Measurement range
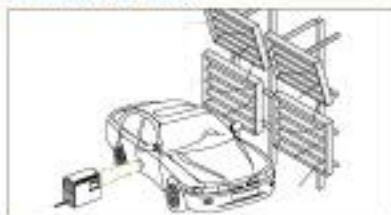## 0 to 500°C (32 to 932°F)

THERMO-HUNTER®
BA series

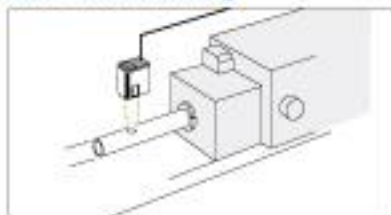<4 to 20 mA output type>
BA-30TA-S/BA-06TA-S
<1 mV/°C output type>
BA-30TV-S/BA-06TV-S

Temperature control for painted surfaces of cars

Temperature control for rubber hose manufacturing

C€

All in one | Coaxial laser marker | Digital display | Emissivity teaching | 2 types of analog output | IP65

| Features

Compact body with integrated sensor and amplifier
Compact design with the integrate sensor and amplifier. This allows for restriction-free installation. This all-in-one type allows for measurement, output, display, and configuration.

First-in-class integrated digital display type
The BA series is the first thermometer in its class with integrated digital display. This product allows various functions to be configured on-site, and includes a display that makes checking temperatures easy. Changing settings can even be performed by a single person even while the line is running.
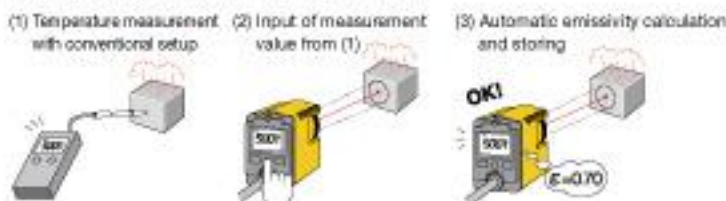
Built-in coaxial laser marker
The product includes a coaxial laser marker that points directly to the center of the field of view. This allows for more accurate positioning and easier installation.

*The laser marker turns off automatically after about 20 seconds.

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.

(1) Temperature measurement with conventional setup
(2) Input of measurement value from (1)
(3) Automatic emissivity calculation and storing

Spot measurements from a distance
The BA series of thermometers includes a long-range spot measurement type (BA-30 model) and a narrow-field measurement type (BA-06 model) to suit various measurement target size and measurement distance needs. Moreover, the coaxial laser marker enables accurate measurement of small targets at a distance.
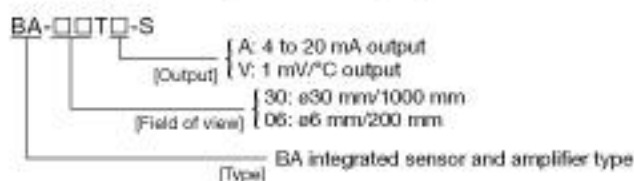
Two types of analog output · BA-30TA-S / BA-06TA-S, BA-30TV-S / BA-06TV-S only
The lineup includes a voltage output type that can be easily connected to a panel meter, and a current output type that is ideal for long-range transmissions. Users are able to select the desired type when selecting a model.

Built-in analog scaling function (4 to 20 mA analog type only)
Users are able to set the temperature range of the analog output as desired.

| Type key

BA-□□T□-S

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

30: ø30 mm/1000 mm
06: ø6 mm/200 mm
[Field of view]

BA integrated sensor and amplifier type
[Type]

