.  
 \*4) The exclusive software is available at URL: URL: <http://www.optex.co.jp/meas/english>

standard accessory

## Protective case



## Options

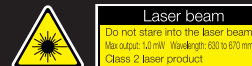
## Black Tape HB-250

The Black Tape (HB-250) is designed for more accurate measurement, especially if the target object has a shiny surface. Apply HB-250 on the surface of the target and measure the area covered by HB-250 with emissivity setting at 0.95.



## Caution

- Difficult measurement cases
  - When the surface being measured is reflective, such as polished metal.
  - \* (Before measuring, apply the optional HB-250 tape or apply a matte finish.)
  - When measuring through glass
- Safety instructions
  - Please read through the instruction manual before use.
  - This product is not a clinical thermometer, therefore, cannot be used for medical purposes.
  - Keep the thermometer away from water contact, as it is not waterproof.
  - Avoid rapid change of the ambient temperature, as this may cause measurement error.
  - Keep the thermometer away from strong electromagnetic sources.
- Laser beam
  - This product uses laser classified as class II complying with JIS C 6802.
  - For safe use, follow the warning labels attached to this product.
  - This is a portable product with the laser maker certificated by JQA (Japan Quality Assurance of Organization).



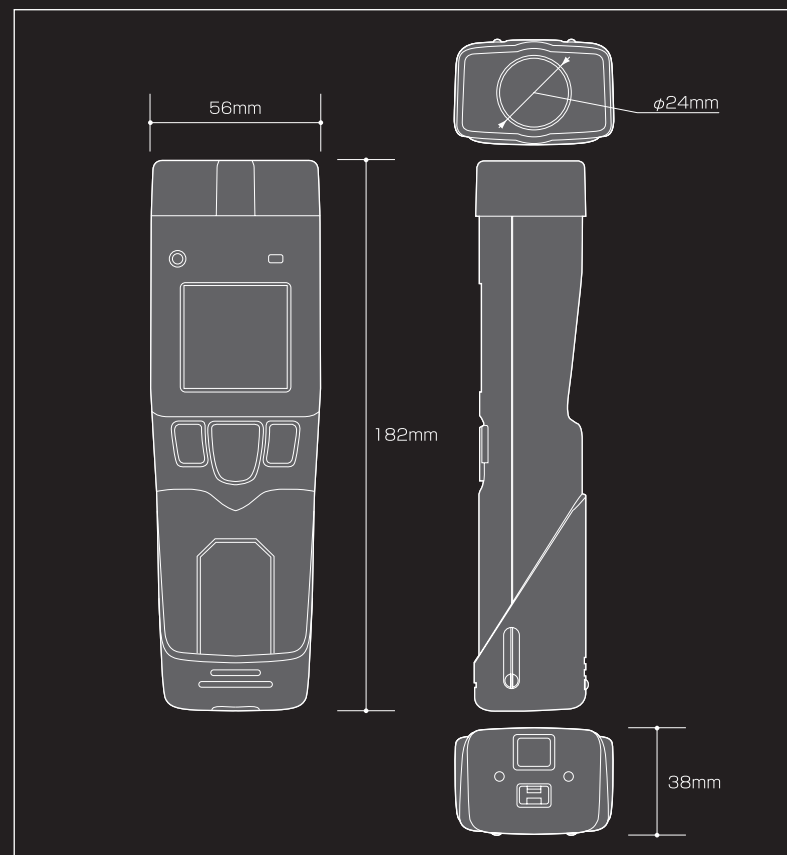
- The images used in this catalog include image drawings to assist understanding of operation.

- Actual displays/operations while measuring may differ from the images shown in this catalog.



We use recycled paper.  
(100% used paper content)

## Outside dimensions



NEW!

New product information

## PT-80 - High Performance, Easy Operation Durable Package, with Convenient Measurement

Non-contact infrared thermometer

## PT-S80 / PT-U80



## OPTEX CO., LTD.

Measurement Division

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Tel : +81-77-579-8680 Fax : +81-77-579-8199

Website : <http://www.optex.co.jp/meas/english>

E-mail address : fa-ex@optex.co.jp



**This is a realization of a long-standing need – a fully-featured product.**  
**Basic functions and flexible operation set a new industry standard.**  
**For professional use – high performance and effortless operation.**

Non-contact infrared thermometer

# PT-S80 / PT-U80 (With USB output)

## S80 / U80 Features

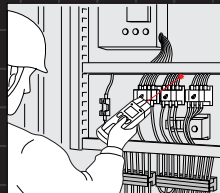
EL back light	Large LED indicator
Coaxial laser marker	MAX/MIN display
High/Low alarm	Protective case

## S80 Only

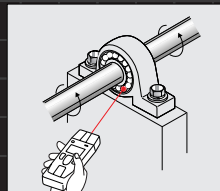
Selectable emissivity	Single memory function
-----------------------	------------------------

## U80 Only

Continuous measurement function	Emissivity adjustment
PC Connection	35-point memory function (max 150 points)
Clock function	Time alarm function



Checking for hot spots in an electrical panel.



