

Easily Measure Height and Distance

Measure from up to 2.5 m away.

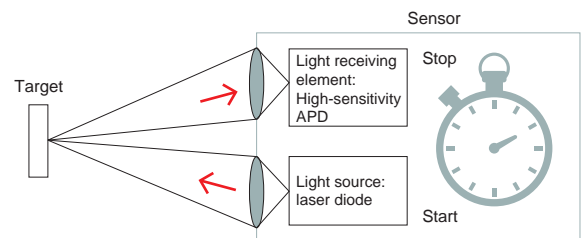
“Visualize” distances with the GHK40T compact sensor.



The GHK40T Series is the TOF sensor*1. This ultra-compact laser distance sensor is capable of measuring at distances of up to 2.5 m. With a built-in digital display, configuring settings is simple. Notably, the GHK40T Series is most useful with applications requiring height and target distance control, such as level and position measurements and loop control at a manufacturing site.

TOF (Time Of Flight) method

The TOF method measures the time it takes a pulse-emitted laser to hit a target and return, and the measurement is then converted into distance. With strong resistance to influences from the target's surface conditions, this method is capable of producing stable detection.



Model

Type	Measurement range	Laser class	Interface	Model Pig tail types are shown in parentheses
	0.25 to 2.5 m	Class 1	Analog output Control output External input	GHK40T-D2M-E6P/NIU6/E0.3M-AJ1
			Control output × 3 External input	GHK40T-D2M-E6TP/N6/E0.3M-AJ1

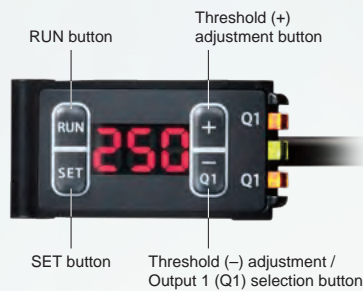
Easy-to-See Digital Display

With its ultra-compact size, the GHK40T Series is equipped with a three-digit, easy-to-see digital display.

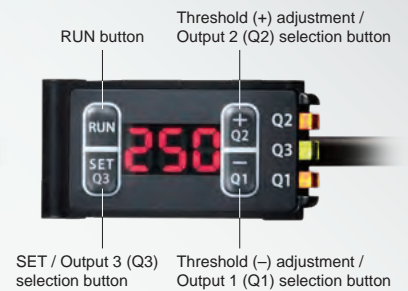
The display allows users to check the distance showing numerical values.

This digital display also makes teaching adjustments easy.

■ Analog output type



■ Three-output type



Easy-to-See Indicators and Stability Output

The indicators used on the GHK40T Series allow for easy visibility from any angle.

In addition, users are able to switch output 1 to Stability Output.

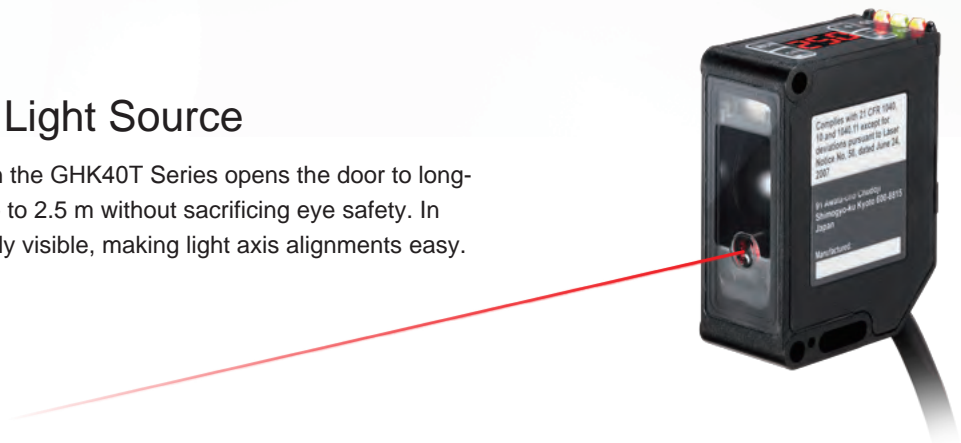
Stability Output turns ON (Central indicator = Green) when measuring is stable and turns OFF (Central indicator = Red) when measurement is not possible.



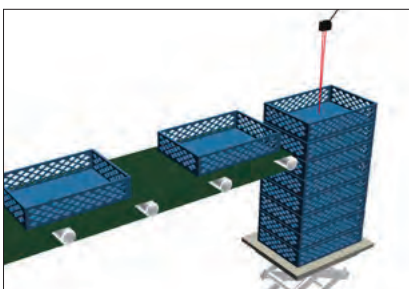
Indicators visible from any direction

Class 1 Laser Light Source

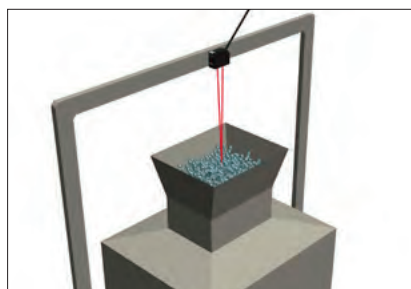
The Class 1 laser used in the GHK40T Series opens the door to long-distance measuring at up to 2.5 m without sacrificing eye safety. In addition, the spot is clearly visible, making light axis alignments easy.