Specifications

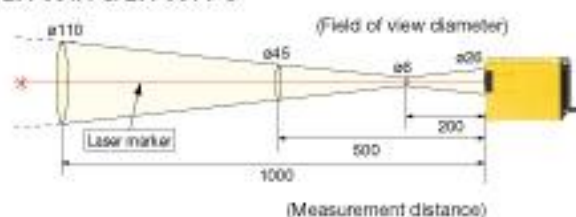| Model	BA-30TA-S	BA-30TV-S	BA-06TA-S	BA-06TV-S
Measurement range	0 to 500°C (32 to 932°F) (Display: −20 to 520°C (−4 to 968°F))			
Field of view	ø30 mm/1000 mm (Refer to field of view)		ø6 mm/200 mm (Refer to field of view)	
Optics	Silicone lens			
Sensing element/ spectral response	Thermopile/8 to 14 µm			
Response time	0.1 sec./90% response			
Accuracy (ε=1.0)	(±1% or ±2°C (3.6°F) of reading, whichever is greater) ±1 digit			
Repeatability	±1°C (1.8°F) of reading			
Emissivity (ε) adjustment	0.10 to 1.20 (0.01 per step)			
Digital display resolution	1°C (33.8°F) (digital display on back of main unit)			
Analog output	4 to 20 mA, Scalable	1 mV/°C	4 to 20 mA, Scalable	1 mV/°C
Analog output resolution	0.2°C (32.4°F)			
Functions	Sighting function: Coaxial laser marker (Class 2) 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%/150 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	−10 to 60°C (14 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. 350 g (including cable)			
Material	Ring/housing: Glass-filled PBT, Rear: PSF, Cover: PC			
Standard included accessories	Main unit mounting bracket ×1, mounting screw (M4) ×2			

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

Field of view

● BA-30TA-S/BA-30TV-S
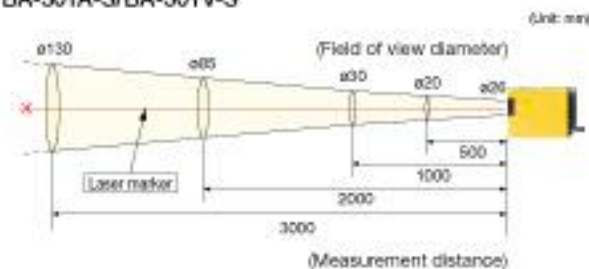
(Measurement distance)

● BA-06TA-S/BA-06TV-S

(Measurement distance)

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

Operating panel

13

Measurement range
0 to 500°C (32 to 932°F)

THERMO-HUNTER®
BA-TC series

<Photo MOS relay type>
BA-30TC
BA-06TC

Detection of transparent films
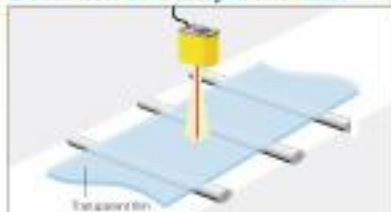
Confirmation of glass adhesion

CE

| All in one | Coaxial laser marker | Digital display | Emissivity teaching | Photo MOS relay | IP65 |

| Features

Benefits of temperature-based detection
- Immune to the influence of colors of measured objects
- Measurement possible even if the target is vibrating
- Long-distance detection (30 mm diameter at a distance of 1000 mm)
- Detection even in severe environments

Photo MOS relay output
The photo MOS relay output function makes configuration of upper and lower limit settings possible.

Compact body with integrated sensor and amplifier
Compact design with the integrate sensor and amplifier. This allows for restriction-free installation. This all-in-one type allows for measurement, output, display, and configuration.

First-in-class integrated digital display
The BA series is the first thermometer in its class with integrated digital display. This product allows various functions to be configured on-site, and includes a display that makes checking temperatures easy. Changing settings can even be performed by a single person even while the line is running.

Built-in coaxial laser marker
The product includes a coaxial laser marker that points directly to the center of the field of view.
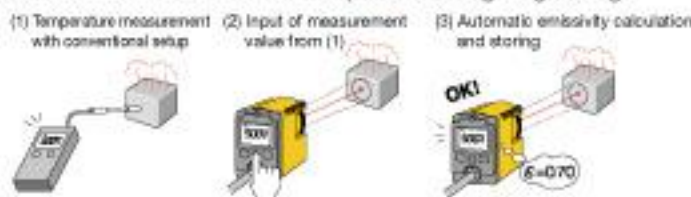This allows for more accurate positioning and easier installation.
*The laser marker turns off automatically after about 20 seconds.

