SUNX

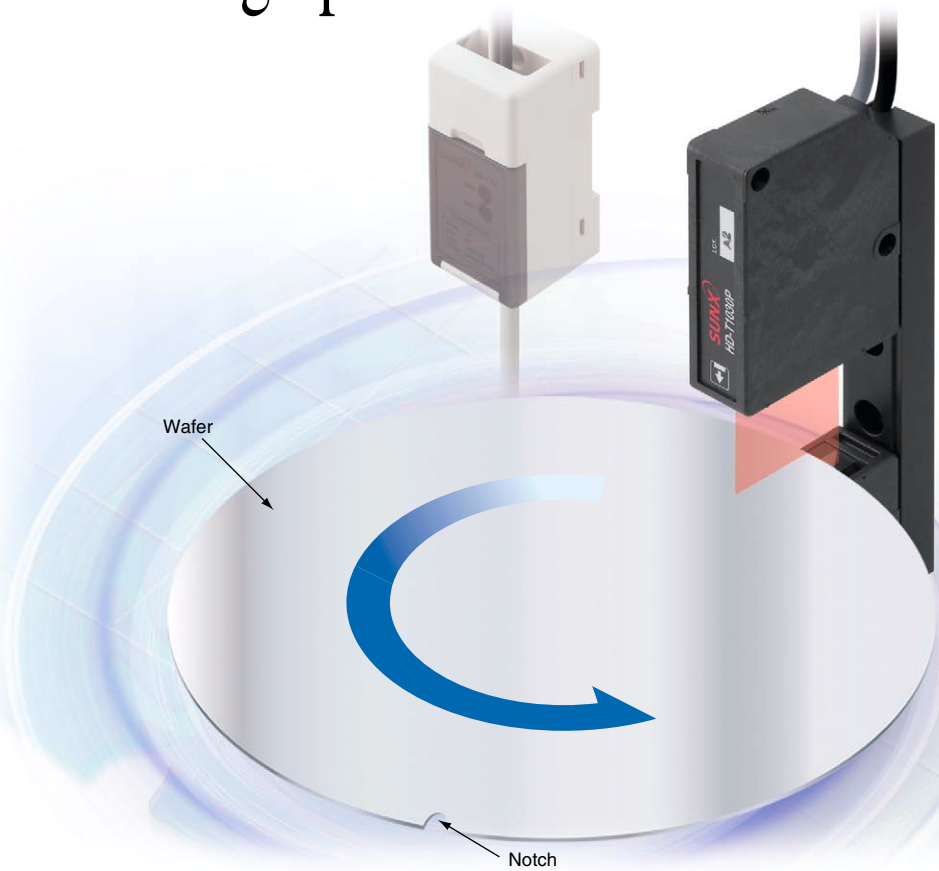
LED TYPE WAFER ALIGNMENT SENSOR

New

HD-T1 SERIES

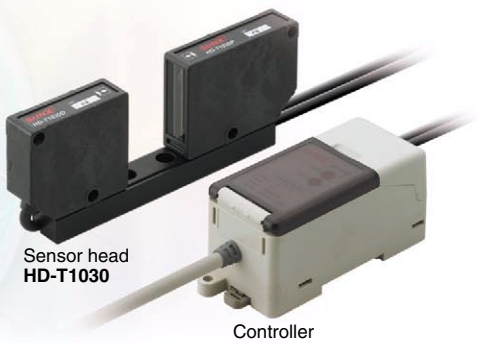
CE Conforming to EMC Directive

The use of a safe LED light beam now allows for high precision detection with a resolution of 30 µm



Best suited for the detection of wafer eccentricity, notches and orientation flats!

