

# SENPUM

Sensors & Measuring Instruments

## Sensors

Measuring Instruments, Static Eliminators



Fiber Optics

Photoelectric \ Laser

Color

Safety

Proximity

Laser Displacement

Contact Displacement

Infrared Temperature

RFID Readers

Flow rate

Barcode Reader

Static Eliminator



# Meeting Diverse Needs with Advanced Technology

## Fiber Optics

High-performance Fiber Optic Components **SP Series**

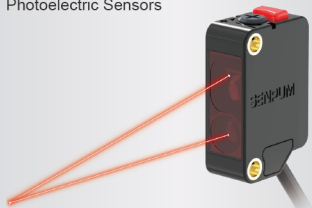


High Precision Digital Fiber Amplifier **FX-N10 Series**



## Photoelectric \ Proximity

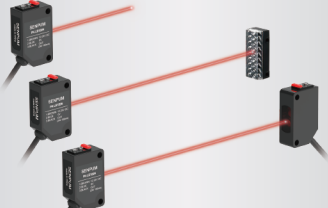
High-performance Background Suppression Photoelectric Sensors **PX-400 Series**



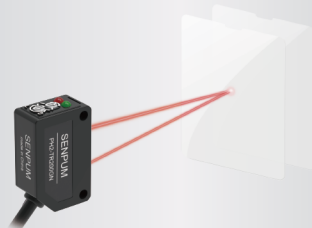
Ultra-compact Photoelectric Sensors **PL-F Series**



Medium and Long Distance Photoelectric Sensors **PK-L Series**



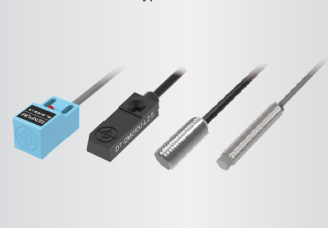
Transparent Detection Type Photoelectric Sensor **PH2-T Series**



High Performance Proximity Sensor **DH/DH2 Series**

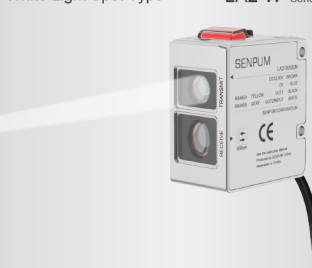


Square Proximity Sensor **DT-Q / DL-Q Series**  
General Standard Type **DL Series**



## Color

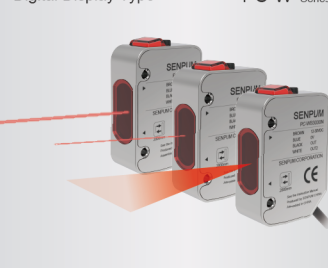
White Light Spot Type **LA2-W Series**



White LED Intelligent Type **LA-F10 Series**



Digital Display Type **PC-W Series**



## Laser

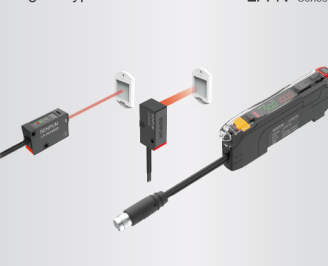
CMOS Type **LA2-ZB Series**



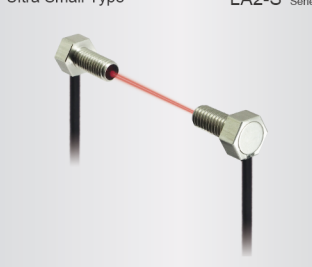
Standard Type **LA-ZB Series**



Digital Type **LA-N Series**



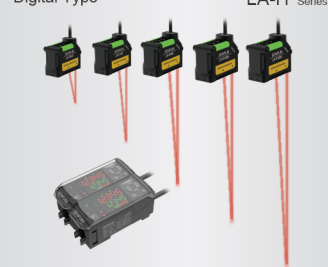
Ultra Small Type **LA2-S Series**



Long-range Type **LA-MR Series**



Digital Type **LA-H Series**



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# Sensors

## Measuring Instruments, Static Eliminators

Precision Contact \  
Contact Displacement

Standard Pole Type MT-M Series



Digital Type MT1 Series



Laser Displacement

Medium and Long Distance Type LM2-Q Series



CMOS Type LM Series



Safety

Thin Anti-Interference Type Area Sensor SA-V Series



Type 4 Safety Light Curtain SL-R Series

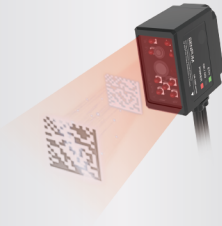


Safety Laser Scanner SC-V Series



Barcode \  
Temperature

Standard 1D/2D Barcode Reader XR-1000 Series



Digital Display Standard Type Infrared Temperature Sensor TS-D Series



Static

Ultra-compact Electrostatic Fan SK3-A Series



Intelligent Static Wind Wand SK-E Series



Ultra-compact Static Nozzle SK-Z300 Series



High Frequency Static Air Gun SK-L Series



Static Measuring Instrument SK-T Series



Fiber Optics

Photoelectric /  
Proximity

Color

Laser

Safety

Precision Contact \  
Contact Displacement

Laser Displacement

Barcode \  
Temperature

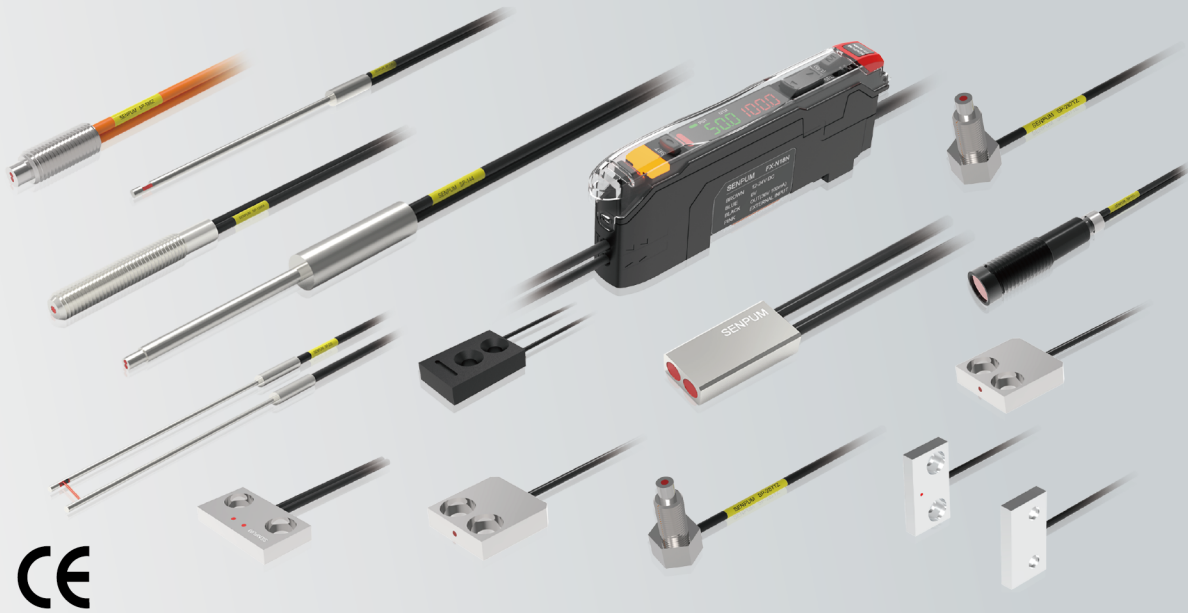
Static



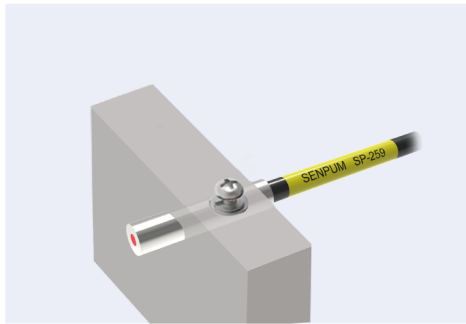
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# Fiber Optics High-performance Fiber Optic Components

## SP Series



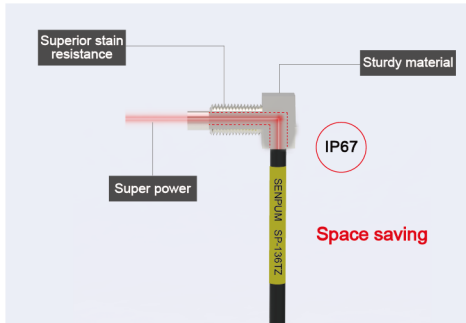
In limited occasions, it can be perforated and mounted by screw fixing.



Adopt long hole design screw holes, easy to adjust the optical axis.

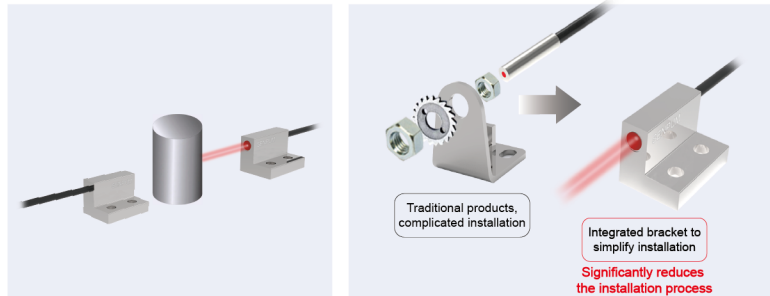


Combination of space saving, high power and high protection.

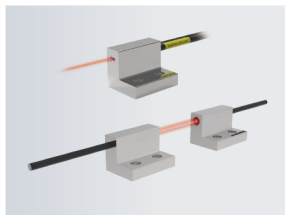


Simple and easy to install.

Sensor integrated into the bracket simplifies installation.

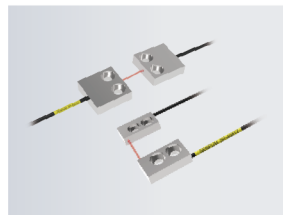


### With mounting holes



#### Integrated mounting bracket type

The shape of the mounting metal part is L-shaped. Integration of the mounting metal part and the sensor simplifies cumbersome mounting work.



#### Flat plate bracket type

Thin and with its own mounting holes, it is easy to install directly in places where space is limited.

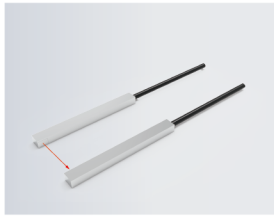


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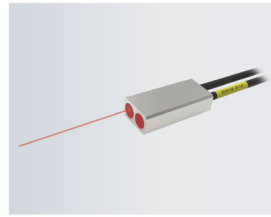
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Narrow field of view / High power



Narrow field of view / High power

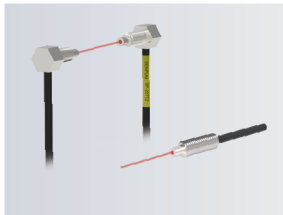
Narrow field of view with an aperture angle of 6°. Unaffected by light deflection, etc., enabling accurate inspection of workpieces. Side-view type is easy to install in places where space is limited.



Narrow beam / High power type

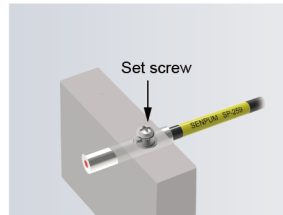
High-power reflective element with an 8° aperture angle. Workpieces can be inspected from a certain distance away. The double glass lens ensures stable inspection even when there is a small amount of dust adhering to the lens.

Standard



Screw-fixed mounting type

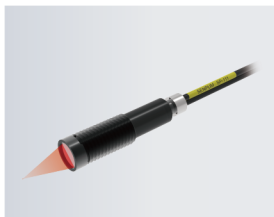
The cables are resistant to bending at 90°, which facilitates aesthetic wiring.



Cylindrical

Where space is limited, holes can be drilled for mounting set screws.

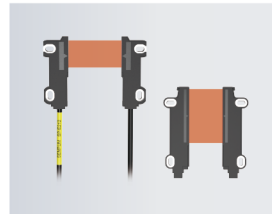
Small light spot



Small light spot

Spot size can be freely selected. Focus distance can be changed, so there is no need to fine-tune the distance between the sensor and the workpiece.

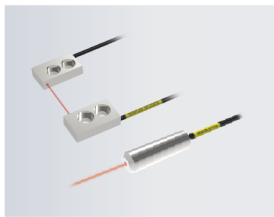
Wide range



Regional type

Built-in lens that creates a wide range of parallel light. Inspection range width up to 40mm can be used to detect cases where the passing position of the workpiece is uncertain, such as dropping.

Bend-resistant



High elasticity type

Bending radius of 2mm can be maintained with excellent flex resistance.

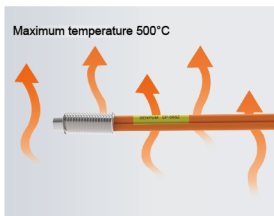
Oil and drug resistant



Oil / chemical resistant

Oil- and chemical-resistant protective housing prevents fiber optic deterioration. Can be used in a variety of harsh environments with oil or chemical splashes.

Heat-resistant

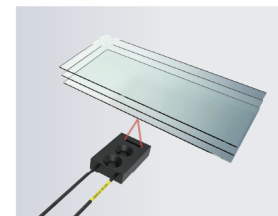


Maximum temperature 500°C

High temperature resistant type

High temperature resistant fiber optic sensor. Heat resistant up to 500°C.

Liquid crystal / semiconductor



Limited reflection type

The product lineup includes long-range positioning sensors, edge detection sensors, and wafer mapping sensors for inspection of glass substrates.

Liquid level



Liquid level type

Liquid level can be detected by installing a sensor inside the transparent pipe.

Casing



Casing type

The front part is thinner. The lineup includes side-view models for easy installation where space is limited.

Fiber Optics  
Photoelectric / Proximity  
Color  
Laser  
Safety  
Precision Contact / Contact Displacement  
Laser Displacement  
Barcode / Temperature  
Static



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**Screw-fixed mounting type**

The sensor is self-threaded and can be fixed directly by screws simply and conveniently.

**Through-beam type**

Type	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Optical axis diameter	Smallest detectable object	Model / Weight	
M3	1 m free cutting (ø1.3×2) -40 to +50°C		R25	0~550	-		SP-236FA Approx. 12g	
			R2 Bend-resistant	0~450	-		SP-236TZ Approx. 12g	
M4	2 m free cutting (ø2.3) -20 to +50°C		R1 Bend-resistant	0~3600	ø2.3	ø0.005	SP-271TZ Approx. 22g	
			R2 Bend-resistant	0~3100			SP-278TZ Approx. 43g	
	1 m non-cutttable -40 to +50°C		R10 Stainless steel	0~1800	ø1.13		SP-278TG Approx. 43g	
		2 m free cutting (ø2.2) -40 to +70°C		R25			0~3600	SP-28F Approx. 21g
				R4			0~2200	SP-279 Approx. 9g
2 m free cutting (ø2.2) -40 to +50°C		R4 Bend-resistant	0~3600	ø1.13	SP-278 Approx. 25g			
		R0.5 Bend-resistant			SP-278V Approx. 25g			
M4	1 m non-cutttable -40 to +50°C		R10 Stainless steel	0~1800	ø1.5	SP-278G Approx. 39g		
		2 m free cutting (ø2.2) SP-272Z: -40 to +50°C SP-272: -40 to +70°C		R2 Bend-resistant		0~3600	SP-272Z Approx. 25g	
			R25	SP-272 Approx. 25g				

**Through-beam type**

Type	Fiber element length (diameter) Ambient temperature	Shape(mm)	Minimum bending radius(mm)	Detection distance(mm)**	Optical axis diameter	Model / Weight
M4	2 m free cutting (ø2.2) -40 to +60°C		R2 Bend-resistant	0~3600	Light casting: ø1 Receiving light: ø3.2	SP-R278TZ Approx. 25g
			R10 Stainless steel	0~1800		SP-R278TG Approx. 43g
	2 m free cutting (ø2.2) -40 to +60°C		R2 Bend-resistant	0~3600		SP-R278 Approx. 21g
			R25	0~3600		SP-R28F Approx. 21g
			R10 Stainless steel	0~1800		SP-R278G Approx. 41g

\*1 When using the FX-N10 Series, "3600 mm (1800 mm)" is the maximum value because the cable length is 2 m (1 m).

**Limited reflection type**

Limited detection range allows detection of transparent objects. Self-contained mounting holes for direct installation.

**Reflective type**

Detection direction	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Optical axis diameter	Smallest detectable object	Model / Weight
Side	2 m free cutting (ø1.0×2) -40 to +70°C		R10	3 Center of detection distance	Approx. ø4.5 Approx. ø3.5 (Distance is 3)	ø0.005 Gold wire	SP-138 Approx. 6g
				0~4	—	ø0.08 Copper wire	SP-139V Approx. 5g
Flat	2 m free cutting (ø1.0×2) -40 to +70°C		R25	6 Center	Approx. ø1.5 (Distance is 6)	-	SP-139 Approx. 5g
				0~89	-	SP-139L Approx. 20g	
	2 m free cutting (ø2.2×2) -40 to +70°C		R5	0~25	-	SP-139S Approx. 20g	
			R25	0~14	-	SP-139R Approx. 20g	
			R25	0~150	-	SP-141S Approx. 25g	



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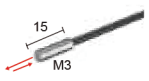
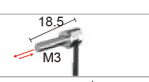
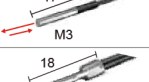

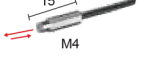



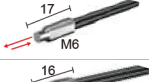
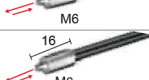


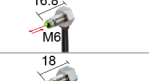
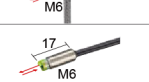
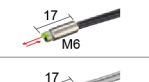
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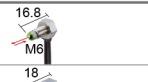

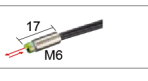

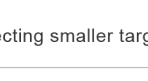
# Screw-fixed mounting type

The sensor is self-threaded and can be fixed directly by screws simply and conveniently.