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.
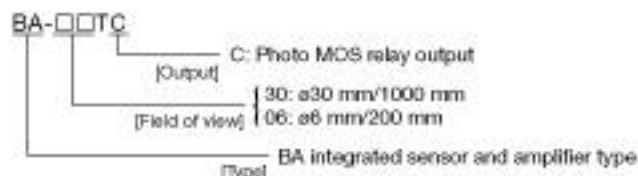This allows for drastic reductions in time spent on configuring settings.

(1) Temperature measurement with conventional setup　(2) Input of measurement value from (1)　(3) Automatic emissivity calculation and storing

Spot measurements from a distance
The BA-TC series of thermometers includes a long-range spot measurement type (BA-30 model) and a narrow-field measurement type (BA-06 model) to suit various measurement target size and measurement distance needs. Moreover, the coaxial laser marker enables accurate measurement of small targets at a distance.

| Type key

BA-□□TC
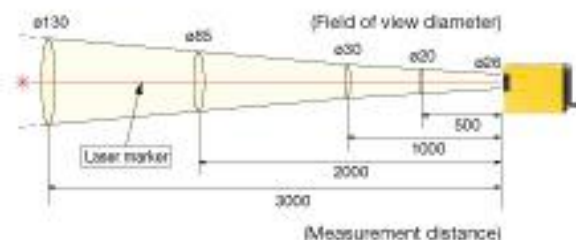
C: Photo MOS relay output
[Output]

30: ø30 mm/1000 mm
06: ø6 mm/200 mm
[Field of view]

BA integrated sensor and amplifier type
[Type]

Specifications

Model	BA-30TC	BA-06TC
Measurement range	0 to 500°C (32 to 932°F) (Display: –20 to 520°C (–4 to 968°F))	
Field of view	ø30 mm/1000 mm (Refer to field of view)	ø6 mm/200 mm (Refer to field of view)
Optics	Silicone lens	
Sensing element/ spectral response	Thermopile/8 to 14 μm	
Response time	0.5 sec./90% response	
Accuracy (ε=1.0)	(±1% or ±2°C (3.6°F) of reading, whichever is greater) ±1 digit	
Repeatability	±1°C (1.8°F) of reading	
Emissivity (ε) adjustment	0.10 to 1.20 (0.01 per step)	
Digital display resolution	1°C (33.8°F) (digital display on back of main unit)	
Relay output	Photo MOS, 350 mA/100 VDC or less (1 output)	
Output update time	50 ms	
Functions	Sighting function: Coaxial laser marker (Class 2) 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%/150 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	–10 to 60°C (14 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. 360 g (including cable)	
Material	Ring/housing: Glass-filled PBT, Rear: PSF, Cover: PC	
Standard included accessories	Main unit mounting bracket ×1, mounting screw (M4) ×2	

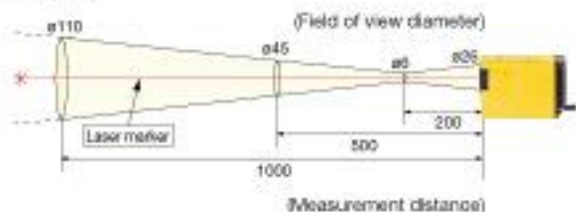*Note that specifications are subject to change without prior notice for product improvement purposes.

Output settings

HI/ON: Output turns on when the measurement is equal to or greater than the setting.
LO/ON: Output turns on when the measurement is equal to or greater than the setting.

1. Align the menu bar to the HI/ON or LO/ON position, and then press the ENTER button.
2. Press the △ or ▽ button to change the setting, and then press the ENTER button to register the setting.
3. Press the △ or ▽ button to set ON (enabled) or OFF (disabled), and then press the ENTER button.

When setting to ON, output will be turned on when the ENTER button is pressed.

