

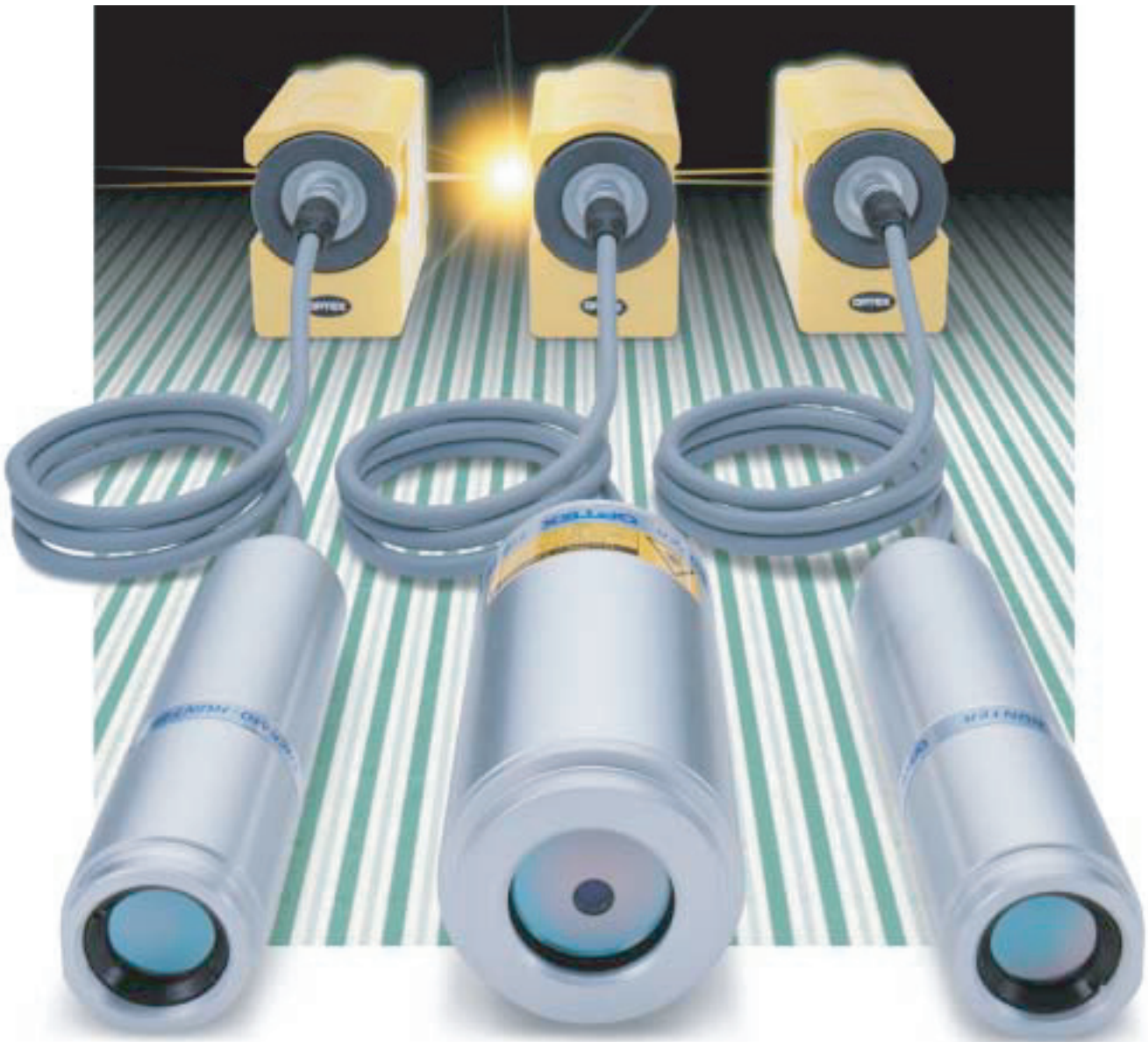
Separate Sensor for Flexible Installation