## Reflective type

Size	Appearance	Detection arrangement	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Smallest detectable object	Model / Weight	
M3	Threaded	Coaxial	50 cm non-cuttable SP-122X: -40 to +70°C SP-125X: -40 to +50°C		R25	0~130	ø0.005 Gold wire	SP-122X Approx. 4g	
					R10	0~100		SP-125X Approx. 4g	
	Hexagonal type		1 m free cutting (ø1.3×2) -40 to +50°C		R2 Bend-resistant	0~400		SP-136TZ Approx. 7g	
			1 m free cutting (ø1.3×2) -40 to +50°C					SP-136FZ Approx. 6g	
			Threaded	1 m free cutting (ø1.3×2) 30 cm spiral -40 to +50°C		R10 Stainless steel		0~450	SP-136FG Approx. 6g
				1 m free cutting (ø1.3×2) -40 to +70°C		R25		0~550	SP-136FA Approx. 6g
M4	Parallel	2 m free cutting (ø1.3×2) SP-167: -40 to +70°C SP-167Z: -40 to +50°C		R25	0~1100	SP-167 Approx. 10g			
				R2 Bend-resistant	0~770	SP-167Z Approx. 10g			
M6	Hexagonal type	Coaxial	1 m non-cuttable -40 to +50°C		R10 Stainless steel	0~400	SP-136TG Approx. 32g		
					R25	0~720	SP-126 Approx. 18g		
	Threaded		Parallel	2 m free cutting (ø2.2×2) -40 to +70°C			0~1100	SP-17F Approx. 21g	
				2 m free cutting (ø2.2×2) -40 to +70°C		0~1300	SP-162 Approx. 21g		
			Parallel	2 m free cutting (ø2.2×2) -40 to +50°C		R2 Bend-resistant	0~900	SP-168 Approx. 21g	
				2 m free cutting (ø2.2×2) -40 to +50°C		R0.5 Bend-resistant		SP-168V Approx. 25g	
		2 m free cutting (ø2.2×2) -40 to +50°C		R0.5 Bend-resistant	SP-168TZ Approx. 32g				

## Reflective type


Type	Fiber element length (diameter) Ambient temperature	Shape(mm)	Minimum bending radius(mm)	Detection distance(mm)**	Model / Weight	
Size / Shape						
M4	Hexagonal type	2 m free cutting (ø2.2×2) -40 to +60°C		R2 Bend-resistant	0~710	SP-R168TZ Approx. 25g
		1 m non-cuttable -40 to +60°C		R10 Stainless steel	0~710	SP-R168TG Approx. 32g
	Threaded	2 m free cutting (ø2.2×2) -40 to +60°C		R2 Bend-resistant	0~900	SP-R168 Approx. 21g
		2 m free cutting (ø2.2×2) -40 to +60°C		R25	0~1100	SP-R17F Approx. 21g
		1 m non-cuttable -40 to +60°C		R10 Stainless steel	0~900	SP-R168G Approx. 29g

\*1 When using the FX-N10 series.

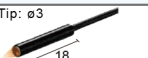
# Small spot type

Suitable for detecting smaller targets, free to choose the spot size and change the focus distance.

### Adjustable optoelectronics (built-in lens fiber optic element)

Type	Spot diameter	Focal length	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Model / Weight
Adjustable light point	ø0.9~3.5	10~30	2 m free cutting (ø1.3×2) -40 to +70°C		R25	SP-111 Approx. 5g

### Small spot type (built-in lens fiber optic element)

Type	Spot diameter	Focal length	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Model / Weight
Small light point	Approx. ø0.1	5	50 cm non-cuttable -40 to +70°C		R25	SP-121 Approx. 2g

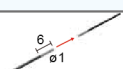
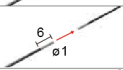
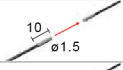
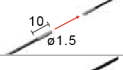
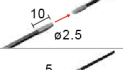
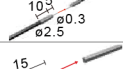
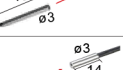
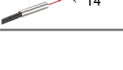


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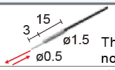
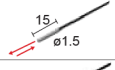

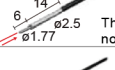



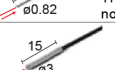

# Cylindrical

Tight spaces, drilled holes and mounted via set screws.

## Through-beam type

Size	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Optical axis diameter(mm)	Smallest detectable object	Model / Weight
ø1.0	50 cm non-cuttable -40 to +50°C		R10	0~380	ø0.265	ø0.005	SP-259 Approx. 8g
	1 m free cutting (ø1.0) -40 to +50°C		R2 Bend-resistant Highly elastic type	0~590	ø0.5		SP-259U Approx. 4g
ø1.5	1 m free cutting (ø1.0) -40 to +70°C		R4 Highly elastic type	0~1200	ø0.7		SP-260 Approx. 3g
	1 m free cutting (ø1.0) -40 to +50°C		R2 Bend-resistant Highly elastic type	0~590	ø0.5		SP-260U Approx. 4g
ø2.5	50 cm non-cuttable -40 to +70°C		R10	0~45	ø0.125		SP-256 Approx. 3g
	50 cm non-cuttable -40 to +70°C The casing is not bendable						SP-257 Approx. 3g
ø3	2 m free cutting (ø2.2) -40 to +70°C		R25	0~3600	ø1		SP-26F Approx. 19g
	2 m free cutting (ø2.2) -40 to +50°C		R2 Bend-resistant	0~3600	ø1.13		SP-26FZ Approx. 19g


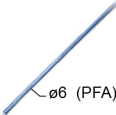
## Reflective type

Size	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Smallest detectable object	Model / Weight
ø1.5	1 m non-cuttable -40 to +70°C		R10	0~27	ø0.005 Gold wire	SP-147 Approx. 2g
	1 m non-cuttable -40 to +70°C		R4 Highly elastic type	0~150		SP-150X Approx. 3g
ø2	1 m free cutting (ø1.0×2) -40 to +50°C		R2 Bend-resistant Highly elastic type	0~140		SP-150U Approx. 4g
ø2.5	50 cm non-cuttable -40 to +70°C		R25	0~72		SP-123X Approx. 4g
	2 m free cutting (ø1.3×2) SP-15F: -40 to +70°C SP-15FZ: -40 to +50°C			0~1100		SP-15F Approx. 8g
ø3	50 cm non-cuttable -40 to +70°C		R2 Bend-resistant	0~770		SP-15FZ Approx. 8g
	50 cm non-cuttable -40 to +70°C		R25	0~830		SP-124X Approx. 4g
	50 cm non-cuttable -40 to +70°C		R4	0~68		SP-146X Approx. 4g
	2 m free cutting (ø1.0×2) -40 to +70°C		R4 Highly elastic type	0~290	SP-149 Approx. 7g	

## Liquid level type

Detecting the liquid level in a transparent pipe requires only a fixed installation outside the pipe, without contact.

### Reflective type

Detection method	Transparent pipe diameter	Beam axis	Fiber element length (diameter) Ambient temperature	Shape	Bending radius(mm)	Annexes	Model / Weight
Pipe-mounted type	ø4~ø26	1	2 m free cutting (ø1.0×2) SP-196: -40 to +70°C SP-196Z: -40 to +50°C SP-196HA: -40 to +105°C <i>*When fiber optic components are frequently used in high-temperature environments, a maximum ambient temperature of 90°C is recommended during operation.</i>		R10	End strap×2 Anti-slip rubber×2 Gasket×2 Screw×2 Nut×2	SP-196 Approx. 7g
			R2 Bend-resistant		SP-196Z Approx. 7g		
			R10		SP-196HA Approx. 7g		
Infiltration type	-	-	2 m free cutting (ø1.3×2) SP-194: -40 to +70°C SP-194Z: -40 to +50°C		R25	-	SP-194 Approx. 78g
			R0.5 Bend-resistant		SP-194Z Approx. 78g		



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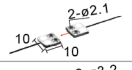

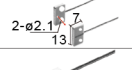


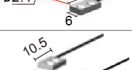
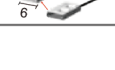
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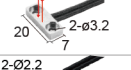

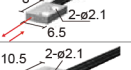

# Flat plate bracket type

Thin profile, the sensor comes with its own mounting holes for easy direct mounting where space is limited.

## Through-beam type

Detection direction	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Optical axis diameter(mm)	Smallest detectable object	Model / Weight
Top	1 m free cutting (ø1.0) -40 to +50°C	 Thickness: 3	R2 Bend-resistant	0~810	ø0.5	ø0.005	SP-452TZ Approx. 5g
	2 m free cutting (ø1.3) -40 to +50°C	 Thickness: 3.5		0~2900	ø1		SP-453TZ Approx. 15g
Flat	1 m free cutting (ø1.0) -40 to +50°C	 Thickness: 2		0~500	ø0.5		SP-454TZ Approx. 10g
	2m free cutting (ø2.2) -40 to +50°C	 Thickness: 4		0~2900	ø1		SP-455TZ Approx. 25g
	2 m free cutting (ø2.2) -40 to +50°C	 Thickness: 3.5		0~750	ø1.13		SP-457TZ Approx. 20g
Side	1 m free cutting (ø1.0) -40 to +50°C	 Thickness: 2.5		0~740	ø0.5		SP-458TZ Approx. 5g
	1 m free cutting (ø1.0) -40 to +70°C	 Thickness: 6		0~630	ø0.7		SP-458TE Approx. 5g

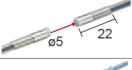
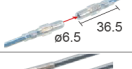


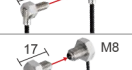
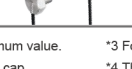
## Reflective type

Detection direction	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Smallest detectable object	Model / Weight
Flat	1 m free cutting (ø1.0×2) -40 to +50°C	 Thickness: 2	R2 Bend-resistant	0~120	ø0.005 Gold wire	SP-342TZ Approx. 5g
	2 m free cutting (ø2.2×2) -40 to +50°C	 Thickness: 4		0~500		SP-343TZ Approx. 24g
	2 m free cutting (ø2 x 2.2) -40 to +50°C	 Thickness: 4		0~120		SP-344TZ Approx. 22g
Top	1 m free cutting (ø1.0×2) -40 to +50°C	 Thickness: 2		0~160		SP-345TZ Approx. 3g
Side	1 m free cutting (ø1.0×2) -40 to +50°C	 Thickness: 2.5				SP-348TZ Approx. 4g

## Oil/chemical resistant type

The sensor is encapsulated in a carbon-oxygen resin cartridge.

### Through-beam type

Type	Beam emission direction	Fiber element length (diameter) Ambient temperature	Shape(mm)	Minimum bending radius(mm)	Detection distance(mm)*1	Optical axis diameter(mm)	Model / Weight
Chemical resistant	Top	2 m free cutting (ø2.2) -40 to +70°C		R40	0~3600	ø3.7	SP-893 Approx. 71g
		2 m free cutting (ø2.2) -40 to +70°C				ø6	SP-899 Approx. 70g
		2 m free cutting (ø2.2) -40 to +70°C				ø2.8	SP-897 Approx. 71g
Oil resistant	Side	2 m free cutting (ø2.2) 0 to +60°C	 Thickness: 7	R25*2		ø3.7	SP-897T Approx. 35g
		2m free cutting (ø2.2) -20 to +100°C		R2 Bend-resistant		ø2.3	SP-881TZ Approx. 30g
		2 m free cutting (ø2.2) -20 to +100°C				ø4.3	SP-881MTZ Approx. 55g

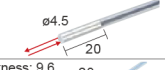

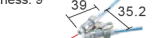
\*1 When using the SP series, the cable length is 2m, so "3600mm" is the maximum value.

\*3 For continuous use, use within the range of -40 to +130°C.

\*2 The optical fiber must not be bent within 25mm of the end of the fixing screw cap.

\*4 The optical fiber is 2m long on one side, so the length is 4000mm.

### Reflective type

Type	Beam emission direction	Fiber element length (diameter) Ambient temperature	Shape(mm)	Minimum bending radius(mm)	Detection distance(mm)*1	Standard objectives to be tested	Model / Weight		
Oil / chemical resistant	Top	2 m free cutting (ø1.3×2) -40 to +70°C		R40	0~310	—	SP-792 Approx. 32g		
		2 m free cutting (ø1.3×2) -40 to +60°C	 Thickness: 9.6 (ø4.1 width of mounting hole support surface)				0~20	200×200mm t=0.7mm Glass substrate	SP-798P Approx. 75g
		2 m free cutting (ø1.3×2) -40 to +85°C	 Thickness: 9						SP-798S Approx. 90g

\*1 When using the SP series. Standard target object: White matte paper (reflective type only).



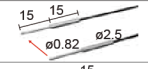
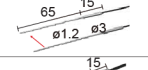

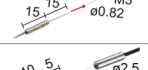
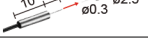
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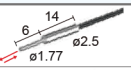
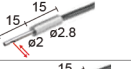
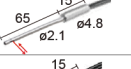


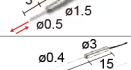
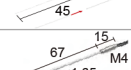
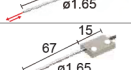
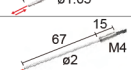
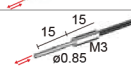
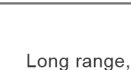
# Casing type

The front part is thin and side-view type is available, which makes it easier to install in places with limited space.

## Through-beam type

Detection direction	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Optical axis diameter(mm)	Smallest detectable object	Model / Weight
Side view	1 m free cutting (ø1.3) -40 to +70°C	 The casing is not bendable	R25	0~520	ø0.6	ø0.005	SP-233 Approx. 5g
	2 m free cutting (ø2.2) -40 to +70°C	 Minimum bending radius of casing: R25		0~1600			SP-235 Approx. 17g
Top view	2 m free cutting (ø2.2) -40 to +70°C	 Minimum bending radius of casing: R10	R10	0~3600	ø1		SP-274 Approx. 24g
	1 m free cutting (ø1.0) -40 to +70°C	 The casing is not bendable		0~690			ø0.5
	50 cm non-cuttable -40 to +70°C	 The casing is not bendable		0~45		ø0.125	SP-257 Approx. 3g

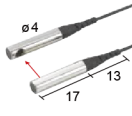
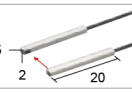
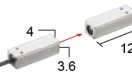
## Reflective type

Detection direction	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Smallest detectable object	Model / Weight
Coaxial narrow beam 10°	50 cm non-cuttable -40 to +70°C	 The casing is not bendable	R25	0~72	ø0.005 Gold wire	SP-123X Approx. 4g
Side	2 m free cutting (ø1.0×2) -40 to +70°C	 The casing is not bendable	R10	0~180		SP-132 Approx. 5g
	1 m free cutting (ø2.2×2) -40 to +70°C	 Minimum bending radius of casing: R25	R25	0~320		SP-134 Approx. 10g
Top	2 m free cutting (ø1.3×2) -40 to +70°C	 The casing is not bendable		R4		0~330
	50 cm non-cuttable -40 to +70°C	 The casing is not bendable	R10		0~68	SP-146X Approx. 4g
	1 m non-cuttable -40 to +70°C	 The casing is not bendable	R10	0~27	SP-147 Approx. 2g	
	1 m free cutting (ø1.0) -40 to +70°C	 The casing is not bendable		R25	0~390	SP-277F Approx. 10g
	2 m free cutting (ø1.3×2) -40 to +70°C	 Minimum bending radius of casing: R10	R25	0~330	SP-164 Approx. 10g	
	2 m free cutting (ø1.3×2) -40 to +70°C	 Minimum bending radius of casing: R10			SP-164T Approx. 10g	
	2 m free cutting (ø1.3×2) -40 to +50°C	 Minimum bending radius of casing: R10	R2 Bend-resistant	0~290	SP-164Z Approx. 10g	
	50 cm non-cuttable -40 to +70°C	 The casing is not bendable	R4	0~68	SP-166X Approx. 5g	



## Narrow beam / High power type

Long range, narrow beam makes the beam more focused.

### Through-beam type

Detection direction	Opening angle	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Optical axis diameter(mm)	Model / Weight
Side	Approx. 2°	2 m free cutting (ø1.0) SP-217Z -40 to +50°C SP-217 / 219 -20 to +70°C		R10	0~3600	ø2.5	SP-219 Approx. 8g
	Approx. 6°			R2			SP-217 Approx. 8g
	Approx. 3°	2 m free cutting (ø1.0) -20 to +70°C		R10			ø1.0
Side	Approx. 6°	2 m free cutting (ø1.0) -20 to +50°C		R2 Bend-resistant		ø2.8	SP-219M Approx. 6g
							SP-251 Approx. 8g

### Reflective type

Detection direction	Bore angle	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Smallest detectable object	Model / Weight
Top	Approx. 8°	2 m free cutting (ø2.2) -40 to +50°C		R2 Bend-resistant	0~2300	ø0.3 Copper wire (vertical)	SP-141 Approx. 23g
		1 m non-cuttable (ø1.0) -40 to +50°C		R10 Stainless steel	0~2700		SP-141G Approx. 50g



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# High elasticity type

Manufactured from fiber optic cable materials that are elastic and flexible and can be bent repeatedly up to tens of millions of times.

## Through-beam type

Size	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Optical axis diameter(mm)	Smallest detectable object	Model / Weight
ø1.5	1 m free cutting (ø1.0) -40 to +70°C		R4 Highly elastic type	0~1200	ø0.7	ø0.005	SP-260 Approx. 3g
M3	1 m free cutting (ø1.0) -40 to +70°C						SP-280 Approx. 6g
ø1.0	1 m free cutting (ø1.0) -40 to +50°C		R2 Bend-resistant Highly elastic type	0~590	ø0.5		SP-259U Approx. 4g
ø1.5	1 m free cutting (ø1.0) -40 to +50°C						SP-260U Approx. 4g
M3	1 m free cutting (ø1.0) -40 to +50°C						SP-280U Approx. 5g
M4	1 m free cutting (ø1.0) -40 to +50°C		R1 Bend-resistant	0~1800	ø2.3		-
		2 m free cutting (ø1.0) -40 to +50°C				0~3600	

## Reflective type

Size	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Smallest detectable object	Model / Weight
ø3	2 m free cutting (ø1.0×2) -40 to +70°C		R4 Highly elastic type	0~290	ø0.005 Gold wire	SP-149 Approx. 7g
M4	2 m free cutting (ø1.0×2) -40 to +70°C					SP-169 Approx. 8g
ø3	1 m free cutting (ø1.0×2) -40 to +50°C		R2 Bend-resistant Highly elastic type	0~140		SP-149U Approx. 4g
ø2	1 m free cutting (ø1.0×2) -40 to +50°C					SP-150U Approx. 4g
M3	1 m free cutting (ø1.0×2) -40 to +50°C					SP-170U Approx. 4g
ø1.5	1 m non-cuttable -40 to +70°C		R4 Highly elastic type	0~150		SP-150X Approx. 3g
M3	1 m non-cuttable -40 to +70°C				SP-170X Approx. 3g	

## Regional type

It can detect objects in a certain area range, and the width of the detection area can be up to 15mm or more.