*During output, the ENTER button will illuminate at the same time the laser is irradiated. When the HI setting is smaller than the LO setting, output will turn on only between HI and LO.

Field of view

● BA-30TC

● BA-06TC

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

Operating panel

15

Options/Accessories

Air purge collar
BA-AP1

Blowing air on the surface of the lens helps prevent the adherence of dust and dirt.

● Specifications

Air pressure	0.2 Mpa (2 kgf/cm²) or less (limited to instrumentation air)
Air flow rate	50 to 150 Nℓ/min.
Ambient temperature	0 to 50°C (32 to 122°F)
Operating air temperature	0 to 50°C (32 to 122°F)
Port size	G (PF) 1/8
Weight	Approx. 90 g
Material	Aluminum

● Piping example

Speed controller — Regulator — Mist separator — Air filter — Air source

Air intake
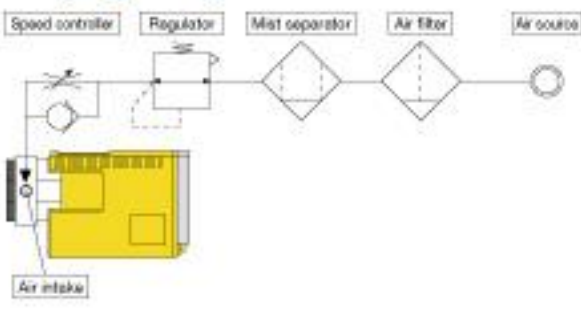
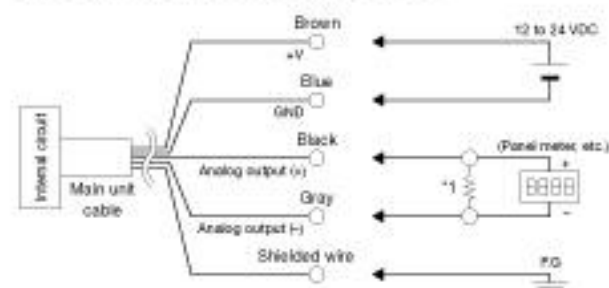Black tape for glossy objects
HB-250

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).
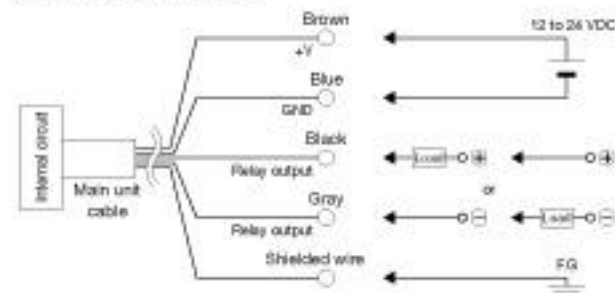Total area: 60 mm × 2000 mm

Connection diagram

BA-30TA-S/TV-S, BA-06TA-S/TV-S

Internal circuit — Main unit cable

- Brown +V — 12 to 24 VDC
- Blue GND
- Black Analog output (+) — (Panel meter, etc.)
- Gray Analog output (−) — *1
- Shielded wire — F.G

Notes regarding connections

1. GND and analog output (−) are connected internally. Be careful not to cause a short-circuit by applying voltage mistakenly.
2. For the meter and other products when connecting the analog output, use products with a power impedance of 100 kΩ or more. (BA-30TV-S/BA-06TV-S only)
3. When connecting analog output from a current output type (BA-30TA-S/BA-06TA-S) to a meter or other product, connect with a load resistance of 250 Ω or less (*1).
4. Do not connect the analog output (−) to GND or the like. Doing so will result in an error.
5. Do not short-circuit the analog output to any other output lines.
6. Using the same piping for parallel wiring with wiring input/output lines, power lines, or high-voltage lines may cause malfunctions due to EMI noise. Use shielded wire or a separate metal conduit.

