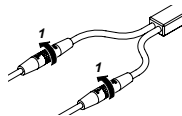
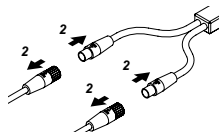


Removal procedure

1. Turn the fastening ring on each sensor head connection cable connector in the direction of the arrow to loosen.



2. Grasp each connector on the sensor head connection cable and pull out to remove.



When disconnecting, always make sure that the fastening ring has been completely loosened before pulling out the cable. Risk of damage if you pull the cable with excessive force (15N or more) with the fastening ring tightened.

6 BEAM ALIGNMENT AND REFERENCE WAVEFORM REGISTRATION

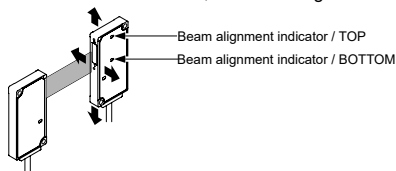
- When installing the product, always register a reference waveform. If a reference waveform is not registered, correct measurement will not be possible.
- Register the reference waveform without a measurement object.
- When detecting a measurement object with a regular reflection component such as glass or a mirror surface, reflected light from the measurement object may prevent correct detection. In this event, mount the emitter and receiver pair at an angle so that the reflected light does not enter the emitter or reflector. After adjusting the angle, always perform beam alignment.

<Beam alignment>

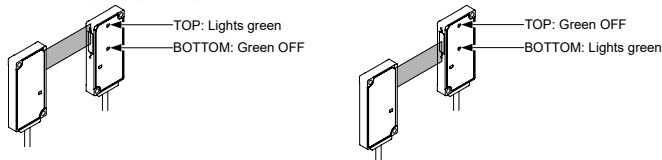
- Check the beam alignment indicator (orange / green) on the receiver as you align the beam.
- You can also check the state of the emitter / receiver beam on the digital display of the controller.

Alignment procedure

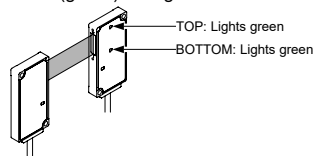
1. Move the receiver to align the beam while checking the beam alignment indicator (orange / green) on the receiver.
If the laser is not incident on the receiver, the beam alignment indicator will not light.



2. If the beam is skewed toward the TOP, only the TOP beam alignment indicator (green) will light.
If the beam is skewed toward the BOTTOM, only the BOTTOM beam alignment indicator (green) will light.



3. When the emitter / receiver beam is correctly aligned, both the TOP and BOTTOM beam alignment indicators (green) will light.



<Reference waveform registration>

- You can perform reference waveform registration by pressing the ENTER key on the controller with the beam correctly aligned. The reference waveform is stored in EEPROM in the receiver.

Note: For detailed information on beam alignment and waveform registration, refer to the "HG-T Series User's Manual" (our Website: <https://panasonic.net/id/pidsx/global>).

7 CAUTIONS

The HG-T Sensor Head is designed to be used in combination with an HG-TC Controller. If used with a separately purchased dedicated controller, the specifications will not be met and product malfunctioning or damage may occur.

- This product has been developed / manufactured for industrial use only.
- The receiver in this product uses an EEPROM. The EEPROM has a service life of one million setting operations.
- Do not use this product outside the range of the specifications. Risk of an accident and product damage. There is also a risk of a noticeable reduction of service life.
- To ensure performance, do not use the product after turning ON the power until it has warmed up for at least 30 minutes.
- Do not wire in parallel with a high-voltage line or power line, or run through the same conduit. Risk of malfunctioning due to induction.
- Do not apply stress such as excessive bending or pulling to the extracted part of a cable.
- Do not touch or allow any foreign objects to enter the terminal inside the connector.
- Do not allow ambient light such as sunlight to directly enter the sensor head receiver. When precision is particularly required, take measures such as attaching a shield to the sensor head.

- Avoid use in a location subject to sudden temperature changes that cause condensation.
- This product is suitable for indoor use only.
- Avoid dust, dirt, and steam.
- Do not use in a location where there are corrosive or other harmful gases.
- Ensure that the product does not come into contact with organic solvents such as thinner.
- Ensure that the product does not come into contact with strong acid or alkaline.
- Ensure that the product does not come into contact with oil or grease.
- The product cannot be used in an environment that contains flammable or explosive gases.
- Performance may not be satisfactory in a strong electromagnetic field.
- Do not use the product in a location subject to intense vibration or shock.
- The connectors are not structurally dustproof, waterproof, or corrosion-resistant. Do not use the product underwater or in the rain. Take care of the usage environment.
- This product is a precision device. Do not drop or otherwise subject to shock. Risk of product damage.
- Never attempt to disassemble, repair, or modify the product.
- When the product becomes unusable or unneeded, dispose of the product appropriately as industrial waste.