### Through-beam type

Detection method	Optical axis width	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Optical axis diameter(mm)	Model / Weight
Region	10	2m free cutting (ø2.2) -40 to +50°C		R2 Bend-resistant	0~3600	10×3 (with 1.0mm wide seam allowance)	SP-A223 Approx. 23g
	11	2 m free cutting (ø2.2) -40 to +50°C				11×2	SP-E212 Approx. 20g
	40	2 m free cutting (ø2.2) -40 to +50°C				40×3	SP-E241 Approx. 30g
Array	5	2 m free cutting (ø2.2) -40 to +70°C		R4	0~3600	Approx. 6×0.3	SP-A206 Approx. 20g
	10	2 m free cutting (ø2.2) -40 to +70°C				Approx. 11×0.3	SP-A201 Approx. 20g
	40	2 m free cutting (except spiral section 50 mm) -20 to +50°C		R10		Approx. 40×0.25	SP-A241 Approx. 70g
	100	2 m free cutting (except spiral section 50 mm) -20 to +50°C				Approx. 100×0.25	SP-A2100 Approx. 110g

### Reflective type

Detection method	Width of optical point	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Smallest detectable object	Model / Weight
Region	15 (Distance is 15)	2 m free cutting (ø2.2) -40 to +70°C		R25	0~200	ø0.1 Gold wire	SP-112 Approx. 19g
Array	10 (Distance is 4)	2 m free cutting (ø2.2×2) -40 to +70°C		R4	0~1200		SP-A106D Approx. 20g
	15 (Distance is 4)	2 m free cutting -40 to +70°C					SP-A111D Approx. 20g

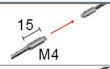
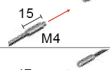
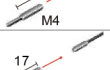
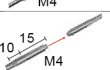



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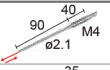
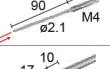

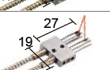
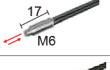

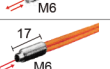
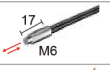


# Heat-resistant type

The sensors are heat resistant from 100°C to 500°C.

## Through-beam type


Heat-resistant temperature	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Optical axis diameter(mm)	Smallest detectable object	Model / Weight
100°C	2 m free cutting (ø2.2) -40 to +100°C		R5 Bend-resistant	0~3600	ø1	ø0.005	SP-687Z Approx. 25g
105°C	2 m free cutting (ø2.2) -40 to +105°C		R25				SP-687A Approx. 22g
150°C	2 m free cutting (ø2.2) -40 to +150°C		R20	0~2700	SP-687H Approx. 35g		
180°C	2 m free cutting (ø2.2) -60 to +180°C		R35		SP-689 Approx. 36g		
300°C	2 m non-cutttable -40 to +300°C		R25	0~1800	ø1		SP-685C Approx. 66g

## Reflective type

Heat-resistant temperature	Fiber element length (diameter) Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Smallest detectable object	Model / Weight
350°C	1 m non-cutttable -30 to +350°C		R25	0~650	ø0.005 Gold wire	SP-582C Approx. 24g
300°C	1 m non-cutttable -40 to +300°C			0~770		SP-583C Approx. 29g
	1 m non-cutttable -40 to +300°C			0~86		SP-584C Approx. 23g
250°C	2 m non-cutttable -40 to +250°C			0~150		SP-139LK Approx. 70g
	1 m non-cutttable -40 to +250°C			0~1100		SP-139K Approx. 45g
105°C	2 m free cutting (ø2.2×2) -40 to +105°C		R8	0~790	SP-688K Approx. 15g	
150°C	2 m free cutting (ø2.2×2) -40 to +150°C		R20	0~720	SP-586H Approx. 35g	
100°C	2 m free cutting (ø2.2×2) -40 to +100°C		R5 Bend-resistant	0~740	SP-586Z Approx. 25g	
180°C	2 m free cutting (ø2.2×2) -60 to +180°C		R35	0~860	SP-588 Approx. 33g	
	2 m free cutting (ø2.2×2) -40 to +180°C			0~150	SP-139H Approx. 45g	

## Focus lens

### Through-beam type (Detection distance when using a light-transmitting lens)

Type	Ambient temperature	Shape(mm)	Model / Weight	Detection distance(mm)	Applicable fiber optics
Long detection distance type Aperture angle: Approx. 15°	-40 to +300°C		Economy type P-22 Approx. 2g	0~3600	SP-278TZ/278V/278/285C/289K SP-28F SP-287A/SP287Z/279
			High-performance type P-41 Approx. 2g	0~1800	SP-278G/278MG/278TG/278MTG
Ultra-long detection distance type Aperture angle: Approx. 8°	-40 to +70°C		P-24 Approx. 1g	0~3600	SP-278TZ/278V/278 SP-28F SP-279
				0~1800	SP-278G/278MG/278TG/278MTG
Side view type with mounting holes	-40 to +105°C		P-25 Approx. 10g	0~3600	SP-278V/278 SP-28F/288A SP-287Z SP-279
				0~1800	SP-278G



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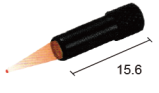
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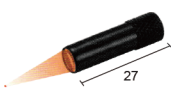
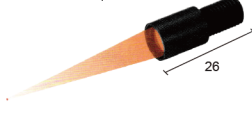
# Focus lens

## Reflective type

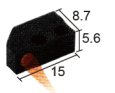
Small spot type (lens + fiber optic element)

Type	Spot diameter	Focal length	Lens			Fiber optic components		
			Model / Weight	Ambient temperature	Shape(mm)	Bending radius(mm)	Shape	Model
Small light spot	Approx. $\phi 0.2$	7 $\pm$ 2	Economy type P-12HA Approx. 1g	-30 to +70°C	 Tip: $\phi 3.3$ P-12HA	R25		SP-122X
	Approx. $\phi 0.1$					R10		SP-125X
	Approx. $\phi 0.4$		High-performance type P-33HA Approx. 1g			R25		SP-136FA
						R10 Stainless steel		SP-136FG
						R2 Bend-resistant		SP-136FZ
						R10 Stainless steel		SP-136TG
R2 Bend-resistant		SP-136TZ						

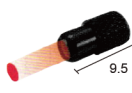
Small spot type (lens + fiber optic element)

Type	Spot diameter	Focal length	Lens			Fiber optic components				
			Model / Weight	Ambient temperature	Shape(mm)	Bending radius(mm)	Shape	Model		
Small light spot	Approx. $\phi 0.5$	15 $\pm$ 2	P-14HA Approx. 2g	-30 to +70°C	 Tip: $\phi 7.4$	R25		SP-136FA		
						R10 Stainless steel		SP-136FG		
						R2 Bend-resistant		SP-136FZ		
	Approx. $\phi 1.0$	35 $\pm$ 3	P-16HA Approx. 5g			-40 to +70°C	 Tip: $\phi 10.6$	R10 Stainless steel		SP-136TG
								R2 Bend-resistant		SP-136TZ
								R25		SP-122X
Approx. $\phi 2.0$	35 $\pm$ 3	P-16HA Approx. 5g	R10 Stainless steel		SP-136FG					
			R2 Bend-resistant		SP-136FZ					
R2 Bend-resistant		SP-136TZ								

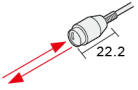
Lens + fiber optic element

Type	Spot diameter	Focal length	Lens			Fiber optic components		
			Model / Weight	Ambient temperature	Shape(mm)	Bending radius(mm)	Shape	Model
Side-view adjustable light point	$\phi 0.5\sim 3$	8~30	P-15HA Approx. 2g	-30 to +70°C	 Tip: $\phi 8.7$ Length: 15 Width: 5.6	R25		SP-136FA
						R10 Stainless steel		SP-136FG
						R2 Bend-resistant		SP-136FZ

Parallel spot (lens + fiber optic element)

Type	Spot diameter	Lens			Fiber optic components			
		Model/Weight	Ambient temperature	Shape(mm)	Bending radius(mm)	Detection distance(mm)	Shape	Model
Parallel beam type	Approx. $\phi 4$ spot diameter (Detection distance within 0~20)	P-13HA Approx. 2g	-30 to +70°C	 Tip: $\phi 4.3$ Length: 9.5	R25	0~65		SP-136FA
					R10 Stainless steel	0~45		SP-136FG
					R2 Bend-resistant			SP-136FZ
					R10 Stainless steel	0~40		SP-136TG
					R2 Bend-resistant			SP-136TZ

High temperature resistant ultra-long distance lens

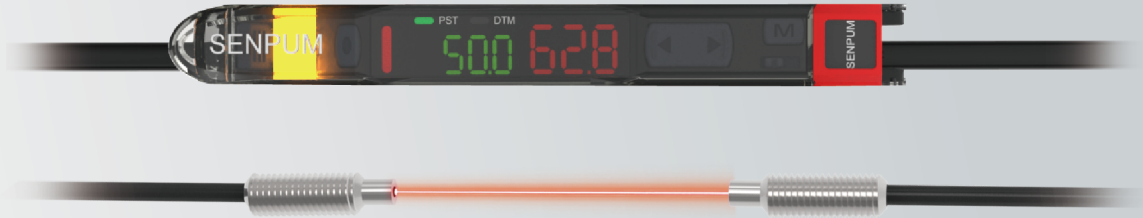
Type	Ambient temperature	Shape(mm)	Model / Weight	Detection distance(mm)	Applicable fiber optics
High temperature resistant ultra long distance lens**	-60°C to +350°C	 Optical axis diameter: $\phi 9.8$ Length: 22.2	P-61S-3 Approx. 20g	0~3600	SP-278TZ/278V/278/279
				0~1600	SP-689/687Z/687A/687H
					SP-28F
					SP-685C/SP-584C

\*\*1 When a lens is mounted on a transmission type optical fiber for use, the light will be narrowed, so use it after fully adjusting the optical axis.



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"Stability" and "Ease of Use"



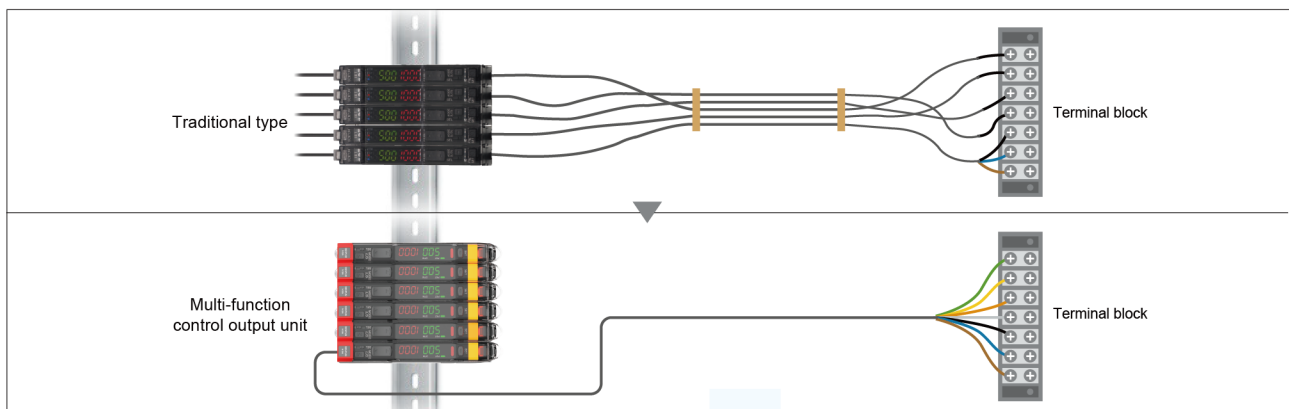
Effective reduction of total cost of ownership (with cascade function)

Simplify wiring and cabling by reducing the number of man-hours required for start-up, operation and maintenance.



## Reducing the number of cables

In the past, the optical fiber was in the front and the power supply cable was in the back, and space was required in both the front and back. By using a multi-function control output unit, the cables can be brought together at the front of the amplifier, thus saving space.



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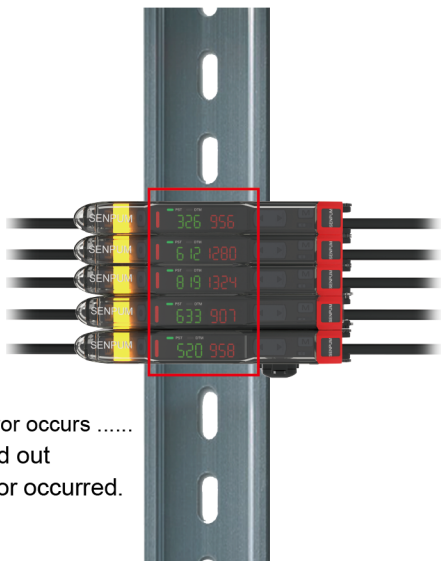
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# Quickly identify anomalous values

## Easier identification of error occurrences with the FX-N10 series

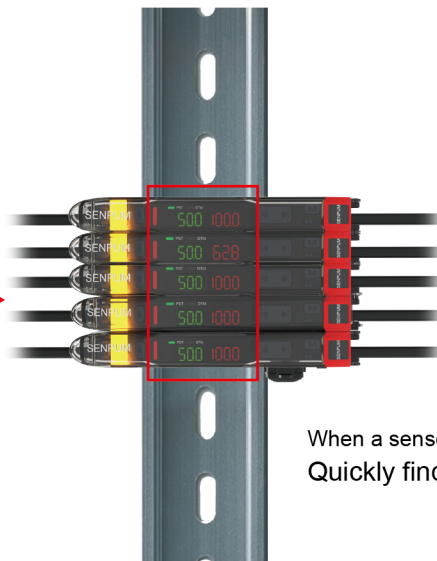
By uniformly setting the display of light intensity received by multiple sensors to "100" and "0", it is easier to recognize when an abnormal value occurs.

Traditional



When a sensor error occurs .....  
It is difficult to find out  
which sensor error occurred.

FX-N10



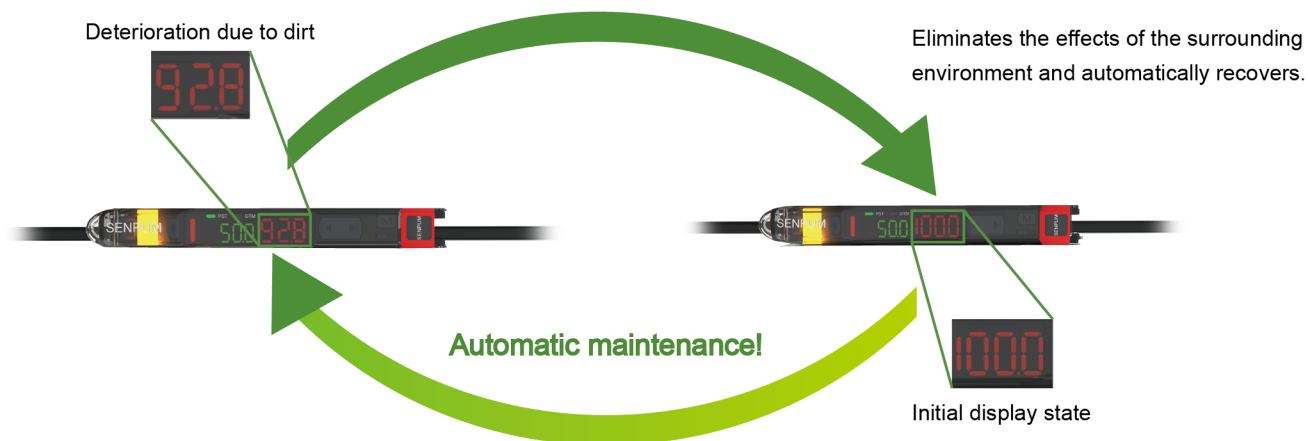
When a sensor error occurs .....  
Quickly find out to the error!

Fiber Optics  
Photoelectric / Proximity  
Color  
Laser  
Safety  
Precision Contact / Contact Displacement  
Laser Displacement  
Barcode / Temperature  
Static

# Automatic maintenance

## DATUM

The sensor automatically detects if the light is degraded by dirt and automatically recalibrates to the original display.



