Stationary-type non-contact thermometer
Sensor/amplifier separate type

Measurement range

0 to 500°C (32 to 932°F)

THERMO-HUNTER®

BS-02 series

Sensor head
<Fine spot type>
BS-02T

Amplifier unit
Use in combination with a sensor head
<4 to 20 mA output type> **BS-A**
<1 mV/°C output type> **BS-V**

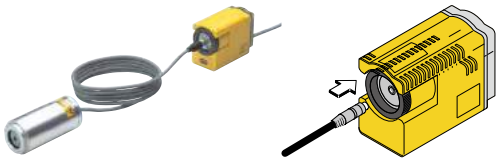


ø2.5mm fine spot | Coaxial laser marker | IP67 sensor head | Digital display on amplifier | Emissivity teaching | 8 m heat-resistant extension cable

Features

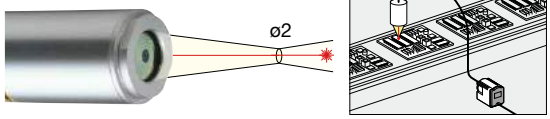
Sensor/amplifier separate type for flexible mounting

The sensor/amplifier separate design provides improved environmental resistance. The compact sensor features a stainless-steel body and a special steel structure for IP67-level waterproofing. A detachable connector cable is used between the sensor and the amplifier. This design reduces the effort needed for changing the installation location or when performing maintenance.



ø2 mm fine-spot measurement with precise laser-marker sighting

This product features a field of view designed for measurement of heat generated by objects as small as ø2 mm.
In addition, the built-in coaxial laser marker points directly to the center of the field of view, ensuring the point of measurement is clearly visible. This means aiming is accurate even with minute targets in addition to easier sensor positioning during installation.



IP67 waterproof sensor head

In harsh manufacturing lines, water and dust can cause sensors to fail, so environmental resistance is a must. The BS series is the first thermometer in its class to offer IP67 waterproofing and dustproofing.

Built-in easy-to-configure digital display

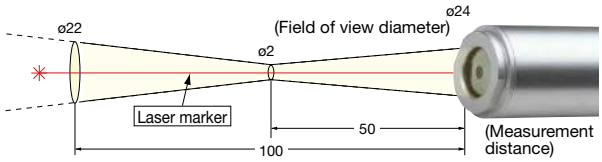
The amplifier of the BS series is equipped with a digital display. The digital display allows users to easily check various function settings and measurement values.



Simple emissivity adjustment: Teaching function

This product is equipped with a TEACH function that allows users to calculate and store emissivity automatically by inputting a temperature. This allows for drastic reductions in time spent on configuring settings.

Field of view



*The laser marker points directly to the center of the field of view.
*The field of view stated above are measurement diameters with an optical response of 90%.
*The size of the measurement target must be approx. 1.5 times larger than the measurement diameters shown in the above diagram.

(Unit: mm)

Type key

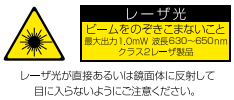
● **Sensor head**

BS-02T
- [Field of view] 02: ø2 mm/50 mm
- [Type] BS sensor/amplifier separate type

● **Amplifier unit**

BS-□
- [Output] A: 4 to 20 mA output
  V: 1 mV/°C output

CE



レーザ光が直接あるいは鏡面体に反射して目に入らないようにご注意ください。

Specifications

Sensor head

Model	BS-02T
Measurement range	0 to 500°C (32 to 932°F) (Display: –20 to 520°C (–4 to 968°F))
Field of view	ø2 mm/50 mm (Refer to field of view)
Optics	Silicone lens
Sensing element/ spectral response	Thermopile/8 to 14 µm
Response time	0.5 sec./90%
Accuracy (ε≈1.0)	±1% or ±2°C (3.6°F) of reading, whichever is greater
Repeatability	±1°C (1.8°F) of reading
Emissivity (ε) adjustment	0.10 to 1.20 (0.01 per step)
Sighting function	Coaxial laser marker (Class 2)
Ambient temperature	0 to 50°C (32 to 122°F)
Ambient humidity	35 to 85% RH (no condensation)
Storage temperature	–20 to 60°C (–4 to 140°F)
Vibration resistance	3G (20 to 50 Hz, according to JIS C0911)
Degree of protection	IP67 (equivalent to Grade 7 in the JIS protection rating)
Weight	Approx. 400 g (including connector cable)
Material	Aluminum
Standard included accessories	Sensor head mounting bracket

*Note that specifications are subject to change without prior notice for product improvement purposes.