(Sensing width 30 mm 1.181 in)



Sensor head
HD-T1030

Controller
HD-T1C

No safety measures are required at all

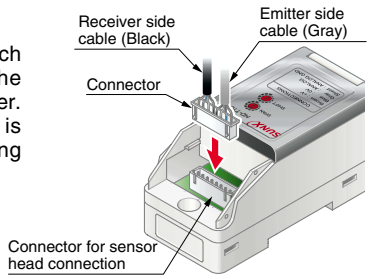
As a safe red LED is used as the light source, there is no need for time-consuming safety measures.
The protective covers usually required when using laser beams are not needed, and FDA approval is not required in order to use this sensor in the US.

High resolution of 30 µm 1.181 mil

Although the **HD-T1** series uses a red LED for its light source, it has the same high level of performance as laser sensors, thus enabling high precision detection.

Easy installation

This unit utilizes a one-touch connector to connect the sensor head to the controller. The amount of wiring is therefore minimized, resulting in easy maintenance.

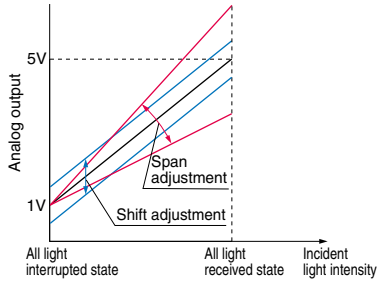


No need for beam axis alignment

As both the receiver and the emitter are integrated into a single unit, there is no need to perform any troublesome alignment of the beam axis. In addition, as the **HD-T1** series can perform its detection function over a broad area - with both a sensing range and a sensing width of 30 mm 1.181 in, this unit can be utilized for sensing wafers of many different sizes.

Adjustment functions for both span and shift have been incorporated into the HD-T1 series

In addition to the span adjustment function, a convenient shift adjustment function has also been incorporated into the analog output (1 to 5 V). The shift adjustment function allows the analog voltage to be shifted by up to ±0.5 V.



Low current consumption of 70 mA or less

The **HD-T1** series has a maximum current consumption of only 70 mA, for both the sensor head and the controller. The current consumption is almost as low as that of photoelectric sensors.

SPECIFICATIONS

Sensor head

Model No. / Item	HD-T1030
Applicable controller	HD-T1C
Sensing width	30 mm 1.181 in (Linearity is specified at 28 mm 1.102 in width.)
Sensing range	30 mm 1.181 in (fixed) (Note 1)
Ambient temperature	0 to +40 °C +32 to 104 °F (No dew condensation), Storage: −20 to +55 °C −4 to +131 °F
Ambient humidity	35 to 85 % RH, Storage: 35 to 85 % RH
Emitting element	Red LED (Peak wavelength: 650 nm 0.026 mil)
Material	Enclosure: PEI, Front cover: Glass, Mounting base: Aluminum
Cable	Heat resistant PVC cable, 0.5 m 1.64 ft long, with a connector at the end
Weight	150 g 5.291 oz approx.

Note 1: The value is in a state that the sensor is mounted on the mounting base at the time of factory shipment.

