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Warning Safety Precautions

- It is dangerous to wire or attach/remove the connector while the power is on. Make sure to turn off the power before operation.
- Installing in the following places may result in malfunction:
 1. A dusty or steamy place
 2. A place generating corrosive gas
 3. A place directly receiving scattering water or oil.
 4. A place suffered from heavy vibration or impact.
- The product is not designed for outdoor use.
- Do not use the sensor in a transient state at power on (Approx. 2sec. Warm up period)
- Do not wire with the high voltage cable or the power lines. Failure to do this will cause malfunction by induction or damage.
- Do not use the product in water.
- Operate within the rated range.
- Wipe off dirt on the emitting/receiving parts to maintain correct detection. Also, avoid direct impact on the product.

● **Regulations in the USA**
When exporting laser devices to the USA, the USA laser control, FDA (Food and Drug Administration) is applied. This product has been already reported to CDRH (Center for Devices and Radiological Health). For details, contact our customer service.



Please confirm following goods bundled in the box.

- BGS-HL□□□□
- This instruction manual
- Screws
M3 × 15...2
- Bracket



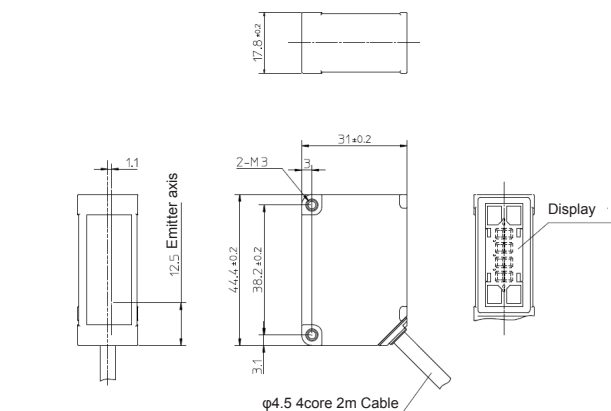
■ Pins configuration (sensor side)

• M8 connector type

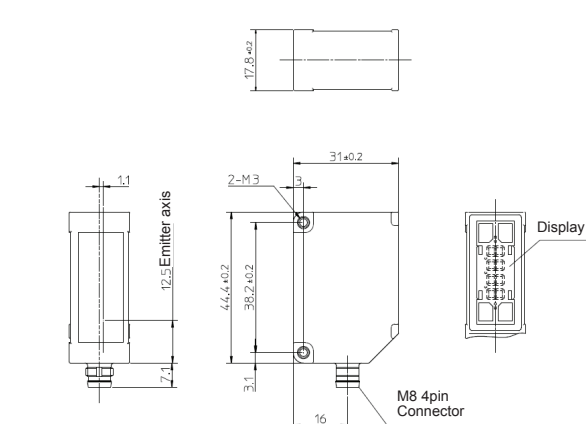


The diagram shows a circular M8 connector with four pins. The pins are labeled: White (top-left), Black (top-right), Brown (bottom-left), and Blue (bottom-right).

■ Cable type [mm]