Checking for abnormal heating in a bearing.

Laser emission window

Silicon lens

Alarm LED  
High alarm "RED"  
Low alarm "GREEN"

Ambient Light sensor

MAX / MIN button  
For switching display functions and selecting setting value

MEASURE button  
For temperature measurement and other various settings

MEM/CAL button  
Store the DATA  
Recall the DATA

SET button  
(inside of cover)  
PT-S80: ALARM  
For setting  
PT-U80: Emissivity, ALARM  
For clock setting

Rubber

Rubber

Front

Side

\* No power ON/OFF button. The power automatically turns off after 15 seconds if buttons are released.

## Introduction (Development Background)

PT-80 non-contact thermometers enable you to quickly and safely measure the surface temperature of a target from a distance, without touching.

Our greatest concern when we developed the PT-80 was simply to provide a user-friendly product for as many users as possible and not develop something that was overly complex and restricted only to certain users. Nor did we wish to merely show off the specifications in the catalog.

To reach our goal, we realized high performance and high efficiency by reviewing all the requests and suggestions we had received from our customers, as well as including our basic ideas for user-friendliness.

After many design reviews of the basic functions, additional functions, and operability, we finally settled on and released the PT-80 series.

This is the latest product from OPTEX at the start of 2005.

## Features

### 1 Pursuit of easy readability

For a clear view of your measurement values, we equipped the display with **an EL back light**. In addition, we incorporated **the large LCD** with 3 display levels allowing more information to be shown more clearly and with larger sized characters. As the EL back light is sensor activated, it lights only when ambient light conditions are low. Users will be satisfied under many different lighting conditions at the ease of reading the PT-80 display.

**POINT ①** Equipped with EL back light **POINT ②** Large LCD with 34 x 34 mm

Display (full size)  
(Image with back light ON)

Flashes during Laser emission

Battery level indicator

MAX display

Continuous measurement display

HOLD display

High alarm display

Low alarm display

Measurement display

Alarm operation display

Clock display

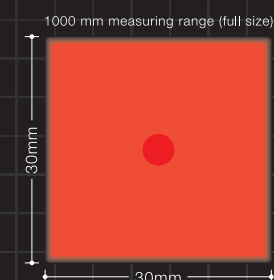
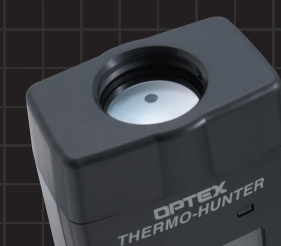
Sub (auxiliary) display

Memory display

### 3 Pursuit of visibility

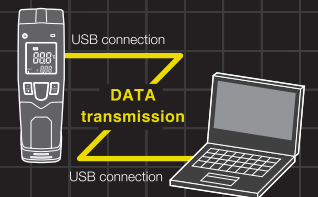
If the laser pointer is shifted off-axis from an actual measurement center, it is difficult to accurately locate it again in the same place. To solve this difficulty, the PT-80 is equipped with **a co-axial laser marker** which points at the exact center of the measurement area, independent of working distance.

**POINT** Equipped with a coaxial laser maker for precise acquisition of measurement position



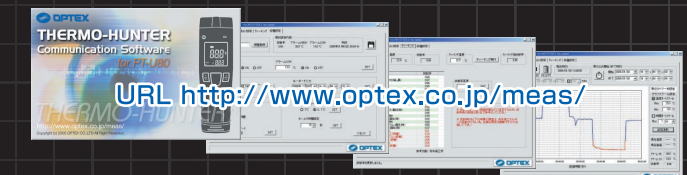
### 2 Pursuit of convenience

Collecting and storing measurement data for reports can be tedious.. For efficient use of measured data, we equipped the PT-U80 with the ability to Send/Receive data when connected to a PC via **USB**. Using imported data for creating reports is easy. With **the Preset Report Form** it becomes even easier. Each data setting is also possible on the PC side. The software is downloadable from our website.