## Amplifier device



Type		Model		Control outputs	External inputs
		NPN output	PNP output		
Standard	Main module	FX-N18N	FX-N18P	1	1
	Main module	FX-N11N	FX-N11P		
	Expansion module	FX-N12N	FX-N12P		
Dual outputs	Main module	FX-N13N	FX-N13P	2	1
	Expansion module	FX-N14N	FX-N14P		



Zero line type		
Type	Model	Control output
Expansion module	FX-N10	-



Type		Model		Control outputs	External inputs
		NPN output	PNP output		
Standard	Main module	FX-N11CAN	FX-N11CAP	1	1
	Expansion module	FX-N12CAN	FX-N12CAP		
Dual outputs	Main module	FX-N13CAP	FX-N13CAN	2	1
	Expansion module	FX-N14CAP	FX-N14CAN		

### Cable (M8 connector type option)

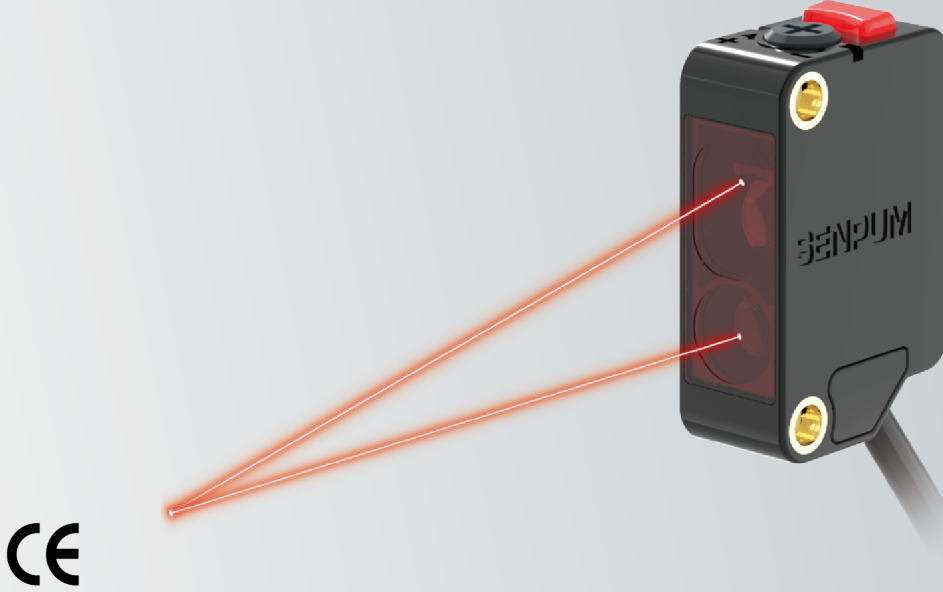
Appearance	Sensor side	Cable termination	Length	Model	Adaptive amplifier body
	M8 6PIN straight	Loose wire	2m**	OW-FXN001	FX-N11CAN
				OW-FXN002	FX-N12CAN
				OW-FXN003	FX-N13CAN
				OW-FXN004	FX-N13P

\*1. The standard cable length is 2m, if you need other cable length can be customized, such as 5m cable length model OW-FXN001-5M

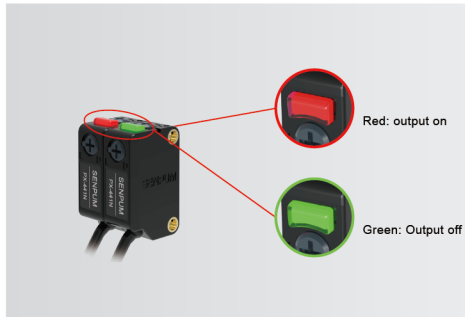


# Photoelectric Background Suppression Photoelectric Sensors

## PX-400 Series

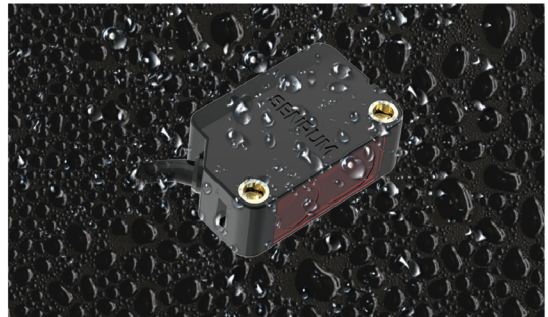


### High definition indicator

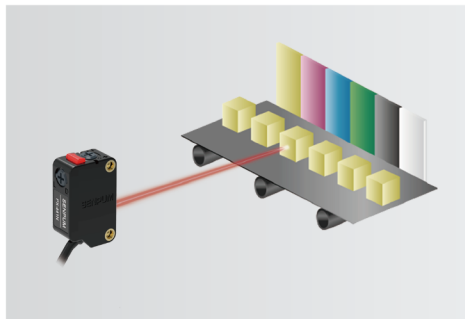


### High protection class IP67

Even if the surface of the sensor head is contaminated with some dust or stains and other minor impurities, the accuracy of the detection distance can be better maintained, and the housing has an IP67 protection level to ensure the reliability of the detection.



### Stable detection performance



### Less than 1ms response time

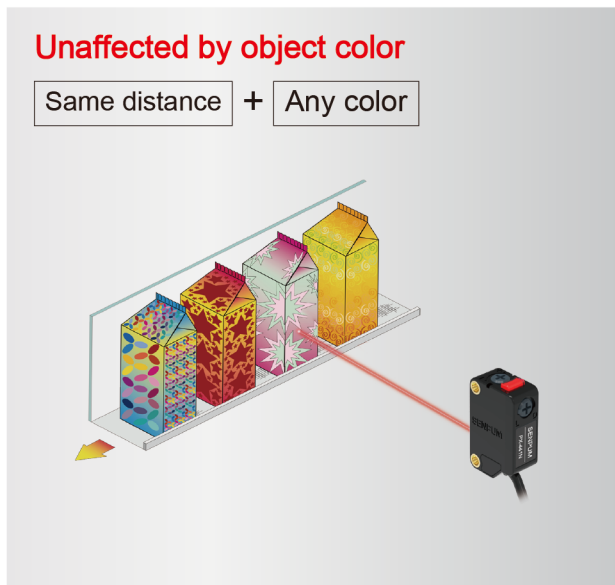
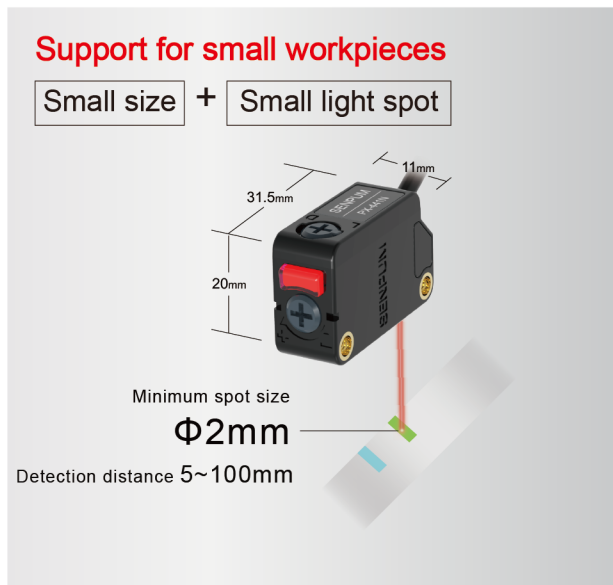
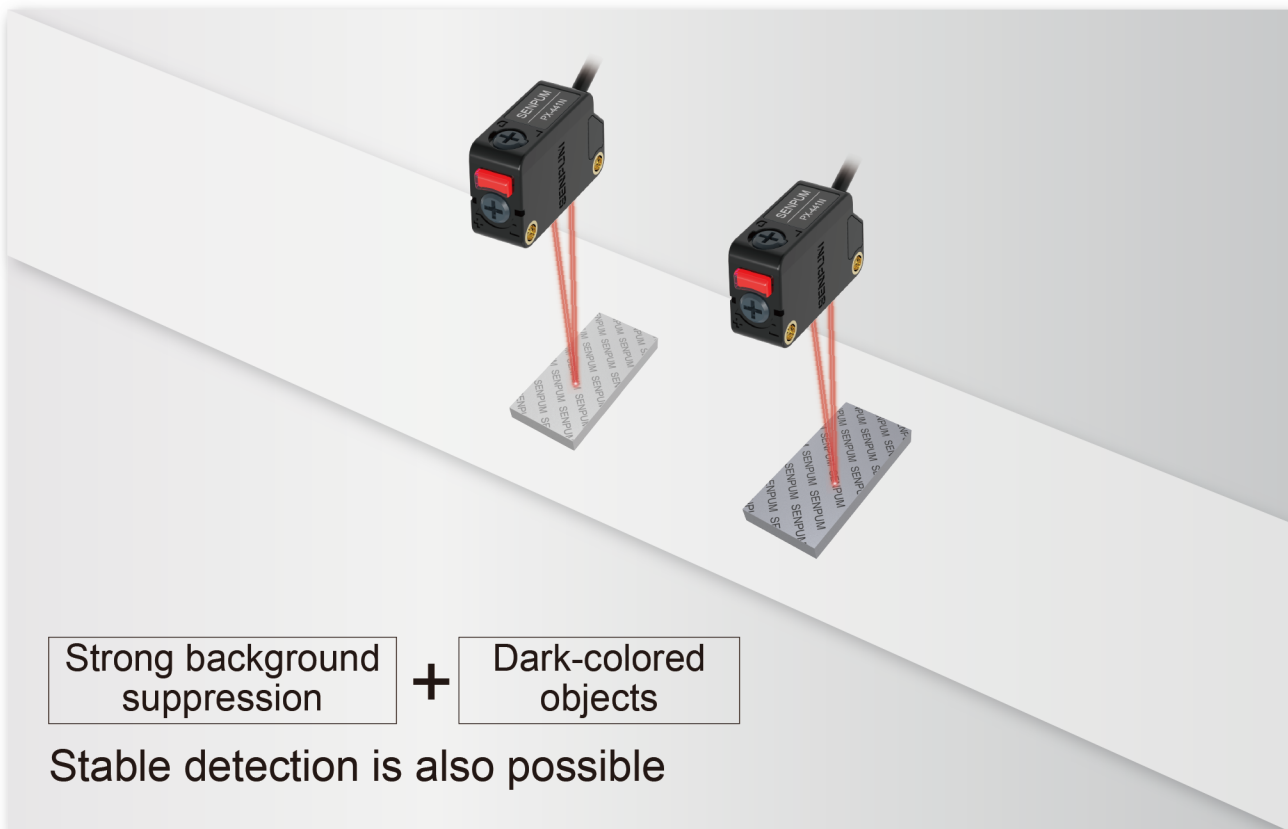


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# Strong background suppression



## Product list

Appearance	Type	Detection distance	Spot size (mm)	Output method	Model
	Small spot type	100mm	Approx. Φ5mm (at 100mm)	NPN	PX-441N
				PNP	PX-441P
	Standard	300mm	Approx. Φ24mm (at 300mm)	NPN	PX-442N
				PNP	PX-442P
	Infrared type	400mm	-	NPN	PX-450MN
				PNP	PX-450MP



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Fiber Optics

Photoelectric / Proximity

Color

Laser

Safety

Precision Contact / Contact Displacement

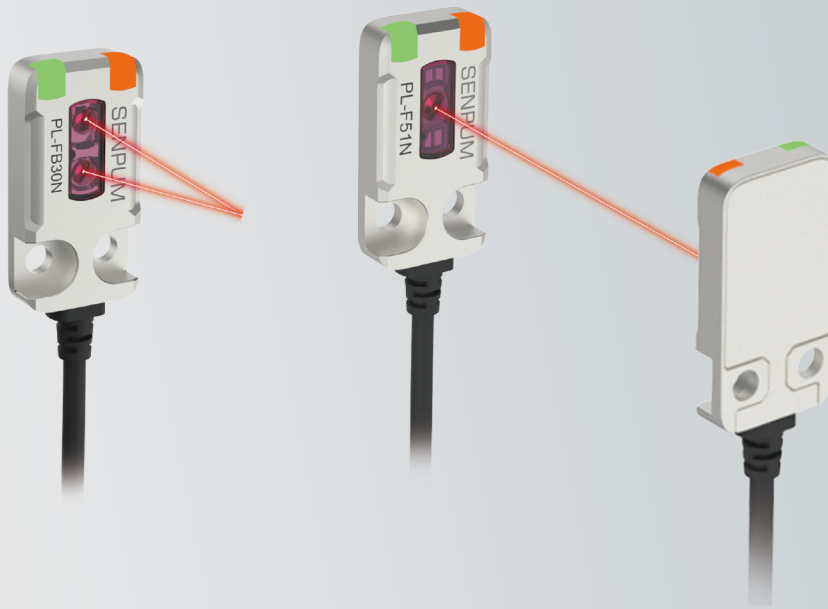
Laser Displacement

Barcode / Temperature

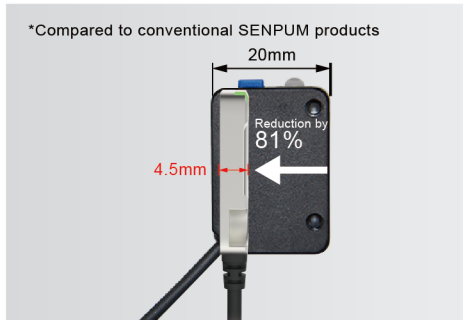
Static

# Photoelectric Ultra-compact Photoelectric Sensors

## PL-F Series



### Ultra-thin



### Ultra-small

Unique design and technology have been used to achieve extremely small dimensions with guaranteed performance, meeting the needs of applications in space-constrained environments.



### High protection class IP67



### Easy to use

With standard mounting dimensions and easy operation, they are equipped with multi-angle indicators for easy visualization in different mounting orientations, and some models have integrated L/Don outputs to reduce the number of spare parts.



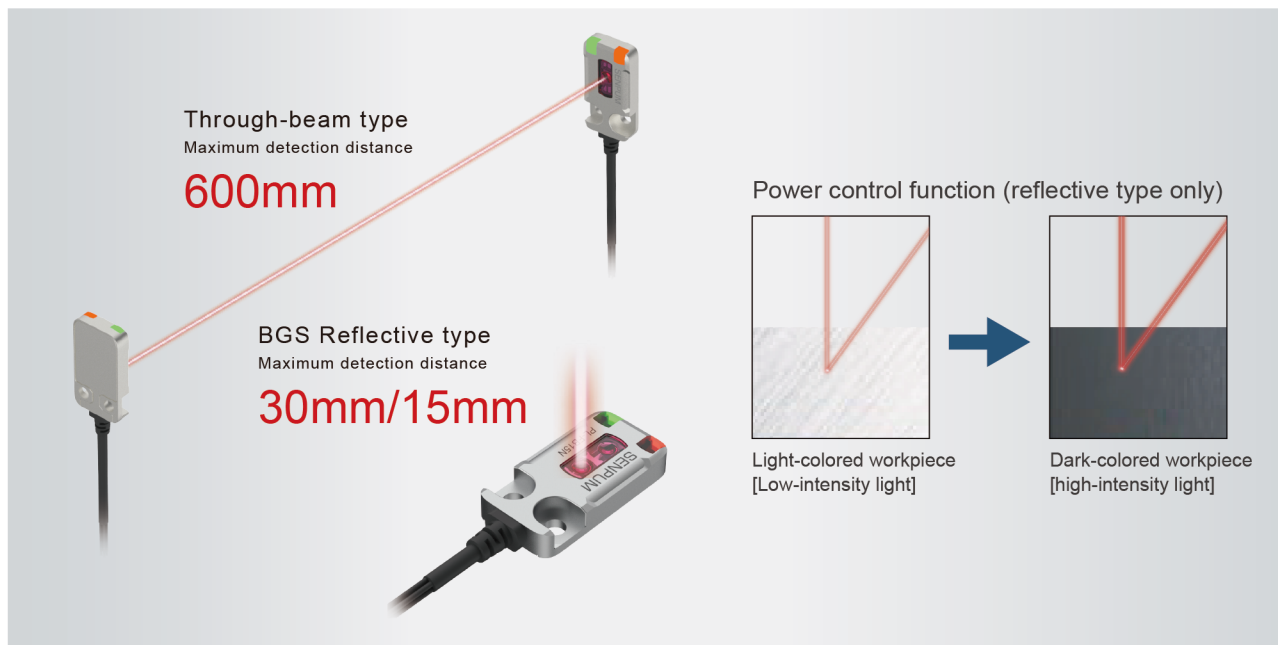
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# Stabilized detection

Background suppression (BGS) / Automatic interference prevention.


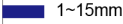





# Rugged and durable

Adopting SUS316L sturdy body, it has high impact resistance and anti-interference ability, and can adapt to the harsh working environment.



## Product list

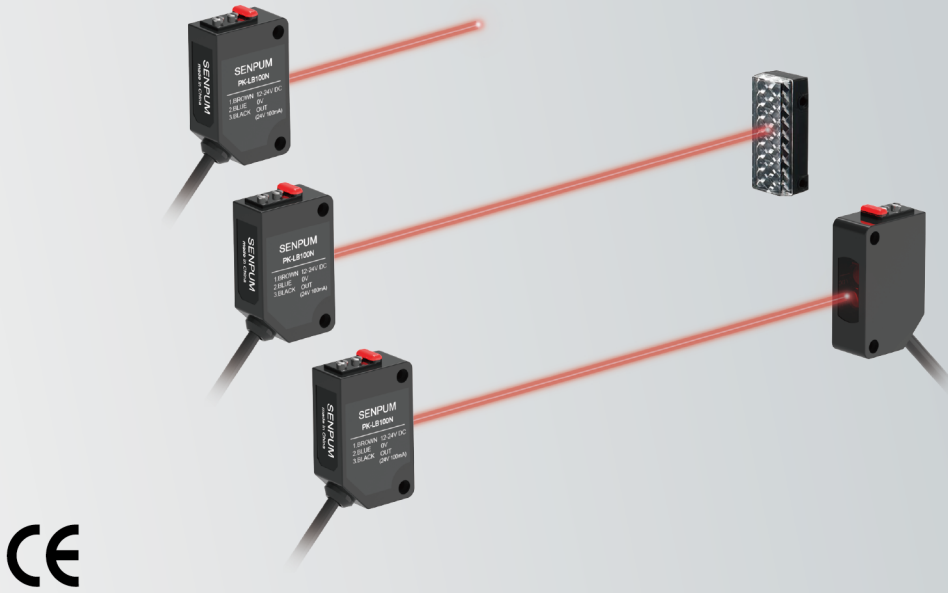
Appearance	Type	Detection distance	Output method	Model
	BGS reflective	 1~15mm	NPN	PL-FB15N
		 1~30mm	PNP	PL-FB15P
			NPN	PL-FB30N
		PNP	PL-FB30P	
	Through-beam	 600mm	NPN	PL-F51N
			PNP	PL-F51P



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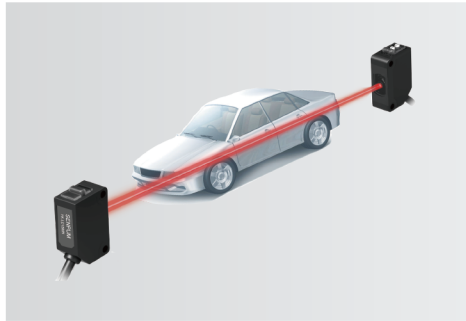
# Photoelectric Medium and Long Range Multi-Application Photoelectric Sensors

## PK-L Series

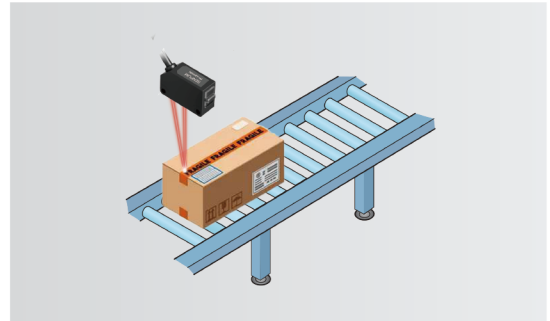


The maximum distance is 15m


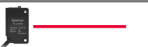




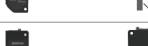






Optical system specially designed for easy and stable detection



High grayscale LEDs enable long-distance detection and are easy to align and adjust.