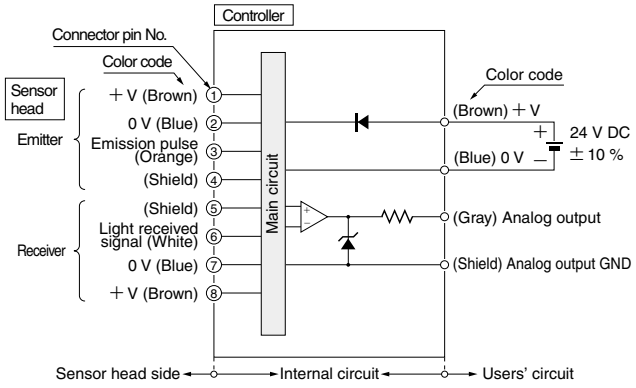
Controller

Model No. / Item		HD-T1C
Applicable sensor head		HD-T1030
Supply voltage		24 V DC ± 10 % Ripple P-P 10 % or less
Current consumption		70 mA or less (Including sensor head)
Analog output		Analog voltage • Output voltage: 1 ± 0.5 V (all light interrupted) to 5 ± 0.5 V (all light received) • Output impedance: 75 Ω
	Response time	0.5 ms or less (8 V/ms or more)
	Resolution	30 μm 1.181 mil (Note 1)
	Linearity	± 1.0 % F.S. (at 28 mm 1.102 in sensing width of the sensing center) (Note 2)
	Temperature characteristics	± 0.1 % F.S./ °C (at 24 ± 2 °C 75.2 ± 35.6 °F) (Note 2)
Span adjustment function		Span of the analog output voltage is adjusted. 15-turn endless adjuster
Shift adjustment function		Offset of the analog output voltage is adjusted. 15-turn endless adjuster
Warming-up period		30 min. or more
Ambient temperature		0 to +40 °C +14 +104 °F (No dew condensation), Storage: −20 to +70 °C −4 +158 °F
Ambient humidity		35 to 85 % RH, Storage: 35 to 85 % RH
Material		Enclosure: Heat-resistant ABS, Connector cover: Heat-resistant ABS Adjuster cover: Polycarbonate
Cable		0.22 mm² 3-core heat-resistant PVC cable, 0.3 m 0.984 ft long
Weight		85 g 2.998 oz approx.

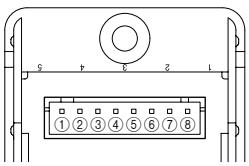
Notes: 1) Resolution refers to the peak to peak distance conversion value of analog output (in the frequency band below 20 MHz).
2) This is the representative example of measurement with a combination of sensor head and controller.

I/O CIRCUIT AND WIRING DIAGRAMS

I/O circuit diagram



Terminal arrangement



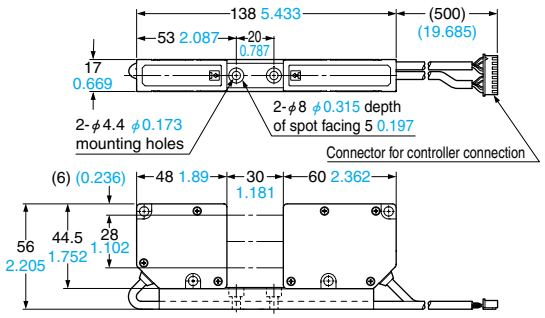
Terminal No.	Description	
①	+ V	Emitter side
②	0 V	
③	Emission pulse	
④	Shield	
⑤	Shield	Receiver side
⑥	Light received signal	
⑦	0 V	
⑧	+ V	

PRECAUTIONS FOR PROPER USE

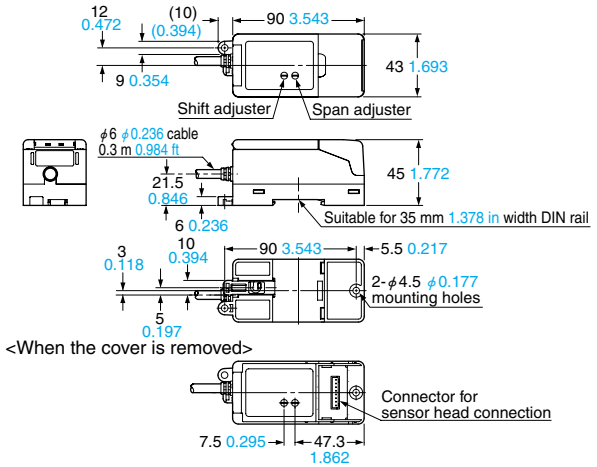
- Never use this product as a sensing device for personnel protection.
- In case of using sensing devices for personnel protection, use products which meet standards, such as OSHA, ANSI or IEC etc., for personnel protection applicable in each region or country.

DIMENSIONS (Unit : mm in)

HD-T1030 Sensor head



HD-T1C Controller



All information is subject to change without prior notice.

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Sensing the Future

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Printed on 100% recycled paper PRINTED IN JAPAN
No. LCE-HDT1-5 June, 2002