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

Non-Contact
Thermometer

**THERMO-HUNTER
BUILT-IN2**

Separate Sensor: BS Series



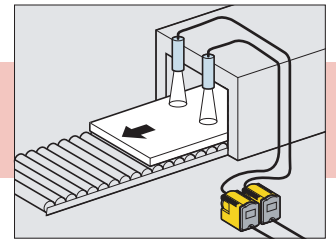
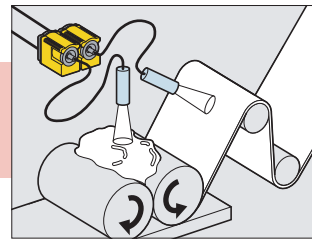
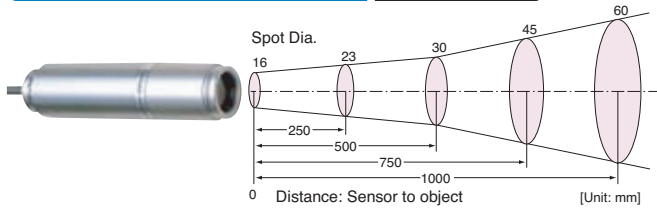
Measuring range: 0 to 500 C
Quick response: 500msec
Amplifier unit with integrated digital display
-TEACH function for easy emissivity adjustment
Analog output: 4—20mA or 1mV/ C

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

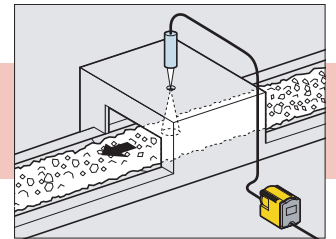
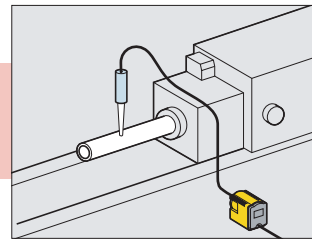
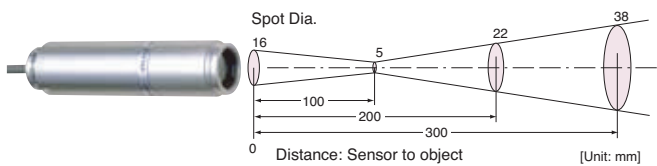
Note: A sensor and an amplifier form one complete set. They do not function individually.

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

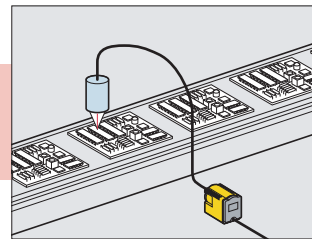
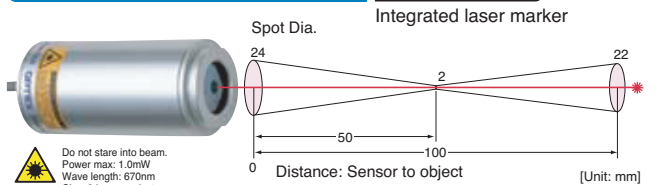
Standard Focus Type **BS-30T**



Narrow Focus Type **BS-05T**



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.

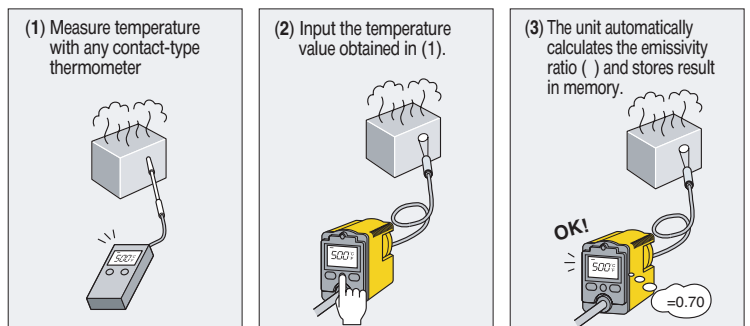


- "Down" button
- °C/°F mode (BS-A only)
- Delay set adjustment
- Enter key and On/Off switch for laser
- Emissivity ratio () adjustment (manual method)
- Emissivity ratio () adjustment (TEACH function)
- "Up" button
- Measurement mode

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 () and memorizes the result. (You may also manually adjust emissivity ratio)



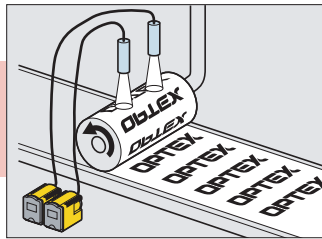
Integrated Digital Display

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.