**POINT ①** USB means easy connection to a PC

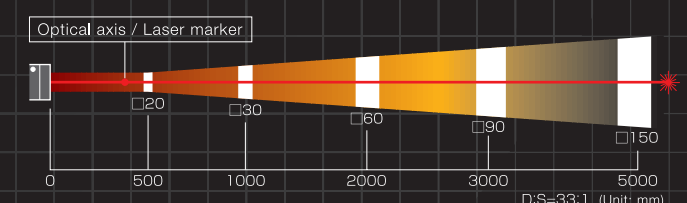
**POINT ②** Equipped with easy report form generator.



### 4 Pursuit of easy measurement

Often, measurement from a long distance can be difficult and sometimes impossible due to a wide measurement area. The PT-80's measurement area is 30 x 30 mm from a distance of 1 m. Even from 5 m, its **long-focus design** still manages an area of only 150 x 150 mm. So safe and secure measurement is possible even in difficult to reach or dangerous locations.

**POINT** Long-focus design enables easy long-distance measurement.







Wide Measuring Range  
400~3000°C!!

**NEW**

**PORTABLE**

**2-color**

Non-Contact Thermometer

**THERMO-HUNTER**

**VF-3000**

# *Long Focus & View Finder*

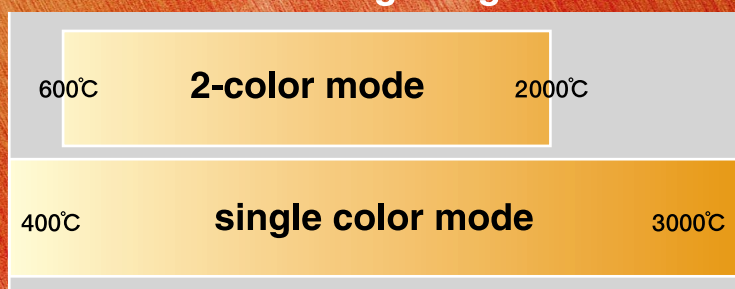
2-color mode

600 ~ 2000°C

Single color mode

400 ~ 3000°C

Measuring Range

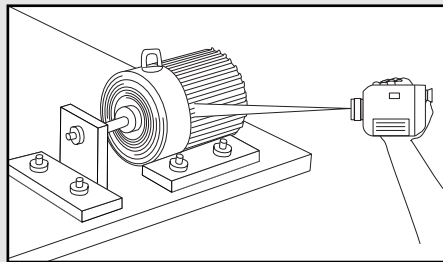


- Repeatability :  $\pm 1^{\circ}\text{C}$
- Field of view :  $\phi 20/4000\text{mm}$
- Response : 200msec
- Continuous measuring mode
- Hi/Lo alarm
- Light weight: 350g

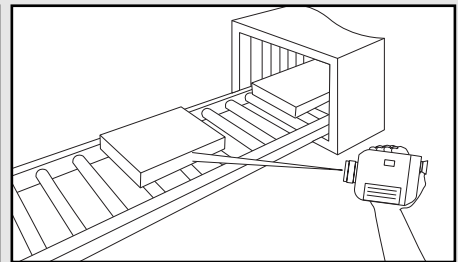




# Portable 2-color Thermometer VF-3000



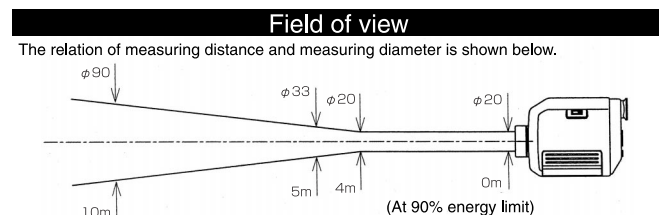
heat check for equipments



metal temperature coming from furnace.