### Product list

Type	Appearance	Detection distance	Wiring method	Model	
				NPN	PNP
Reflective type 	 2m cable  1m	 1m	2m cable	PK-LB100N	PK-LB100P
			M8 connector	PK-LB100CN	PK-LB100CP
Regressive reflective type 	 2m cable  3m	 3m	2m cable	PK-LR300N	PK-LR300P
			M8 connector	PK-LR300CN	PK-LR300CP
Through-beam type 	 2m cable  10m	 10m	2m cable	PK-LD10MN	PK-LD10MP
			M8 connector	PK-LD10MCN	PK-LD10MCP
	 2m cable  15m	 15m	2m cable	PK-LD15MN	PK-LD15MP
			M8 connector	PK-LD15MCN	PK-LD15MCP



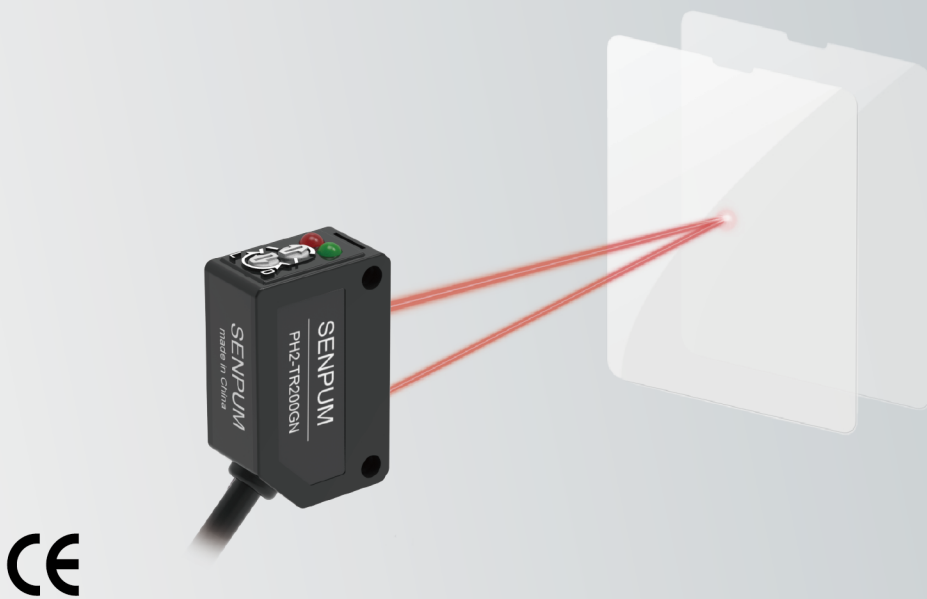
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S019

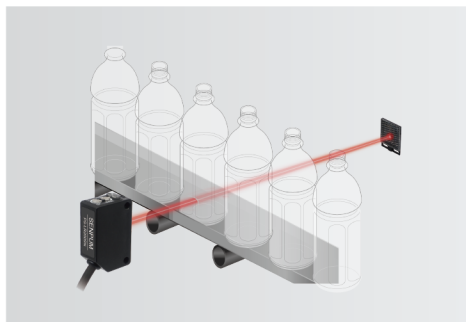
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# Photoelectric Transparent Detection Type Photoelectric Sensor

## PH2-T Series

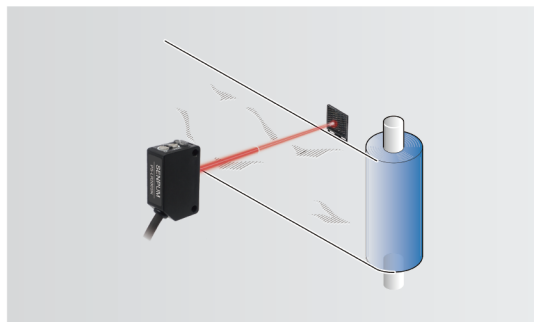


### High quality LED light source



### Enhanced transparent detection type

With no blind spots in the sensor area, this model is ideal for detecting transparent objects with different shapes, sizes, and contours that are not fixed in position on the conveyor belt.



### Product list

Type		Appearance	Detection distance	Spot size	Output type	Model
Regressive reflective type	Standard			Opaque and transparent objects	NPN	PH2-TR200GN
	Enhanced				PNP	PH2-TR200GP
					NPN	PH2-TR200SN
					PNP	PH2-TR200SP

Fiber Optics

Photoelectric / Proximity

Color

Laser

Safety

Precision Contact / Contact Displacement

Laser Displacement

Barcode / Temperature

Static



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# Proximity High Performance Proximity Sensor

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## DH / DH2 Series



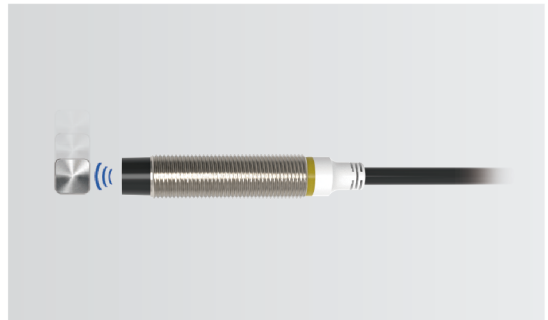
### Rugged metal housing

Excellent locking strength

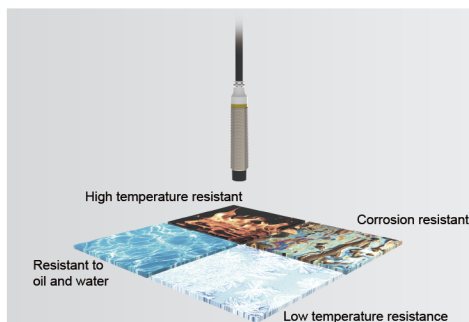


### High quality IC

Adopting high quality IC, high stability circuit, excellent anti-interference.



### Supports a wide range of workpiece inspection



### High protection class IP67

Strong resistance to oil mist, in the humid, dusty and complex environment can still be stable and accurate detection.



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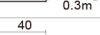
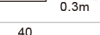





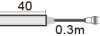
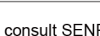
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# DH/DH2 product list






























Please follow the selection steps 1~4 to select the model and parameters and then place an order  
 Model(DH-M005CP-L1.2) ① Main model ② Output type (-:Normally open/C:Normally closed)  
 ③ Output signal (-:NPN/P:PNP) ④ Detection distance (mm)

## DH series

Detection distance(mm)	Type	Dimensions(mm)	Model
1.2	ø4	 25 ø2.9	DH-004*
	M5×P0.5	 25 ø2.9	DH-M005*
2	M8×P1	 40 ø3.8	DH-M008*
		 40 ø3.8 6	DH-U008*
4	M12×P1	 40 ø4.8	DH-M012*
		 40 ø4.8 7	DH-U012*
8	M18×P1	 40 ø4.8	DH-M018*
		 40 ø4.8 9	DH-U018*
16	M30×P1.5	 40 ø4.8	DH-M030*
15	M30×P1.5	 40 ø4.8	DH-M030*
30		 40 ø4.8 15	DH-U030*
2	M8×P1	 40 ø3.8	DH-EM008*
		 40 ø3.8 6	DH-EU008*
4	M12×P1	 40 ø4.8	DH-EM012*
		 40 ø4.8 7	DH-EU012*
8	M18×P1	 40 ø4.8	DH-EM018*
		 40 ø4.8 9	DH-EU018*
16	M30×P1.5	 40 ø4.8	DH-EM030*
30	M30×P1.5	 40 ø4.8	DH-EM030*
15		 40 ø4.8 15	DH-EU030*
2	M8×P1	 40 ø3.8 0.3m	DH-CM008*
		 40 ø3.8 0.3m 0.3m	DH-CU008*
4	M12×P1	 40 ø4.8 0.3m	DH-CM012*
		 40 ø4.8 0.3m 0.3m	DH-CU012*
8	M18×P1	 40 ø4.8 0.3m	DH-CM018*
		 40 ø4.8 0.3m 0.3m	DH-CU018*
16	M30×P1.5	 40 ø4.8 0.3m	DH-CM030*
15	M30×P1.5	 40 ø4.8 0.3m	DH-CM030*
30		 40 ø4.8 0.3m 0.3m	DH-CU030*

\* For more products and applications, please consult SENPUM engineers;  
 \* Through on-site operation guidance and after-sales technical support, we provide customers with full support from product selection to production line operation.

## DH2 series

Detection distance(mm)	Type	Dimensions(mm)	Model
2	M8×P1	 40 ø3.8	DH2-M008*
		 40 ø3.8 6	DH2-U008*
4	M12×P1	 40 ø4.8	DH2-M012*
		 40 ø4.8 7	DH2-U012*
8	M18×P1	 40 ø4.8	DH2-M018*
		 40 ø4.8 9	DH2-U018*
16	M30×P1.5	 40 ø4.8	DH2-M030*
15	M30×P1.5	 40 ø4.8	DH2-M030*
30		 40 ø4.8 15	DH2-U030*
2	M8×P1	 40 ø3.8	DH2-EM008*
		 40 ø3.8 6	DH2-EU008*
4	M12×P1	 40 ø4.8	DH2-EM012*
		 40 ø4.8 7	DH2-EU012*
8	M18×P1	 40 ø4.8	DH2-EM018*
		 40 ø4.8 9	DH2-EU018*
16	M30×P1.5	 40 ø4.8	DH2-EM030*
30	M30×P1.5	 40 ø4.8	DH2-EM030*
15		 40 ø4.8 15	DH2-EU030*
2	M8×P1	 40 ø3.8 0.3m	DH2-CM008*
		 40 ø3.8 0.3m 0.3m	DH2-CU008*
4	M12×P1	 40 ø4.8 0.3m	DH2-CM012*
		 40 ø4.8 0.3m 0.3m	DH2-CU012*
8	M18×P1	 40 ø4.8 0.3m	DH2-CM018*
		 40 ø4.8 0.3m 0.3m	DH2-CU018*
16	M30×P1.5	 40 ø4.8 0.3m	DH2-CM030*
15	M30×P1.5	 40 ø4.8 0.3m	DH2-CM030*
30		 40 ø4.8 0.3m 0.3m	DH2-CU030*

Fiber Optics  
 Photoelectric / Proximity  
 Color  
 Laser  
 Safety  
 Precision Contact / Contact Displacement  
 Laser Displacement  
 Barcode / Temperature  
 Static



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# Proximity Ultra-compact Square Proximity Sensors

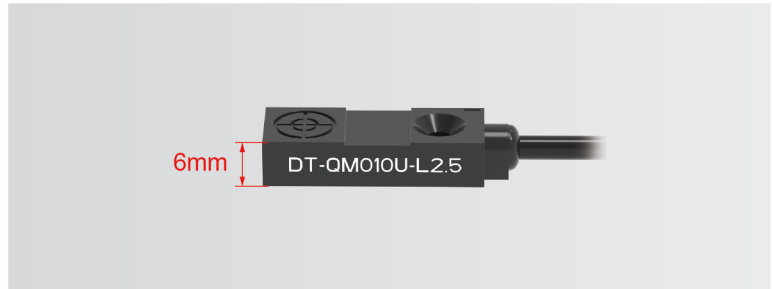
## DT-Q / DL-Q Series



Clearly visible status indicators



Easy to install, the thinnest model is only 6mm thick.



### Product list

#### Specifications (Detection Distance)

- Each product is available in a variety of detection distances, e.g. L1 for 1mm detection distance; L6 for 6mm detection distance.

Ordering Example	Main model	Detection distance	⇒	Ordering model
	DT-QM008A	L2.5		DT-QM008A-L2.5

Type	Dimensions(mm)	Detection distance (mm)	Output type	Main model	
				Normally open	Normally closed
Buried		2.5	NPN	DT-QM008A	DT-QM008AC
				PNP	DT-QM008AP
			NPN		DT-QM008U
				PNP	DT-QM008UP
		2.5	NPN		DT-QM010U
				PNP	DT-QM010UP
			NPN		DT-QM010US
				PNP	DT-QM010USP
		4.0	NPN		DT-QM010U
				PNP	DT-QM010UP
			NPN		DT-QM010US
				PNP	DT-QM010USP

#### Specifications (Detection Distance)

- Each product is available in a variety of detection distances, e.g. L1 for 1mm detection distance; L6 for 6mm detection distance.

Ordering Example	Main model	Detection distance	⇒	Ordering model
	DL-QM018	L5		DL-QM018-L5

Type	Dimensions(mm)	Detection distance (mm)	Output type	Main model	
				Normally open	Normally closed
Buried		5.0	NPN	DL-QM018	DL-QM018C
				PNP	DL-QM018P
Unburied		8.0	NPN		DL-QU018
				PNP	DL-QU018P
Buried		5.0	NPN		DL-QM018M
				PNP	DL-QM018MP
Unburied		8.0	NPN		DL-QU018M
				PNP	DL-QU018MP
Buried		10.0	NPN		DL-QM025
				PNP	DL-QM025P
Unburied		15.0	NPN		DL-QU025
				PNP	DL-QU025P



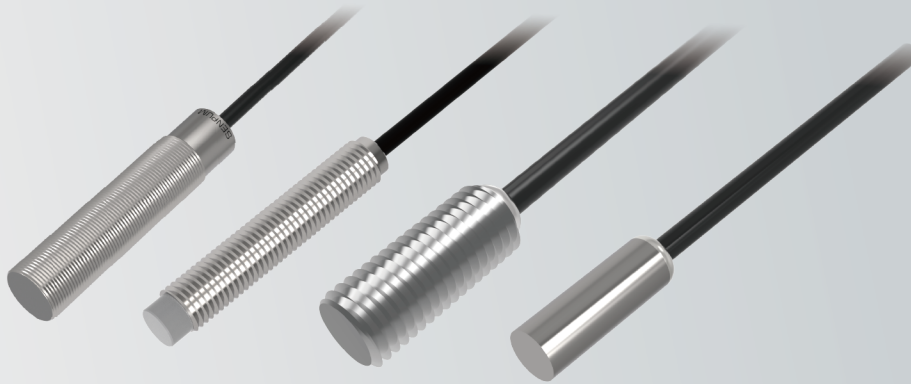
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# Proximity General Standard Type Proximity Sensor

## DL Series



### Excellent locking strength



### High quality IC

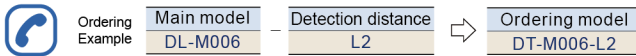
Adopting high quality IC, high stability circuitry, and extremely strong anti-interference.



### Product list

#### Specifications (Detection Distance)

• Each product is available in a variety of detection distances, e.g. L1 for 1mm detection distance; L6 for 6mm detection distance.



Type	Dimensions(mm)	Detection distance list(mm)	Output type	Main model	
				Normally open	Normally closed
Buried			NPN	DL-M006	DL-M006C
			PNP	DL-M006P	DL-M006CP
Unburied			NPN	DL-U006	DL-U006C
			PNP	DL-U006P	DL-U006CP
Buried			NPN	DL-M008	DL-M008C
			PNP	DL-M008P	DL-M008CP
Unburied			NPN	DL-U008	DL-U008C
			PNP	DL-U008P	DL-U008CP
Buried			NPN	DL-M012	DL-M012C
			PNP	DL-M012P	DL-M012CP
Unburied			NPN	DL-U012	DL-U012C
			PNP	DL-U012P	DL-U012CP
Buried			NPN	DL-M018	DL-M018C
			PNP	DL-M018P	DL-M018CP
Unburied			NPN	DL-U018	DL-U018C
			PNP	DL-U018P	DL-U018CP
Buried			NPN	DL-M030	DL-M030C
			PNP	DL-M030P	DL-M030CP
Unburied			NPN	DL-U030	DL-U030C
			PNP	DL-U030P	DL-U030CP

\*1, special requirements can be customized production



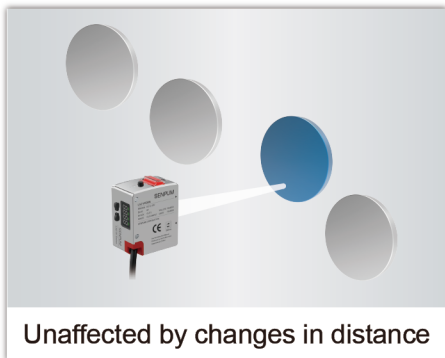
Fiber Optics  
Photoelectric / Proximity  
Color  
Laser  
Safety  
Precision Contact / Contact Displacement  
Laser Displacement  
Barcode / Temperature  
Static