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 all your special needs.

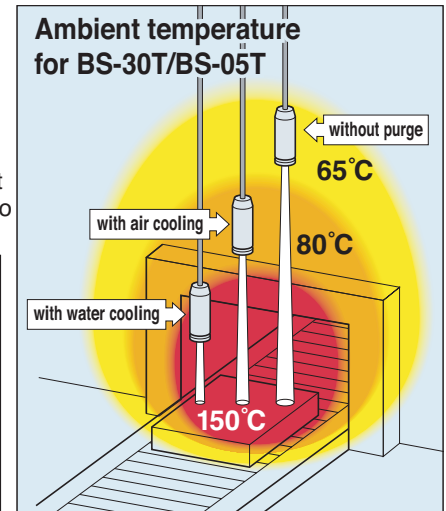
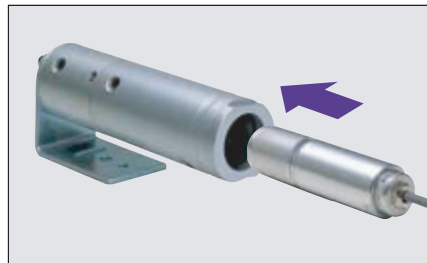


Temperature monitoring of a printing roller

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.



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.



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
 Water pressure: 1kgf/cm²

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/cm²

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.

Laser Marker (BS-30T/BS-05T)

BS-LD

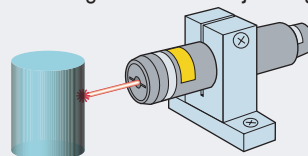
The Laser Marker makes accurate aiming and installation simpler. (It cannot be used with a sensor simultaneously.)



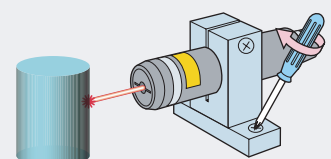
Optional Accessory Table

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

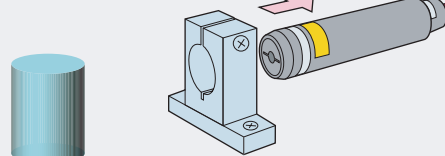
(1) Insert the laser marker into the mounting bracket and adjust alignment.



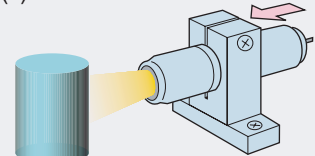
(2) Fasten the mounting bracket.



(3) Remove the laser marker.



(4) Insert the sensor.



SPECIFICATIONS

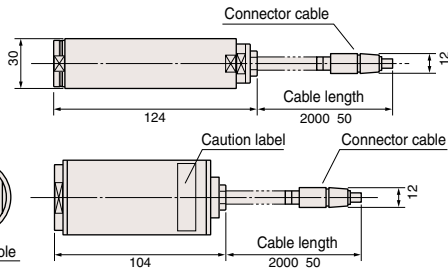
Sensor head			
Model	BS-30T	BS-05T	BS-02T
Field of view	ø30/500mm	ø5/100mm	ø2/50mm
Optics	Silicon lens		
Sensing element/Wavelength	Thermopile/8 to 14m		
Sighting method	N/A (Use BS-LD for sighting)		Coaxial laser marker (Class 2)
Ambient temperature	0 to 65°C (0 to 150°C: with optional cooling jacket)		0 to 50°C
Environmental humidity	35 to 85%RH (without dew condensation)		
Storage temperature	-20 to 70°C		-20 to 60°C
Vibration resistance	3G (20 — 50Hz, in accordance with JIS C0911)		
Water resistance	IP67		
Weight	300g	400g	
Optional accessories	Refer to the Optional Accessory Table of the previous page		