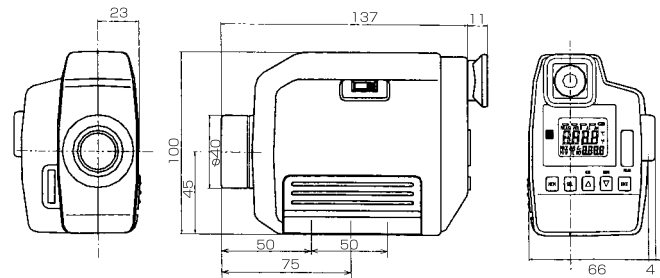
Specification	
Model	VF-3000
Measuring Range	600 to 2000°C (2-color) 400 to 3000°C (single color)
Field of view	φ20/4000mm (Ref. [Distance and diameter])
Optical System	Fixed focus type
Sensing Element	Si/InGaAs
Measuring Wavelength	0.9/1.55μm
Response Time	0.2 second
Accuracy *	Lower than 1000°C: ±6°C 1000°C to 1500°C: ±0.6% of reading 1500°C to 2000°C: ±1.2% of reading Higher than 2000°C: ±2.4% of reading
Repeatability	±1°C
Resolution	1°C
Emissivity Adjustment	0.100 to 1.900
Targeting	Direct viewing finder
Measuring Mode	1 Maximum, Minimum, and Average value
	2 Peak, delay (Signal Modulation)
	3 Maximum 100 data memory function
	4 LCD digital 4 digits, Displayed in the viewfinder and in external display
Other Functions	Auto-power-off, Automatic back-light, Continuous measurement, °C/°F selection, Battery check, High / low alarms
Power Supply	2 AA (UM-3) alkaline batteries (about 30 hours for continuous measurement)
Ambient Temperature	0 to 50°C
Stability	Temperature drift
	Lower than 1000°C: 0.2°C/°C Higher than 1000°C: 0.02%/°C of reading
In the test environment required by EMC directives	±15°C
Lens Diameter	φ20mm
Casing Material	ABS resin
Weight	About 350g (thermometer only)
Attachment	2 pieces of AA (UM-3) battery

\* Reference operating conditions: At  $\epsilon = 1.0$ , 23°C  $\pm$  5°C, relative humidity: 35 to 75%RH

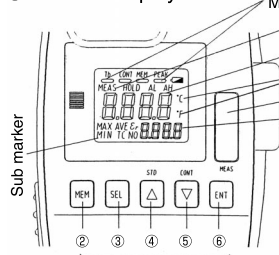


- The optical resolution values stated in "Field of View" are at 90% energy
- The size of the target object should be sufficiently larger than the Field of View shown in the above illustration.

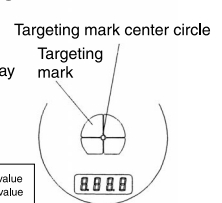
## Dimensions and Functions



### ● External display



### ● View finder



\*1, Main display: Displays a measured value in the measurement mode or a setting value in the setting mode.  
\*2, Sub display: Displays the data selected by **SEL** key in the measurement mode or a mode in the setting mode.

### ● Functions of keys

Keys	Functions	Indications
(1) Measure Switch	Turns on the power supply and starts/stops a measurement. (The power supply will be automatically turned off if any key is not pressed for 15 seconds in the hold mode.)	[MEAS]
(2) Memory key	Changes from the standard or continuous measurement mode to the data storage mode, or vice versa.	[MEM]
(3) Select key	Switches a data to be displayed in the sub display in the measurement mode. Switches a mode in the sub display in the setting mode.	[SEL]
(4) Up key (5) Down key	Selects a mode or changes a setting value in the setting mode.	[Δ], [▽]
(6) Entry key	Stores the mode selected or the setting value entered in the setting mode. Stores the measured value in the data storage mode.	[ENT]

## Safe Usage

Please use the thermometer correctly by keeping the following items. The ⊗ mark indicates prohibited operations.

⚠ Warning	May cause death or serious injury
⚠	Make sure not see the sun through the viewfinder of the thermometer. It may cause becoming blind. Never directly face the objective lens to the sun to protect the detecting element. ⊗
⚠	Never operate the thermometer in places where combustible or volatile gas exists. It is extremely dangerous to use the thermometer in such environment. ⊗
⚠	Never put the batteries into fire, or never charge, short-circuit, heat or disassembly the batteries. Breaking or heating of the batteries may cause fire or injury. ⊗
⚠	Never use the thermometer if it has been broken, smoking or nasty smelling. These may cause fire. When the thermometer is broken, smoking, or nasty smelling, turn the power supply switch off at once and take out the batteries from the thermometer, and contact to your sales agent of Optex. ⊗

⚠ Caution	May cause injury or physical damage
⚠	Do not use other batteries than the batteries specified. Load the batteries so that their polarities meet the polarity marks on the battery case. Different polarities may cause fire, injury or damage by burst or liquid leakage of the batteries. ⊗
⚠	Do not walk while sighting through the viewfinder of the thermometer. It may cause accidents like as falling down. ⊗
⚠	Never take the thermometer apart or convert it. These may cause trouble and danger. ⊗
⚠	Read the entire contents in this instruction manual to have the thermometer function perfectly.
⚠	Dispose the batteries used to places specified with the disposal procedure specified.