8 SPECIFICATIONS

Type	Measurement width: 10mm / standard type
Model No.	HG-T1010
Combined controller	HG-TC
Position detection method	CMOS method
Installation distance	0 to 500mm
Measurement width	10mm
Light source	Red semiconductor laser Class 1 [JIS / IEC / GB / FDA (Note 1)] Maximum output: 0.3mW, Peak emission wavelength: 655nm
Repeatability (Note 2)	1μm (at an installation distance of 20mm) 2.5μm (at an installation distance of 100mm) 5μm (at an installation distance of 500mm)
Linearity (Note 3)	±0.12% F.S. (at an installation distance of 20mm) ±0.28% F.S. (at an installation distance of 100mm)
Minimum sensing object (Note 4)	ø0.5mm (at an installation distance of 500mm)
Temperature characteristic (Note 5)	±0.03% F.S./°C
Protection	IP67 (IEC) (excluding the connector)
Pollution degree	2
Ambient temperature	-10 to +45°C (No condensation or icing), Storage: -20 to +60°C
Ambient humidity	35 to 85% RH, Storage: 35 to 85% RH
Ambient illuminance	Incandescent light: 5,000lx at the light-receiving face (Note 6)
Operating altitude	2,000m or less (Note 7)
Grounding method	Capacitor grounding
Material	Case: Aluminum die-casting, Light emitting / receiving faces: Glass
Cable	Attached 0.2m shielded cable with 4-conductor type, round connector
Weight	Emitter: 30 g approx., Receiver: 30 g approx.

Specification figures are based on the digital measurement values obtained with a sensor combined with an HG-TC controller. They were measured under the following condition unless otherwise specified.

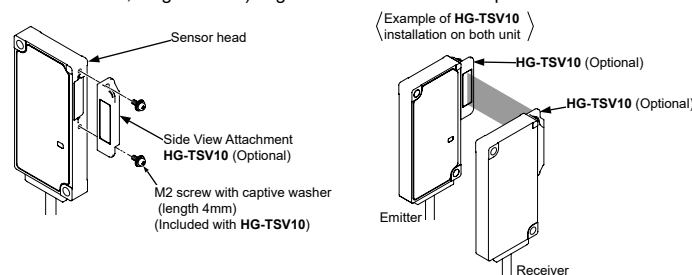
- Ambient temperature : +20°C
- Average controller count setting: 16 times
- Measurement object : Opaque knife edge
- Measurement object position condition: Light half-blocked at the center of 100-mm installation distance

Notes: 1) This is based on the FDA Standard, according to Laser Notice No. 50 of the FDA Standard.
2) P-P value of deviations in digital measurements obtained with light half-blocked at the center of installation distance
3) Indicates the error from the ideal line formed by digital measurements.
4) When light is light blocked at the center of 500-mm installation distance.
5) When light is light half-blocked at the center of 100-mm installation distance.
6) When the sampling cycle of the controller is set to "Standard Sampling". For detailed information, refer to the "HG-T Series User's Manual" (our Website: <https://panasonic.net/id/pidsx/global>).
7) Do not use or store in an environment that has been pressurized to an air pressure higher than the atmospheric pressure at 0m.

9 SIDE VIEW ATTACHMENT (OPTIONAL)

- When attaching the Side View Attachment to the emitter, make sure that beam alignment can be performed.
- After mounting the Side View Attachment to the sensor head, check whether the beam axis of the sensor head is aligned. After checking the beam axis, register the reference waveform and conduct operation check.

- By attaching the Side View Attachment HG-TSV10 (optional) to the product, you can change the laser light emission direction.
- To attach the HG - TSV 10 to the product, use the included setscrew (M2 screw with washer, length: 4 mm). Tighten the screw with a torque of 0.088 N·m or less.



Notes: 1) HG-TSV10 is sold individually. Two HG-TSV10 units are required when installing to both emitter and receiver.

• Specifications

Model No.	HG-TSV10
Combined sensor head	HG-T1010 (Note 1)
Installation distance	0 to 100mm (typical)
Linearity (Note2)	±56μm (typical)
Material	Main unit: LCP, optical surface: glass
Accessory	Set screw (M2 screw with washer, length: 4 mm): 2 pcs.
Weight	Approx. 2g

Notes: 1) Cannot be attached to the sensor head HG-T1110 (measurement width: 10mm / slim type).
Notes: 2) Measured at an installation distance of 100mm.

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Please visit our website for inquiries and about our sales network.

Panasonic Industrial Devices SUNX Co., Ltd. 2022
September, 2022

PRINTED IN JAPAN