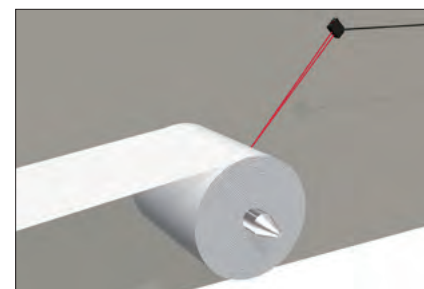
Applications



Lifting platform lift amount measurement



Measurement of material amount remaining in tank



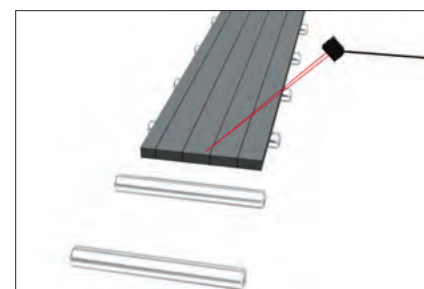
Measurement of remaining non-woven fabric amount



Sheet material loop control



Wafer protrusion detection in cassettes



Long-distance detection of building material

Specifications

Type		Analog output type	Three-output type
Model**1	Cable type	GHK40T-D2M-E6P/NIU6/2M-AJ1	GHK40T-D2M-E6TP/N6/2M-AJ1
	Pig tail type	GHK40T-D2M-E6P/NIU6/E0.3M-AJ1	GHK40T-D2M-E6TP/N6/E0.3M-AJ1
Measurement range*2		0.25 to 2.5 m	
Light source	Medium/Wavelength	Red laser Diode (Wavelength:650nm)	
	Average output	390 µW or less	
Laser class		Class 1	
Spot size*4		ø10 mm (At a distance of 2.5 m)	
Sampling period / Response time		200 µs / 0.5 ms or less (When performing moving average once)	
Hysteresis		15% or less	
Sensitivity adjustment		Teaching (Manual adjustment possible after teaching)	
Indicators		Output indicator (Orange), Stability indicator / laser off indicator: (Green) / (Red) / (Off)	Output 1 indicator (Orange), Output 2 indicator (Orange), Output 3 indicator / Stability indicator / Laser off indicator: (Orange) / (Green) / (Red) / (Off)
Digital display		7-segment, 3-digit LED display (Display unit: cm)	
External input		Laser OFF input / Teaching input (Selectable by setting)	
Control output	No. of outputs	1	3 (Output 3 available by switching external input)
	Stability output	Output 1 switchable to stability output (Selectable by setting)	
	Type	Open collector (NPN/PNP selectable by setting), Max. 100 mA / 30 VDC, residual voltage 1.8 V Max.	
Analog output	Output mode	Light ON / Dark ON selectable (Output 1 through 3 will be set to same output mode for three-output type)	
	Current output	4 to 20 mA, Load impedance: 300 Ω or less	Not equipped
	Voltage output	0 to 10 V, Output impedance: 100 Ω or less	
Connection type		Cable type: ø4.5 mm, 2 m cable, Pig tail type: Cable with M12, 5-pin connector 300 mm	
Protection circuit		Reverse connection protection, Overcurrent protection	
Rating	Power supply voltage	12 to 30 VDC, including 10% ripple (p-p)*5	10 to 30 VDC, including 10% ripple (p-p)
	Current consumption	60 mA or less*6	
Applicable regulations	EMC	EMC directive (2014/30/EU)	
	RoHS	RoHS directive (2011/65/EU), China RoHS (Directive 32)	
	Safety	FDA regulations (21 CFR 1040.10 and 1040.11*7)	
Applicable standards		EN 60947-5-7 / IEC 60825-1	EN 60947-5-2 / IEC 60825-1
Environmental resistance	Ambient temperature/humidity	-10 to +50°C (No freezing) / 35 to 85% RH (No condensation)	
	Ambient illuminance	Sunlight: 4,000 lx or less, Fluorescent lamp: 3,000 lx or less	
	Vibration resistance	10 to 55 Hz, double amplitude 1.5 mm, 2 hours in each of the XY and Z directions	
	Shock resistance	500 m/s ² (Approx. 50 G), 3 times in each of the XY and Z directions	
	Protection category	IEC standard, IP67	
Material		Housing: PC, Front cover: PMMA	
Weight (Incl. cable)		Cable type: 88 g, Pig tail type: 48 g	
Included accessories		Mounting bracket, Mounting screws (M3 × 20 mm)	

*1 Connector type (M8, 4-pin) also available (Built to order).