# Color Intelligent White Light Color Sensor

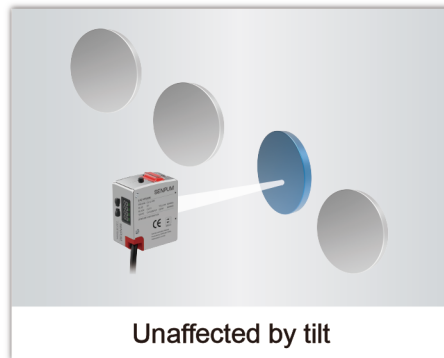
## LA2-W Series



Unaffected by changes in state or distance

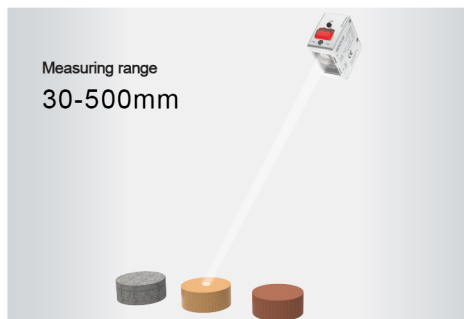


Unaffected by changes in distance



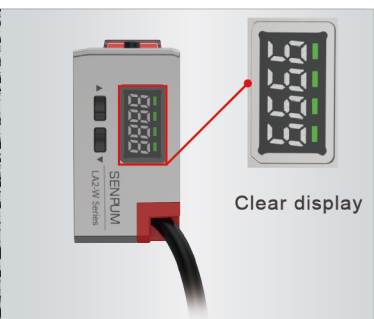
Unaffected by tilt

Detectable from a distance, superb numerical stability



Measuring range  
30-500mm

Rugged and easy to use



Clear display



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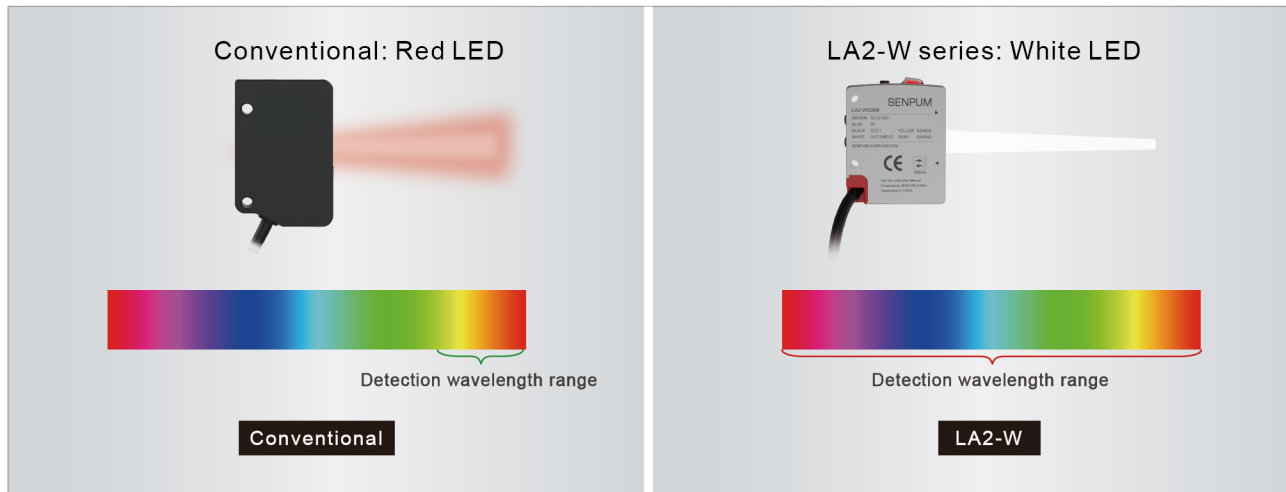
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# Stable detection of appearance (color) differences

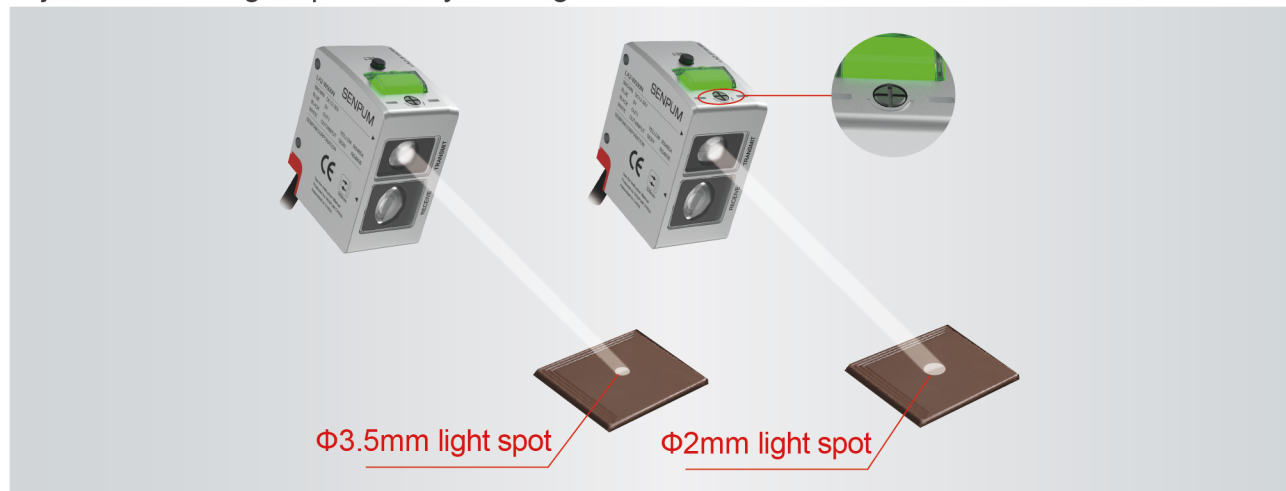
## White LED + customized light receiving element

Unlike conventional color sensors, the LA2-W series can capture subtle color differences.







## Adjustable light spot, support small workpiece

Adjust the size of light spot according to the demand, support small workpiece detection; adjust the small light spot size by rotating the knob.




### Product list


#### LA2-W series

Appearance	Type	Detection distance(mm)	Spot size (mm)	Model
				NPN / PNP
	Cable type	30~300	Variable light point Approx. Φ2±0.2mm (at 90 mm) Approx. Φ5±0.5mm (at 200 mm) Approx. Φ7±0.8mm (at 300 mm)	LA2-W300
	Relay type			LA2-W300CA
	Cable type	30~500	Variable light point Approx. Φ3.5±0.2mm (at 100 mm) Approx. Φ9±0.5mm (at 250 mm) Approx. Φ18±1mm (at 500 mm)	LA2-W500
	Relay type			LA2-W500CA

#### Cable (relay type option)

Appearance	Sensor side	Cable termination	Cable length	Model
	M8 6PIN Straight type	Loose wire	2m	OW-LAW2000
			5m	OW-LAW5000
			10m	OW-LAW10M
			20m	OW-LAW20M

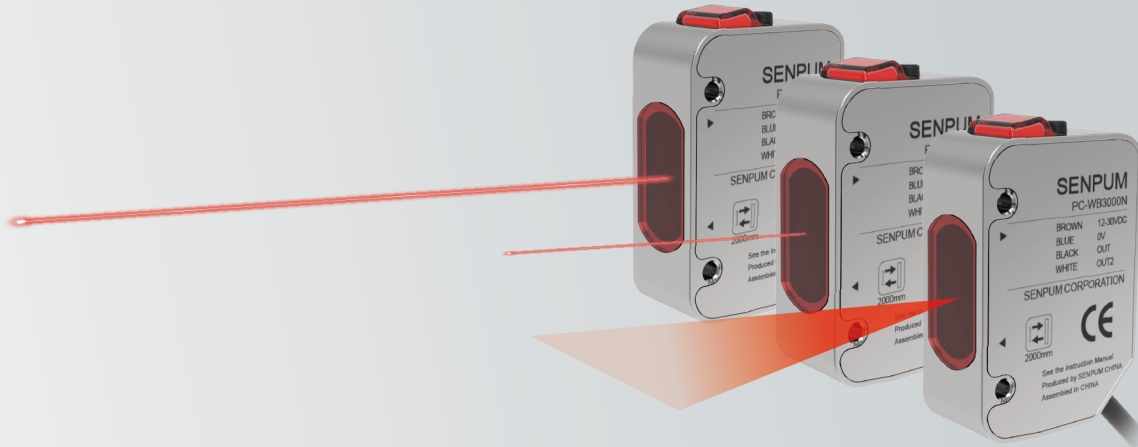
#### Bracket (Option)

Appearance	Model
	OW-W2001



# Color Digital Display Type Color Sensor

## PC-W Series

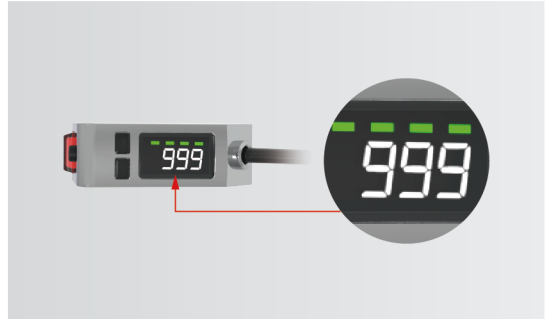


### One key setting, simple and fast



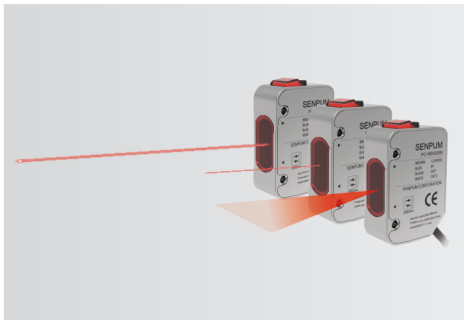
### High-definition digital display, at a glance

High-definition digital display, real-time grasp of the status of the work; key operation, compare two colors for setting, stable distinction between objects of different colors.



### Multiple laser spots

Standard, small light spot, line light spot, to meet most of the shape of the object detection.



### Sturdy body

The shell is made of zinc alloy and has IP67 waterproof structure.



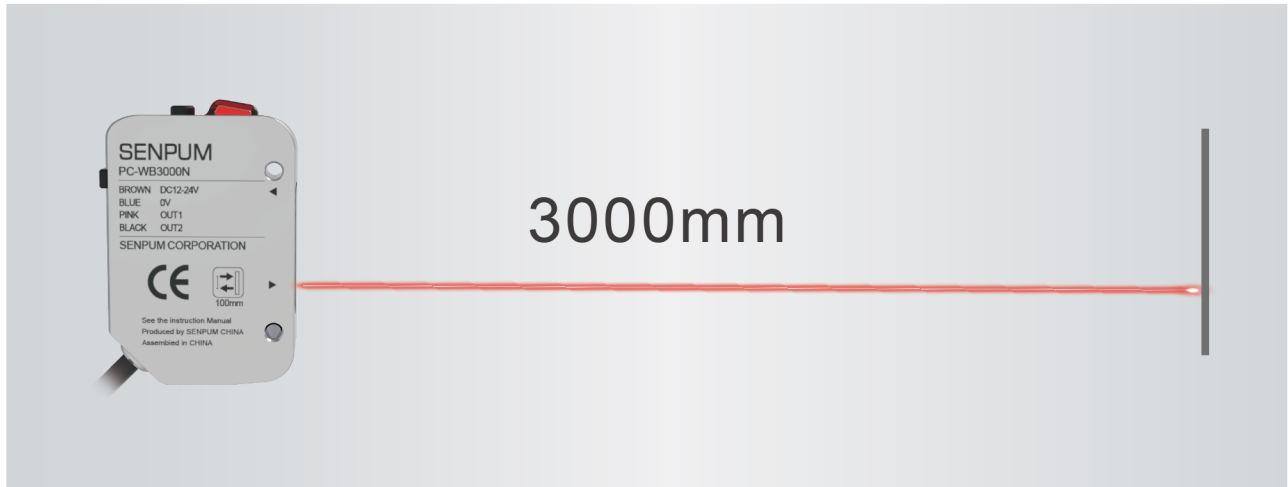
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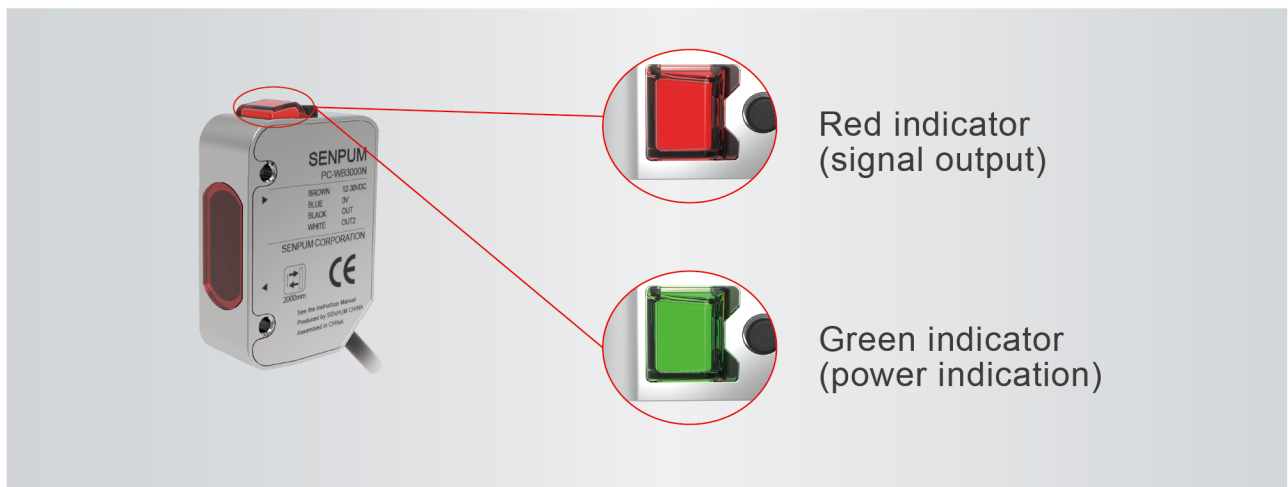
# Maximum detection distance up to 3000mm

Can be separated by a certain distance, do not have to worry about the installation position.






## Fast response

Response time 1ms, indicator light shows working status



### Product List

Appearance	Type	Detection distance (mm)		Spot size	Output type	Model
		White non-glossy cardboard	Black non-glossy cardboard			
	Standard type	MEGA: 0~3000	MEGA: 7~800	About $\Phi$ 2mm at 1000mm	NPN	PC-WB3000N
		FINE: 0~1000	FINE: 7~350		PNP	PC-WB3000P
	Small spot type	MEGA: 0~700	MEGA: 7~200	About $\Phi$ 0.5mm at 100mm	NPN	PC-WB700N
		FINE: 0~300	FINE: 7~80		PNP	PC-WB700P
	Line spot type	MEGA: 0~3000	MEGA: 7~800	About 1.5*120mm at 1000mm	NPN	PC-WS3000N
		FINE: 0~1000	FINE: 7~350		PNP	PC-WS3000P
		HSPD: 0~700	HSPD: 7~200			

Fiber Optics

Photoelectric / Proximity

Color

Laser

Safety

Precision Contact / Contact Displacement

Laser Displacement

Barcode / Temperature

Static



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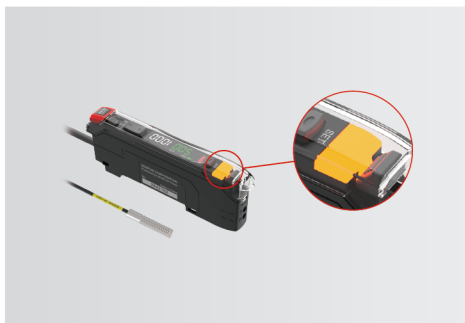
# Color White LED Intelligent Color Sensor

## LA-F10 Series



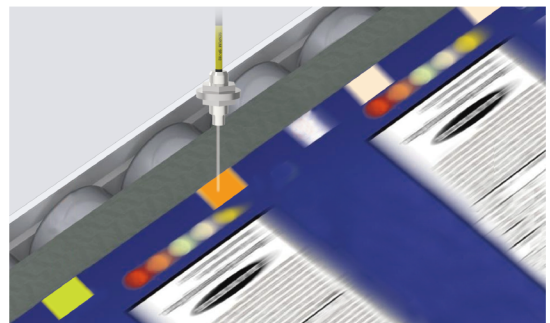
High color discrimination capability can be achieved, and the original general-purpose fiber-optic unit can also be directly connected to use.

### Clearly visible indicator light



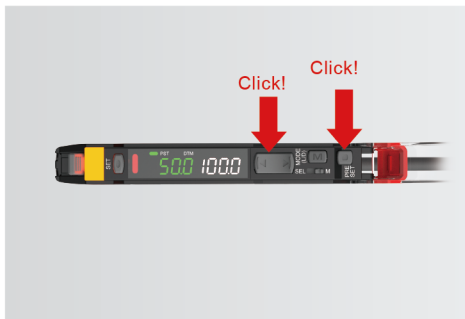
### White LED light source stabilizes detection of subtle color differences by threshold setting

The white light source contains a variety of wavelengths of light to reflect the color characteristics of objects more fully.



### Zero drift

Zeroing the display value has been made easier.  
Simply press the PRESET and RIGHT buttons simultaneously.



### Simple sensitivity setting

Simply press the SET button once with and without the target to complete the setting.



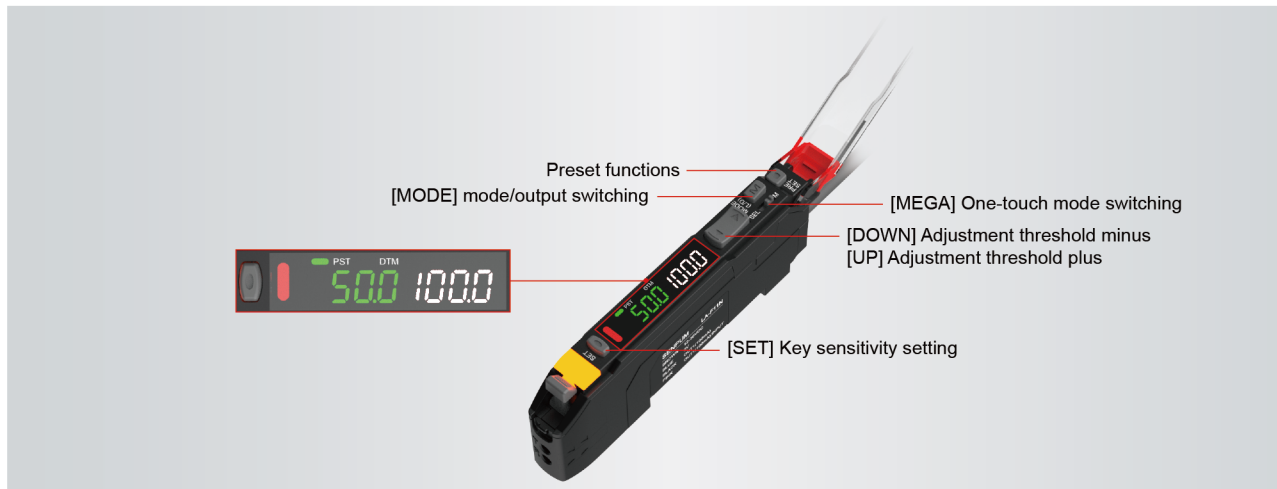
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# Digital dual display & direct access

Simultaneous display of current value and set value, manual fine-tuning and sensitivity adjustment.