Amplifier		
Model	BS-V	BS-A
Measuring range	0 to 500°C	
Display range	-20 to 520°C	
Response time	500msec./90%	
Accuracy (1.0)	1% of reading value or 2°C whichever is greater	
Repeatability	1°C of reading value	
Display resolution	1°C	
Analog output	1mV/°C	4 — 20mA
Output resolution	0.2°C	
Emissivity ratio () adjustment	0.10 to 1.20 (0.01/1 step)	
Delay setting	1 (0.5sec) to 200 (approx. 10sec) variable	
Power supply/Current consumption	DC12 — 24V 10%/Max 100mA	
Ambient temperature	0 to 50°C	
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	

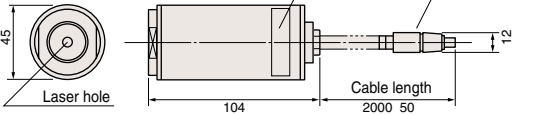
* A sensor and an amplifier form one complete set.
 They do not function individually.
 * Specifications may change without prior notice.

DIMENSIONS

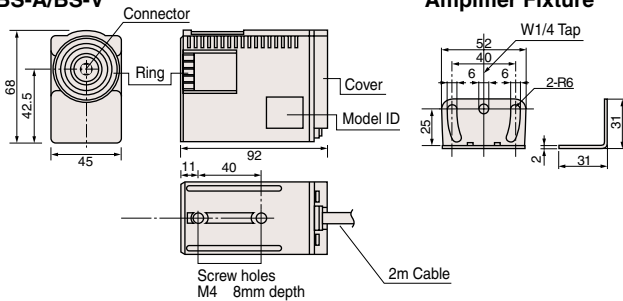
**Sensor Head
 BS-30T/BS-05T**



BS-02T



**Amplifier
 BS-A/BS-V**

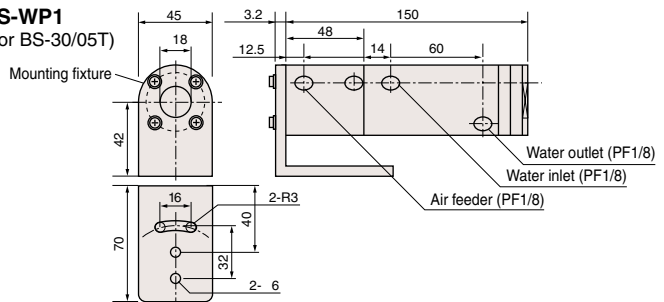


Air/Water Cooling Jacket (option)

[Unit: mm]

BS-WP1

(for BS-30/05T)



Safety Guidelines



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

BS-02T and BS-LD are 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.

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

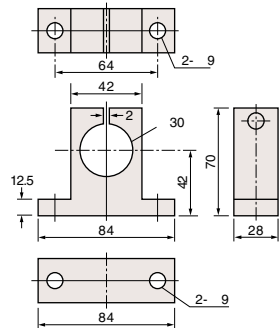
- KEEP THE THERMOMETER AWAY FROM DIRECT SUNLIGHT, DUST, HIGH TEMPERATURES AND HIGH HUMIDITY WHILE IN USE AND STORAGE. This may cause irreparable damage or incorrect measurement.
- DO NOT EXPOSE THE THERMOMETER TO SUDDEN TEMPERATURE CHANGES. Sudden temperature change of the environment may cause incorrect 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

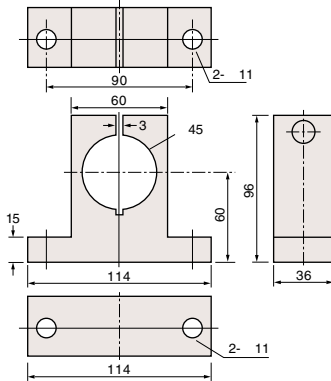
- AVOID MEASURING SHINY SURFACES. Shiny surfaces reflect radiation from surrounding objects. Although the emissivity ratio can be adjusted to compensate for this problem, accurate measurement is difficult.
- USE THE CORRECT VOLTAGE. Applying voltages other than 12-24VDC may cause short-circuit, damages, 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.

Sensor Mounting Bracket (option)

NB-SH30A (for BS-30/05T)



NB-SH40A (for BS-02T)



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