BA-30TC, BA-06TC

Internal circuit — Main unit cable

- Brown +V — 12 to 24 VDC
- Blue GND
- Black Relay output
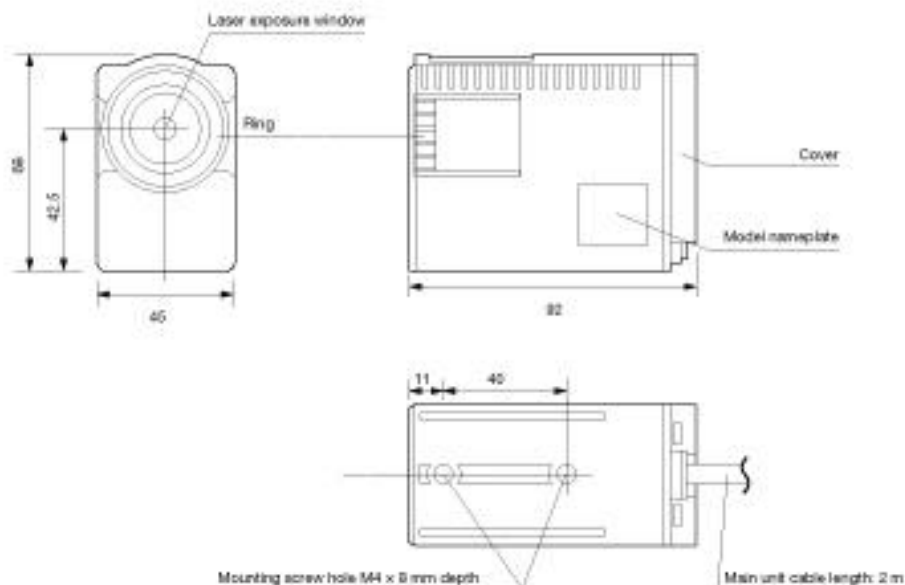- Gray Relay output
- Shielded wire — F.G

Notes regarding connections

1. Use a power supply within the rated voltage range, and pay careful attention to polarity.
2. Do not short-circuit the relay output to any other output lines.
3. The relay output uses a photo MOS relay, so it is insulated from the circuit. The ON resistance is 2.5 Ω or less.
4. For use in environments with strong EMI noise, countermeasures such as passing the output cord through an iron pipe are necessary.
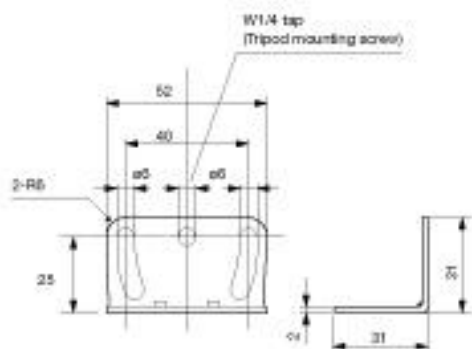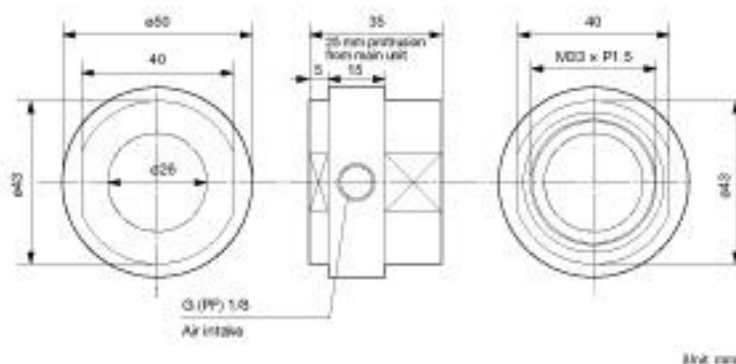
Dimensions

● **Main unit**

Laser exposure window
Ring
Cover
Model nameplate

Mounting screw hole M4 × 8 mm depth
Main unit cable length: 2 m

● **Main unit mounting bracket**
(included accessory)

W1/4 tap
(Tripod mounting screw)

● **Air purge collar**
BA-AP1 (optional accessory)

G.(PF) 1/8
Air intake

[Unit: mm]

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.

17