## Set up with just one click

### Simple setting

Press the PRESET button once to complete the setup.

### Simple display

Individual sensors display "0" or "100".

### Simple operation

Setting to "0" or "100" can be done with a single push of a button.



## Product List

### Sensor head

Type / Model	Adjustable small light spot	Side view adjustable small light spot	Long distance	Small light spot	Long distance	Area type
	LA-F20	LA-F22	LA-F24	LA-F25	LA-F26	LA-F28
Appearance						
	Detection distance: 10-30mm Spot diameter: $\Phi 0.9-3.5\text{mm}$	Detection distance: 3-15mm Spot diameter: $\Phi 0.9-1.5\text{mm}$	Detection distance: 70 $\times$ 20mm Spot diameter: $\Phi 6\text{mm}$	Detection distance: 16 $\pm$ 4mm Spot diameter: $\Phi 1\text{mm}$	Detection distance: 60 $\pm$ 10mm Spot diameter: $\Phi 2\text{mm}$	Detection distance: 5-20mm

### Lens + fiber optic element

Fiber optic component model	SP-122X	SP-125X	SP-136FA	SP-136FG	SP-136FZ	SP-136TG	SP-136TZ
Appearance							
	Spot diameter: approx. $\Phi 0.2$	Spot diameter: approx. $\Phi 0.1$	Spot diameter: approx. $\Phi 0.4$	Spot diameter: approx. $\Phi 0.4$	Spot diameter: approx. $\Phi 0.4$	Spot diameter: approx. $\Phi 0.4$	Spot diameter: approx. $\Phi 0.4$
Compatible lens models	P-14HA		P-14HA, P-15HA		P-12HA, P-14HA, P-15HA		
Lens appearance		Economy type P-12HA approx. 1g					
	Tip: $\Phi 3.3$ 15.6		Tip: $\Phi 7.4$ 27	P-14HA approx. 2g		8.7 15.6	P-15HA approx. 2g

### Fiber optic components

Type / Model	Screw mounting	Cylindrical (screw mounting)	Small light spot (reflective)	Narrow beam/ high power	Casing type	Heat-resistant type		
	SP-136TZ	SP-136FZ	SP-150U	SP-111	SP-121	SP-141	SP-132	SP-584C
Appearance								
	Detection distance: 0-400 Spot diameter: M3 nut type coaxial	Detection distance: 0-450 Spot diameter: M3 straight coaxial	Detection distance: 0-140 Spot diameter: $\Phi 2$	Detection distance: 0-300 Spot diameter: $\Phi 0.9-3.5\text{mm}$	Detection distance: 0-2300 Spot diameter: $\Phi 0.1\text{mm}$	Thickness: 5.2 The casing is not bendable Detection distance: 0-180 Spot diameter: $\Phi 2$	Detection distance: 0-770 Spot diameter: $\Phi 2.6$	Detection distance: 0-770 Spot diameter: $\Phi 2.6$

### Lens + fiber optic element

Fiber optic component model	SP-111	SP-136FA	SP-136FG	SP-121
Appearance				
	Spot diameter: $\Phi 0.9-3.5$	Spot diameter: approx. $\Phi 0.4$	Spot diameter: approx. $\Phi 0.4$	Spot diameter: approx. $\Phi 0.1$
Compatible lens models	—	P-16HA	P-15HA	—
Lens appearance	—			—
	—	Tip: $\Phi 10.6$ 26 P-16HA approx. 5g	8.7 15.6 P-15HA approx. 2g	—

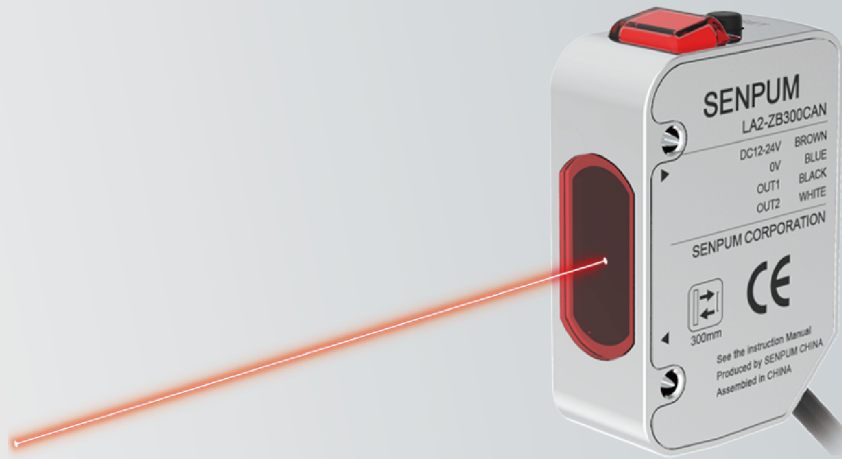
### Amplifier

Appearance	Output type	Model
	NPN	LA-F11N
	PNP	LA-F11P
	NPN/PNP	LA-F11



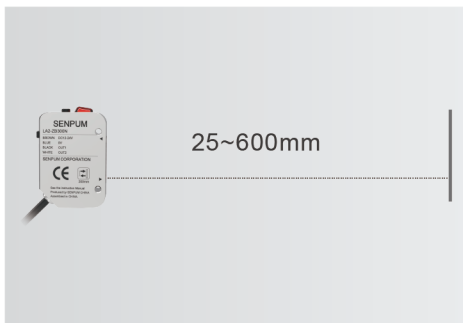
# Laser CMOS Type Laser Sensors

## LA2-ZB Series



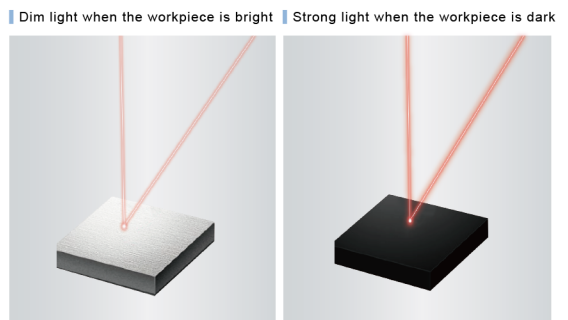
True black and white isometric; not easily affected by workpiece surface finish, material, tilt, etc.

Maximum detection distance 600mm



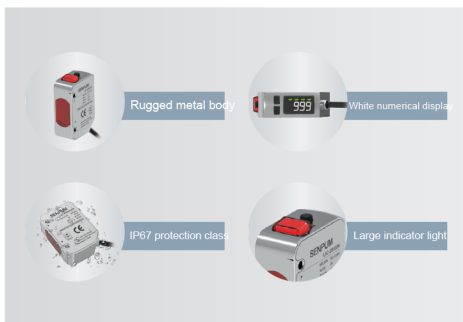
High definition dynamic range

With conventional sensors, if the color or surface condition of the workpiece changes, the light intensity level will also change. However, with the LA2-ZB series, the light intensity is controlled according to the workpiece, and the ideal light intensity level is achieved, so that individual workpieces can be accurately detected.



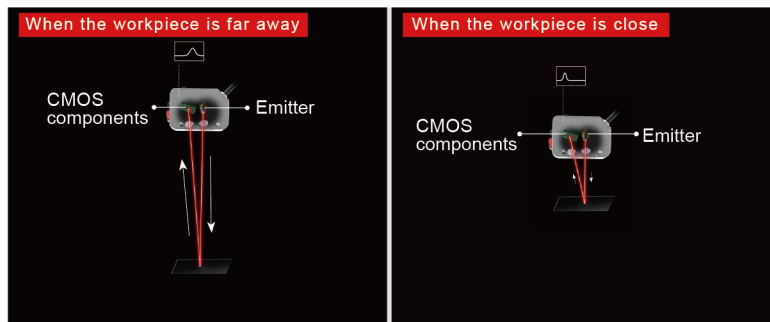
Assured structure

The housing is made of zinc alloy and meets the IP67 housing protection level; it is equipped with a white LED display so that the status can be seen at a glance, and the large indicator light is convenient for customers to observe from all angles.



Triangulation principle

Triangulation is one of the detection principles of displacement sensors, where the light from the transmitter is projected onto the workpiece and the reflected light enters the receiver. The receiver is equipped with a CMOS image sensor, which changes the peak position of the light waveform it receives by the distance from the workpiece. As a result, the distance to the workpiece can be deduced.



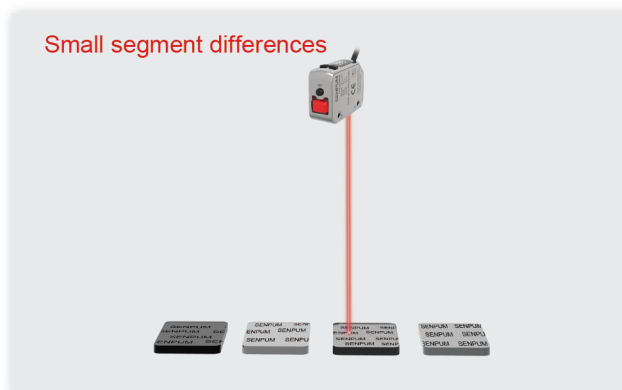
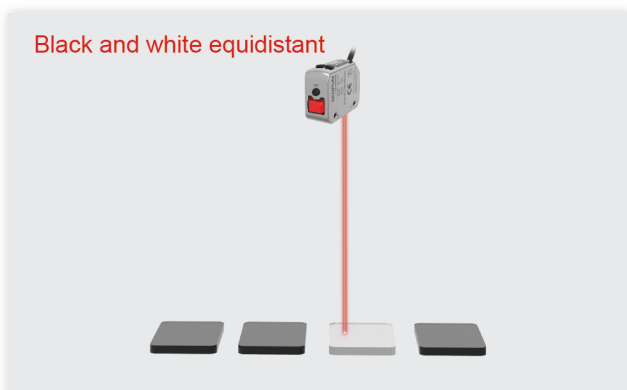
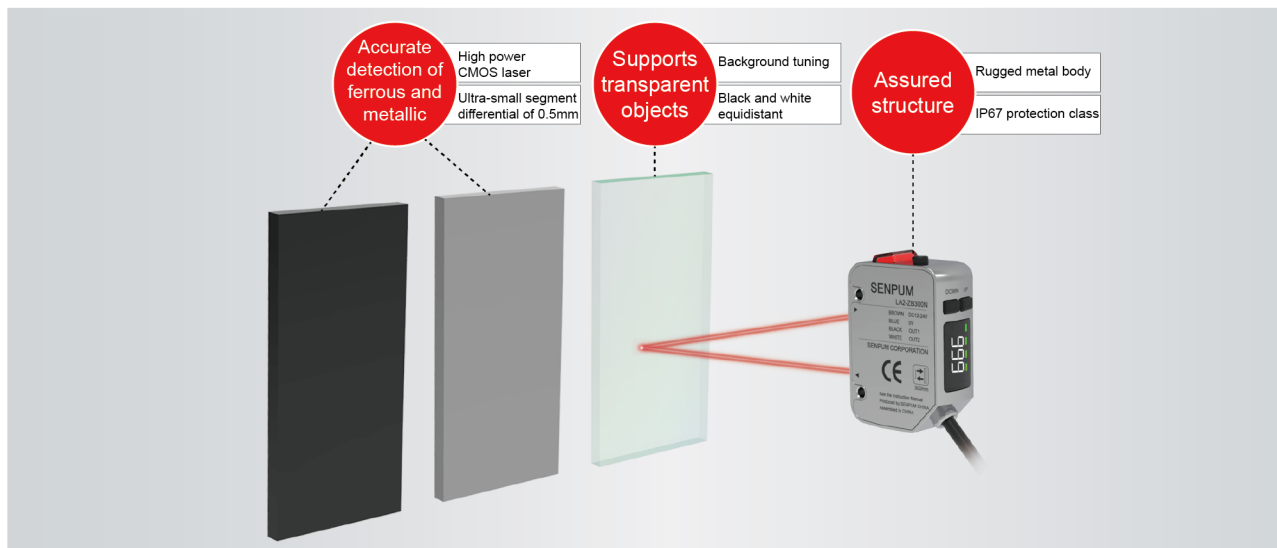
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S031

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# Background suppression CMOS

High-power CMOS laser accurately black workpieces and metallic workpieces, and supports the detection of transparent objects. Stable detection is possible regardless of the type or condition of each workpiece.



## Product list

### Standard type

Appearance	Detection distance(mm)	Spot diameter	Output type	Model
	25~100	Approx. 1*2mm at 100mm	NPN	LA2-ZB100N
			PNP	LA2-ZB100P
	25~150		NPN	LA2-ZB150N
			PNP	LA2-ZB150P
	25~250	Approx. 1*2mm at 100mm	NPN	LA2-ZB250N
			PNP	LA2-ZB250P
	25~300		NPN	LA2-ZB300N
			PNP	LA2-ZB300P
	25~500	About Φ2mm at 500mm	NPN	LA2-ZB500N
			PNP	LA2-ZB500P
	25~600		NPN	LA2-ZB600N
			PNP	LA2-ZB600P

### Relay type

Appearance	Detection distance(mm)	Spot diameter	Output type	Model
	25~100	Approx. 1*2mm at 100mm	NPN	LA2-ZB100CAN
			PNP	LA2-ZB100CAP
	25~150		NPN	LA2-ZB150CAN
			PNP	LA2-ZB150CAP
	25~250	Approx. 1*2mm at 100mm	NPN	LA2-ZB250CAN
			PNP	LA2-ZB250CAP
	25~300		NPN	LA2-ZB300CAN
			PNP	LA2-ZB300CAP
	25~500	About Φ2mm at 500mm	NPN	LA2-ZB500CAN
			PNP	LA2-ZB500CAP
	25~600		NPN	LA2-ZB600CAN
			PNP	LA2-ZB600CAP

### Mounting bracket (optional)

Type	Material / Weight	Model
Standard mounting bracket (t = 2) (M3 screws × 2 pieces included)	SUS316L Approx. 24 g	N-100
Rear mounting bracket (t = 2) (M3 screws × 2 pieces included)		N-200
Fastened mounting bracket (t = 3) (M3 screws × 2 pieces included)	SUS316L Approx. 155 g	N-300

### Cable (relay type option)

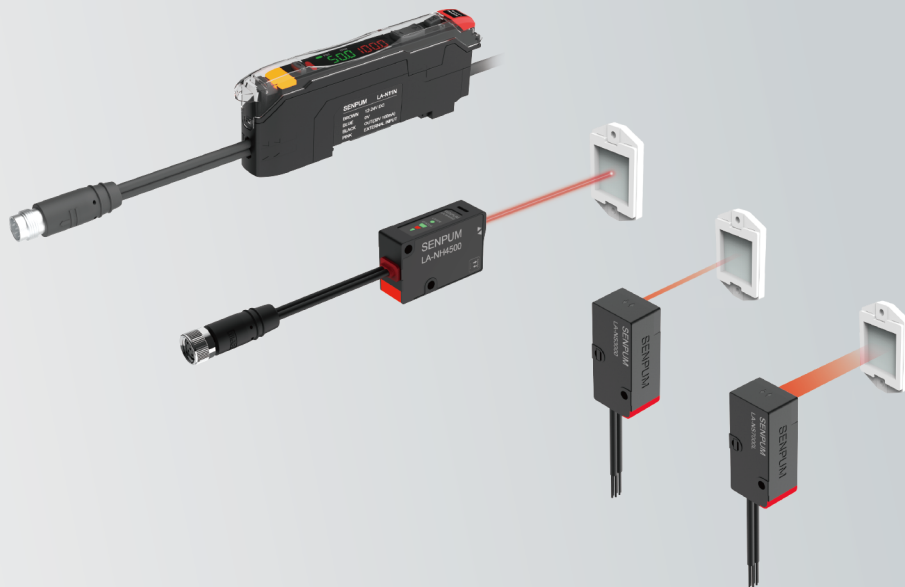
Appearance	Sensor side	Cable termination	Wire length	Model
	M8 4PIN Straight	Loose wire	2M	OW-LAZ2000
			5M	OW-LAZ5000
			10M	OW-LAZ10M
			20M	OW-LAZ20M



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# Laser Digital Laser Sensors

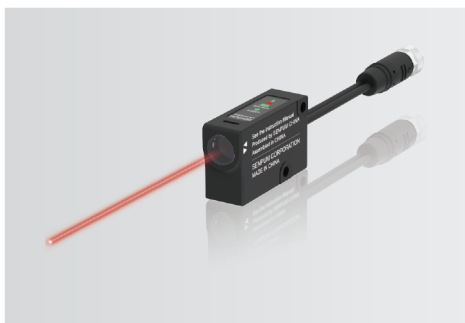
## LA-N Series



## Long-range visible beams for improved laser detection

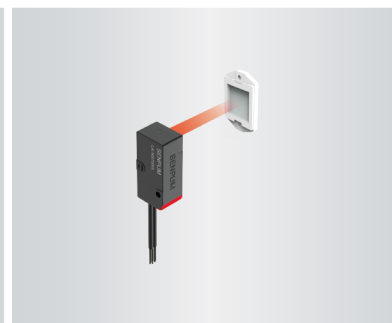
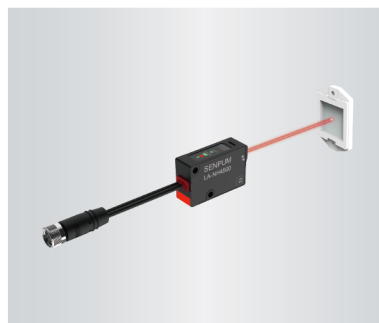
### Visible laser light source

- The light source is a laser and the spot is clearly visible
- Therefore, the detection position is clear and easy to install
- Each sensor head supports Class 1 lasers



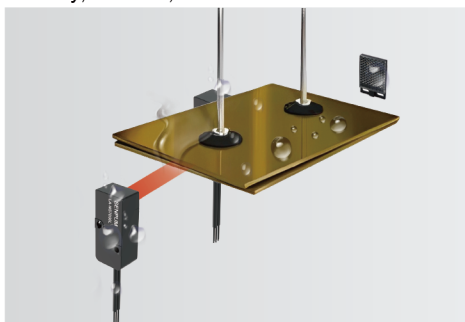
### Precise alignment detection

- Spot laser type does not diffuse light
- Line spot type enables wide range detection
- Therefore, it can be easily aligned depending on the workpiece to be inspected and the mounting condition.