*2 For black paper (6% reflectance), gray paper (18% reflectance), and white paper (90% reflectance).

*3 In accordance with the FDA provisions of Laser Notice No. 50, the laser is classified as Class 1 per the IEC 60825-1:2007 and 2014 standards.

*4 Defined with 1/e² (13.5%) of the center strength at the maximum detection distance. The sensor may be affected by light leakage at spot sizes other than the default and when there is a highly reflective object close to the detection area.

*5 For analog output types, use a power supply voltage of 12.0 VDC or higher to obtain normal output.

*6 Not including control output load current. *7 Excluding differences per Laser Notice No. 50.

Options

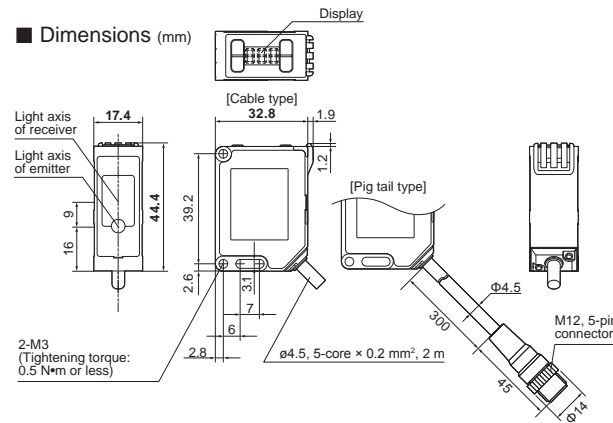
(Required for pig tail types)



Connector cable
EK4.5-2M/S10
Cable length: 2 m

*5 m and 10 m cables are available.
*Robot cables are also available.

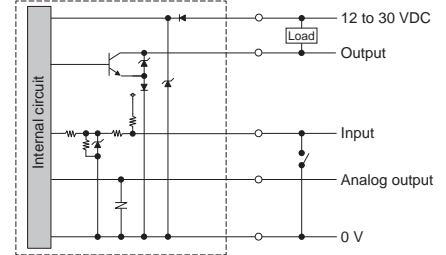
Dimensions (mm)



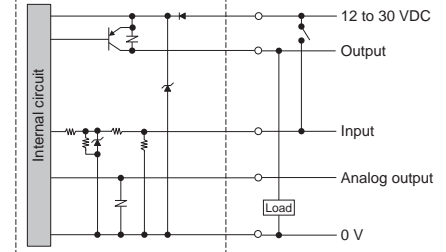
I/O Circuit Diagrams

Analog output type

Set to NPN



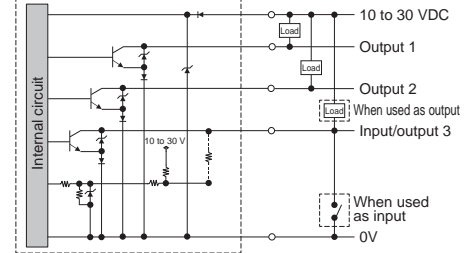
Set to PNP



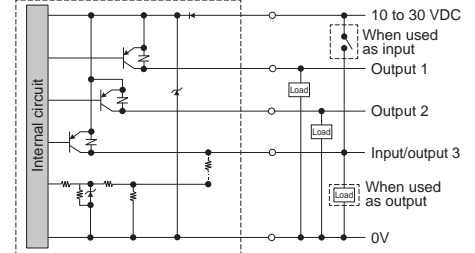
Cable type wiring color	Pig tail type pin No.
Brown: 12 to 30 VDC	① 12 to 30 VDC
Blue: 0 V	② Analog output
Black: Output	③ 0 V
White: Analog output	④ Output
Gray: External input	⑤ External input

Three-output type

Set to NPN



Set to PNP



Cable type wiring color	Pig tail type pin No.
Brown: 10 to 30 VDC	① 10 to 30 VDC
Blue: 0 V	② Output 2
Black: Output 1	③ 0 V
White: Output 2	④ Output 1
Gray: External input (Switchable to output 3)	⑤ External input (Switchable to output 3)

Attention: Not to be Used for Personnel Protection.

Never use these products as sensing devices for personnel protection. Doing so could lead to serious injury or death.

These sensors do not include the self-checking redundant circuitry necessary to allow their use in personnel safety applications.

A sensor failure or malfunction can cause either an energized or de-energized sensor output condition.

Please consult our distributors about safety products which meet OSHA, ANSI and IEC standards for personnel protection.

- Specifications are subject to change without prior notice.
- Specifications and technical information not mentioned here are written in Instruction Manual. Or visit our website for details.
- All the warnings and cautions to know prior to use are given in Instruction Manual.