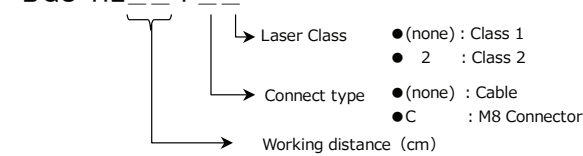


- M8 connector type



● Part number legend

BGS-HL T



● Specifications

Part number	Cable type	BGS-HL05T	BGS-HL25T2
	Connector type	BGS-HL05TC	BGS-HL25TC2
Sensing range ^{*1}		20 ~ 50mm (Display: 0.00 ~ 30.00)	50 ~ 250mm (Display: 0.0 ~ 200.0)
Light source		Red laser Diode (wave length 655nm)	
		390μW	1mW
Laser class	IEC/JIS	CLASS 1	CLASS 2
Spot size ^{*2}		φ 0.8 mm @ 50mm	φ 1 mm @ 250mm
Repeat accuracy		10μm	100μm ^{*3}
Sampling period		500μs / 1000μs / 2000μs / 4000μs / AUTO	
Response time		1.5ms max. (1.5~7ms/default)	1.5ms max. (3~14ms/default)
Hysteresis		0 ~ 22.49 (default: 0.15)	0 ~ 149.9 (default: 1.0)
Display		7-segment 4-digit LED display	
Indicator		Laser indicator: Green, Output indicator: Orange, Mode indicator: Red	
Control Output		NPN/PNP selectable 100mA max./DC24V (Residual voltage 1.8 V max.)	
External Input		Laser OFF, Teaching, Sample Hold, One shot hold	
Timer function		OFF/On delay/Off delay/One shot 1msec increment : 0 ~ 9999ms	
Supply voltage		12 ~ 24VDC including 10% ripple	
Current consumption		40mA max. / 24VDC excluding the current of Control Output	
Protection circuit		Reverse connection protection, Over current protection	
Protection category		IP67	
Operating Temp./Humid.		-10 ~ 50°C / 35 ~ 85% RH without frosting or condensation	
Storage Temp./Humid.		-20 ~ 60°C / 35 ~ 85%/RH	
Ambient illuminance		Incandescent lamp: 3,000 lx max.	
Vibration resistance		10 ~ 55Hz, Double amplitude 1.5mm, X,Y,Z for 2 hours	
Shock resistance		500m/s ² (approx. 50G) X,Y,Z 3 times each	
Material		Case: Aluminum, Front lens: PPSU, Display: PET	
Weight		Cable type : Approx. 90g (including cable) Connector type : Approx. 30g	

The specifications are based on the condition unless otherwise designated: Ambient temperature: 23°C , Supply voltage: 24VDC, Sampling period: 500μs, Averaging: 512, Measuring distance: Center of the range, Testing object: White ceramic

※ 1 When [Shift] in Extension mode is ON, the display shows 0000 at the Teaching point.

The range that the display can show is as follows

BGS-HL05 -7.50 ~ 37.50

BGS-HL25	-50.0 ~ 250.5
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When the distance exceeds this range in Sensing range, the display shows FFFF. Although, the sensor works while the distance is in Sensing range. The display shows 9999 when the distance is out of range.

※ 2 Defined by light strength within $1/e^2$ (13.5%) of spot center. There may be leak light at outside of the specified spot size. The sensor may be affected when there is a highly reflective object at that leak light area.

※ 3 Sampling period : 1000 μ s.

Control panel

Cable (minimum bending radius : 10mm)

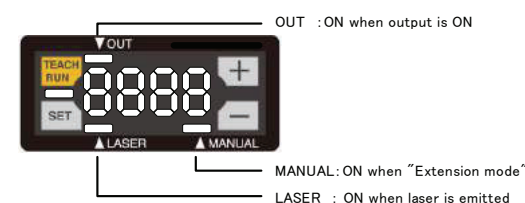
* Don't bend the cable of the outlet part up to 30mm from the case.

Holes for installation (M3 * 2)

* Tightening torque must be 0.5N·m Max.

Lens (Emitter/Receiver)

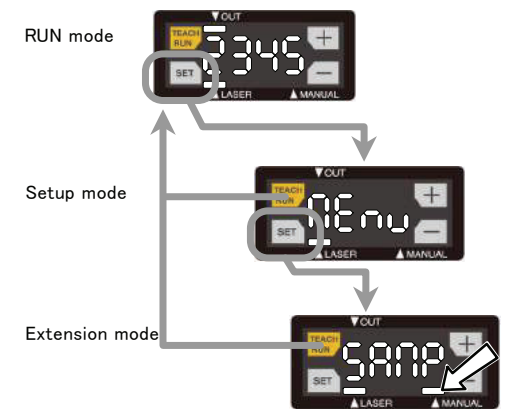
- Control panel



- Changing mode

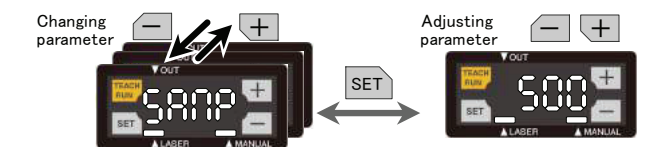
While it's "Setup mode" or "Extension mode", you can change the mode to "RUN mode" by clicking "TEACH/RUN" button.

While it's "Extension mode", the LED "MANUAL" is lit.



- Changing parameters

You can choose and adjust the parameters by clicking "+" and "-" buttons.
The mode will be changed to "RUN mode" by clicking "TEACH/RUN" button.



You can change threshold level directly by "+" and "-" buttons after clicking "TEACH/RUN" button from "RUN mode".

By pressing "TEACH/RUN" button for 2 seconds or more, it gets to "Teaching mode". It has 3 "Teaching mode" that you can choose one in "Setup mode".

Please refer "Teaching mode" and "Setup mode" on next page.