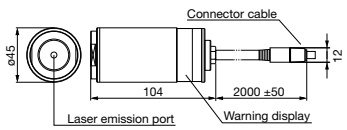
Amplifier unit

Model	BS-A	BS-V
Analog output	4 to 20 mA	1 mV/°C
Analog output resolution	0.2°C (32.4°F)	
Analog display resolution	1°C (33.8°F) (digital display on back of amplifier)	
Functions	Simple emissivity adjustment: TEACH function Response time selection (DELAY) function: 1 (0.5 sec.) to 200 (approx. 10 sec.)	
Supply voltage/ current consumption	12 to 24 VDC ±10%/100 mA or less (at max. load)	
Ambient temperature	0 to 50°C (32 to 122°F)	
Ambient humidity	35 to 85% RH (no condensation)	
Storage temperature	–20 to 60°C (–4 to 140°F)	
Vibration resistance	3G (20 to 50 Hz, according to JIS C0911)	
Degree of protection	IP65 (equivalent to Grade 5 in the JIS protection rating)	
Weight	Approx. 320 g (including cable)	
Material	Ring/housing: Glass-filled PBT, Rear / Cover: PC	
Standard included accessories	Amplifier mounting bracket ×1, amplifier mounting screw (M4) ×2	

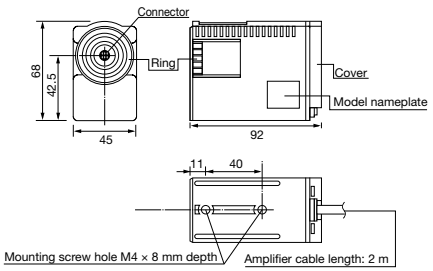
*Note that specifications are subject to change without prior notice for product improvement purposes.

Dimensions

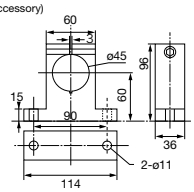
● Sensor head



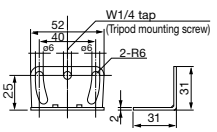
● Amplifier



● Sensor head fixture
NB-SH40A
(Optional accessory)



● Amplifier mounting bracket
(Included accessory)



(Unit: mm)

Options/Accessories

Sensor-to-amplifier extension cable
BS-EC8



Connecting the optional BS-EC8 cable (8 m) to the standard connector cable (2 m) between the sensor and the amplifier provides up to 10 m of extension. Both standard and optional cables can handle temperatures up to 150°C (302°F).

Sensor head fixture
NB-SH40A



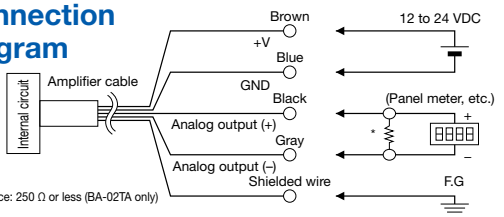
This base is used to fix cylindrical-type sensor heads. It is a convenient accessory for installation.

Black tape for glossy objects
HB-250



When attached to the surface of an object with unknown emissivity or a glossy object, this tape provides an emissivity of 0.95, enabling accurate non-contact temperature measurement. When using the tape, set the emissivity to ε = 0.95. The tape is built with material resistant to heat up to 250°C (482°F).
Total area: 60 mm × 2000 mm

Connection diagram



*Load resistance: 250 Ω or less (BA-02TA only)

Correct use

Situations where measurement may be difficult

- When measuring a mirror-like surface such as shiny metal.
  *(Measure after attaching optional accessory HB-250 or after creating a matte finish using paint or the like.)
- When measuring through glass.

Correct use

- Be sure to read the instruction manual thoroughly before using the product.
- This instrument is not a thermometer for taking body temperatures. It is not intended for use in medical practices.
- Sudden changes in ambient temperature can cause measurement errors. Please ensure the product is not subject to sudden temperature changes during use.
- Do not use the product near objects that generate strong electromagnetic waves, or in environments with corrosive gases or explosive gases.
- Use only the rated power supply with the product. Using the product outside of the 12 to 24 VDC range may cause malfunction, short-circuiting, fire, or injury.
- Do not touch the product to the measurement target. This product is a non-contact thermometer. Contact with a high-temperature surface may result in deformation, the need for repairs, and measurement errors.

Laser beam

- This product uses a Class 2 laser that conforms to JIS C 6802. Use the product according to the affixed labels.



Exporting

- Laser warning labels: Product specifications may differ slightly depending on the laws and compliance standards of the export destination country. Contact us for details.
- CE Mark: All Optex FA non-contact thermometers are available with CE compatibility.