### High environmental resistance

It has good environmental resistance, such as stable operation under certain conditions of temperature, humidity, vibration, and shock.



### High-definition indicator light

High-definition indicator lights show the inspection status at a glance; the laser indicator light is green and the output indicator light is red.

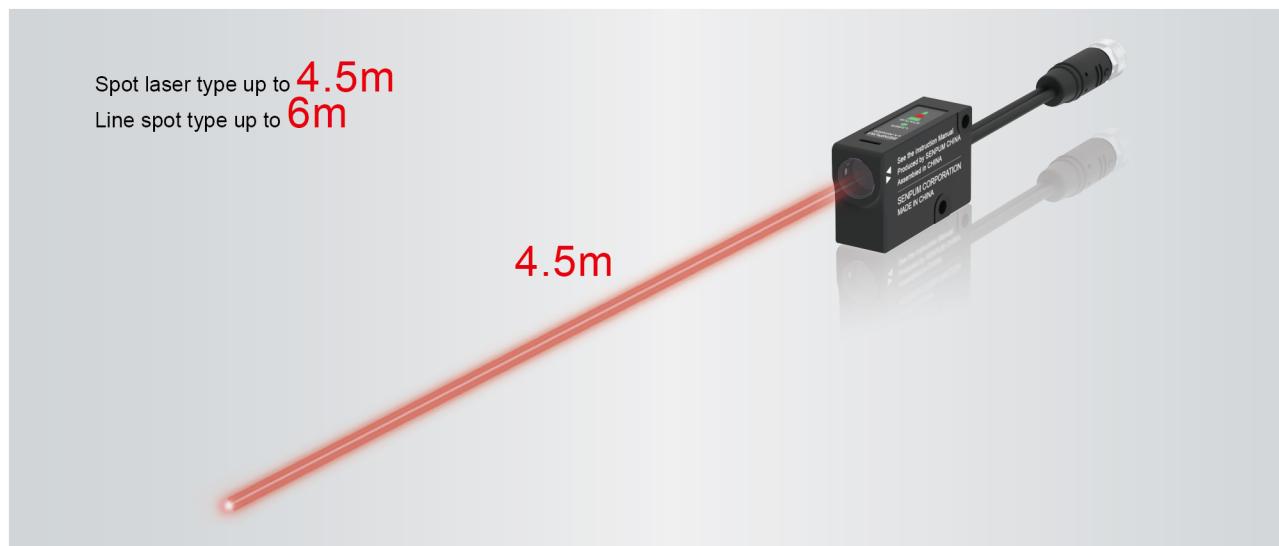


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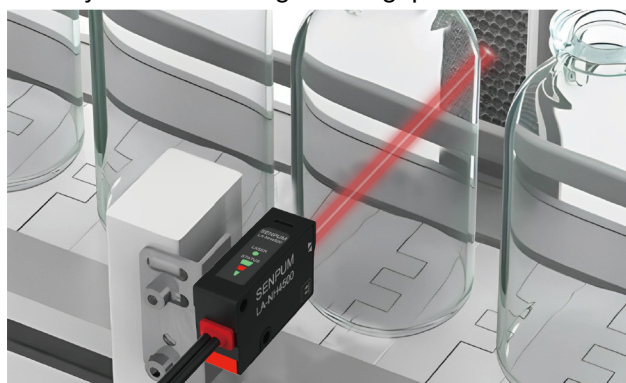
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Long-range inspections can be performed, eliminating installation limitations  
Easily aligned according to the workpiece and mounting conditions.



The beam remains constant and the laser can be easily detected through small gaps.



Detects dropped boxes from a distance



Product list

Sensor head

Appearance	Type	Detection distance(m)	Spot size	Model
		HSP : 2 MSP : 2.5 LSP : 3	SUPER: 3.5 ULTRA : 4 MEGA : 4.5	Approx. $\Phi$ 1.5mm (at a distance of 1m)  LA-NH4500
	Regressive reflective	LSP : 1.5 MSP : 0.7 HSP : -	SUPER: 2 ULTRA : 2.5 MEGA : 3	Approx. 2 x 2mm (at a distance of 500mm or closer)  LA-NS3000
		LSP : - MSP : 2.5 HSP : 4	SUPER: 4.5 ULTRA : 5 MEGA : 6	Approx. 2 x 10mm (at a distance of 500mm or closer)  LA-NS7000L

Reflective tape (optional)

Appearance	Model
	N-1010
	N-1020
	N-10100
	N-10250
	N-2525
	N-5015
	N-5050

Amplifier

Appearance	Type	Control output	External input	Input method	Model
	Standard	1	1	NPN	LA-N11N
PNP				LA-N11P	
NPN/PNP				LA-N11	

Reflector (option)

Appearance	Model
	N-6L
	N-7

Fiber Optics

Photoelectric / Proximity

Color

Laser

Safety

Precision Contact / Contact Displacement

Laser Displacement

Barcode / Temperature

Static



# Laser Standard Laser Sensors

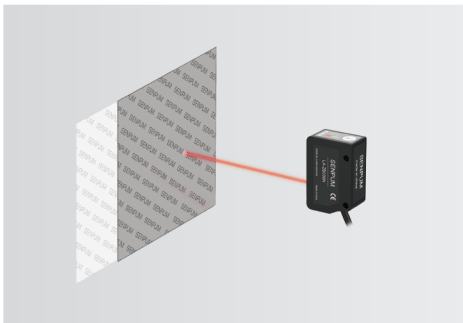
## LA-ZB Series



## The industry's ultra-small 0.5mm laser spot, more suitable for tiny object detection

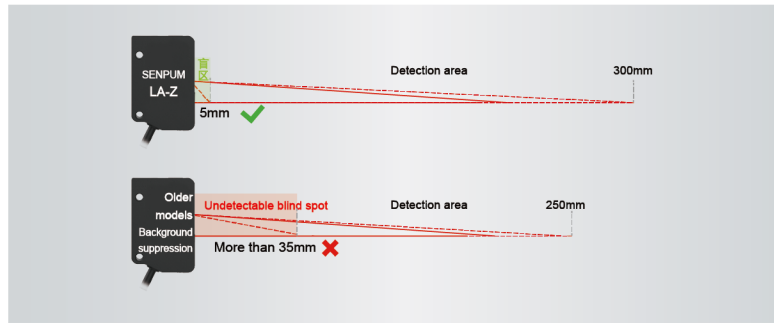
### Competent detection in complex environments

Small segment differences can also be detected when the target is the same or similar to the background color.



### Ultra-small blind spot under 5mm

It solves the problem that traditional sensors cannot be detected due to close installation, and greatly improves the practicality of the product.



### Product list

Appearance	Type	Detection distance(mm)	Spot size (mm)	Model	
				NPN	PNP
2m cable	Normal spot	100	Approx. $\Phi 2$ at 100mm	LA-ZB010N	LA-ZB010P
	Small spot		Approx. $\Phi 1$ at 100mm	LA-ZB010LN	LA-ZB010LP
2m cable	Ultra small spot	60	Approx. $\Phi 0.5$ at 60mm	LA-ZB006SN	LA-ZB006SP
2m cable	Normal spot	300	Approx. $\Phi 2.5$ for 300mm	LA-ZB030N	LA-ZB030P



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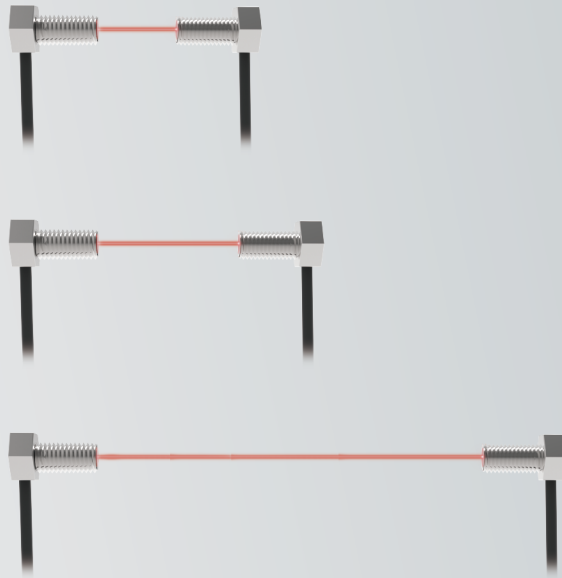
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# Laser

## Ultra Small Type Laser Sensors

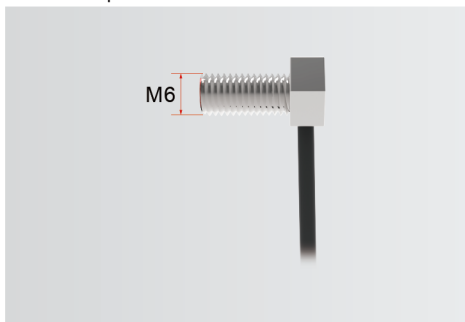
### LA2-S Series



Ultra-long detection distance up to 10m or more;  
0.5mm small light spot

#### Ultra small size

Extremely small size, only M6 size, easy to install in the narrow workpiece.



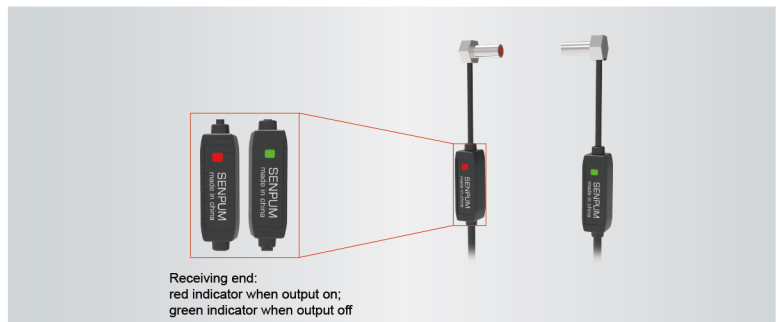
#### High environmental resistance

Adopting stainless steel shell, it can work stably under certain conditions such as anti-vibration and shock resistance.

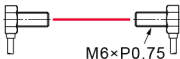


#### High definition indicator light

Transmitter and receiver are equipped with indicator lights for quick checking of output status.



#### Product list

Type	Dimension(mm)	Detection distance(mm)	Model	
			NPN	PNP
Through-beam type	 M6×P0.75	1000mm	LA2-S100LN	LA2-S100LP
			LA2-S100LCN	LA2-S100LCP
		500mm	LA2-S050LN	LA2-S050LP
			LA2-S050LCN	LA2-S050LCP
		10m	LA2-S10MLN	LA2-S10MLP
			LA2-S10MLCN	LA2-S10MLCP

Fiber Optics

Photoelectric / Proximity

Color

Laser

Safety

Precision Contact / Contact Displacement

Laser Displacement

Barcode / Temperature

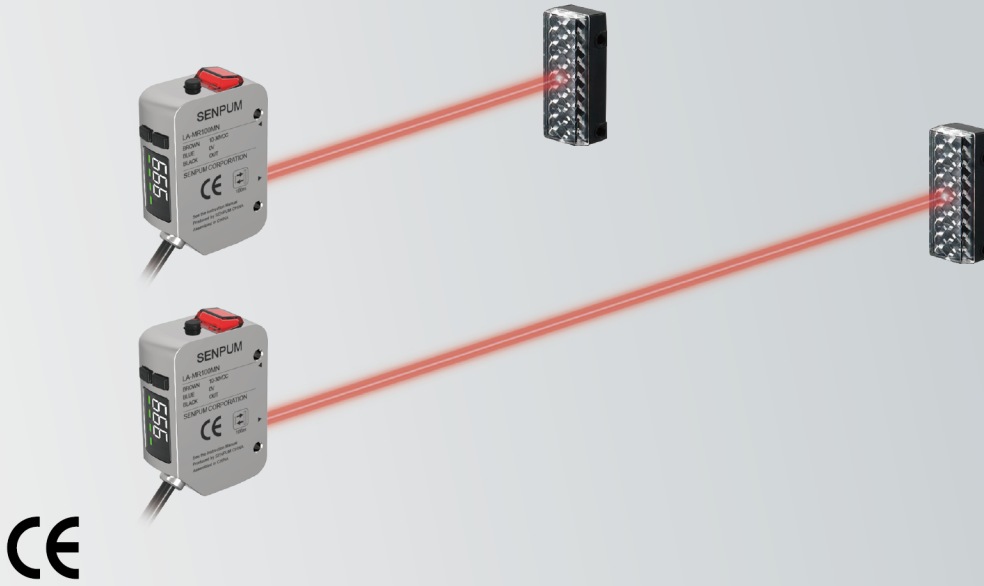
Static



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# Laser Long-range Type Laser Sensors

## LA-MR Series



### Ultra-long detection distance, up to 100m

#### Push button setting, easy to use

It's super easy to operate and can be set up with a single click.



#### Metal housing with excellent impact resistance

Made of metal for greater impact resistance.



#### Product list

Appearance	Detection distance	Spot size	Output type	Model
	50m	Approx. 15mm	NPN	LA-MR50MN
			PNP	LA-MR50MP
	100m	Approx. 80mm	NPN	LA-MR100MN
			PNP	LA-MR100MP



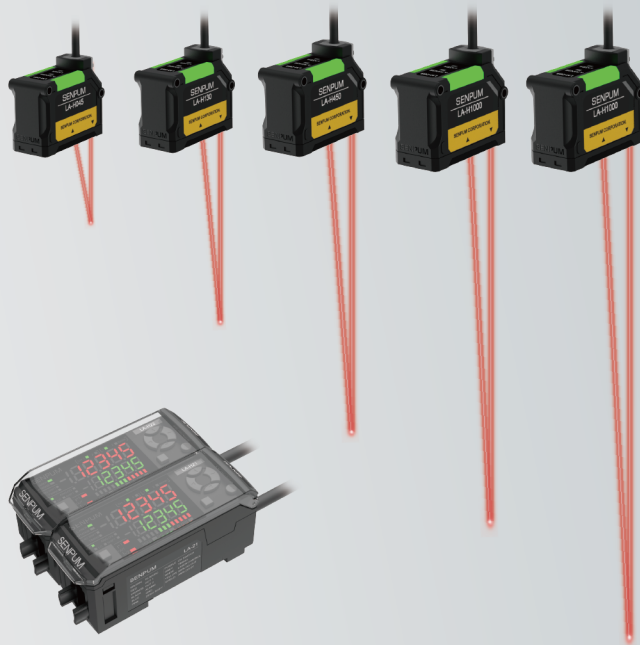
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# Laser Digital Type Laser Sensors

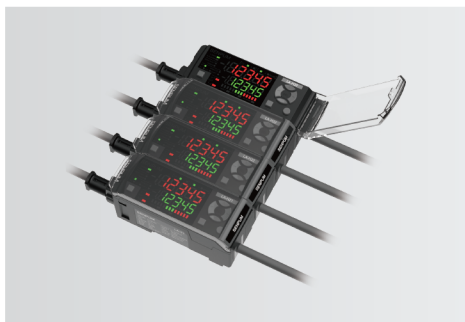
## LA-H Series



### Light intensity control system for reliable detection of any color

#### Anti-jamming function

When connecting expansion units, interference is prevented between sensor heads connected to adjacent amplifiers.



#### Five different sensing heads from long range to high precision detection

It can support a detection distance of 20~1000mm to support various applications.



#### Product list

##### Sensor head

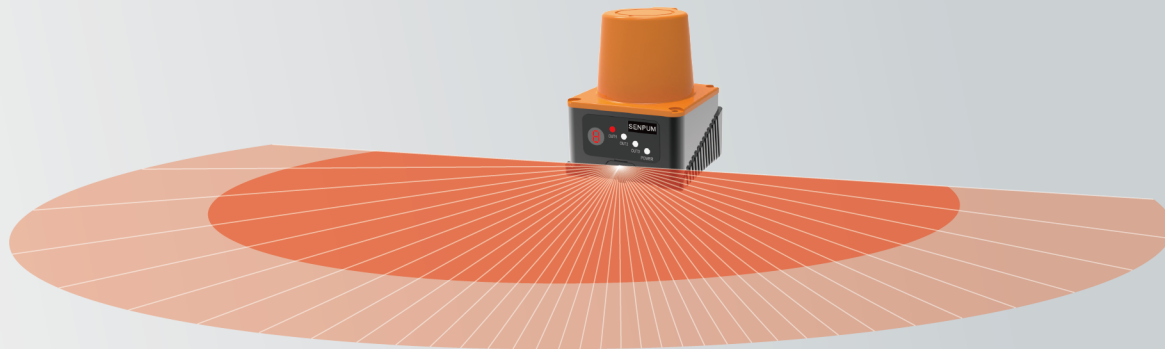
Appearance	Standard deviation of detection	Measuring distance (mm)	Laser classification	Model
<p>Amplifier display value: 250 0</p> <p>20mm 45mm</p>	0.5mm	20~45	Class 2	LA-H45
			Class 1	LA-H45L
<p>Amplifier display value: 750 0</p> <p>55mm 130mm</p>	1mm	55~130	Class 2	LA-H130
			Class 1	LA-H130L
<p>Amplifier display value: 290 0</p> <p>160mm 450mm</p>	3mm	160~450	Class 2	LA-H450
			Class 1	LA-H450L
<p>Amplifier display value: 800 0</p> <p>200mm 1000mm</p>	20mm (Detection distance of 200~800mm) 30mm (Detection distance of 800~1000mm)	200~1000	Class 2	LA-H1000
			Class 1	LA-H1000L

##### Controller

Appearance	Type	Output method	Model
<p>Main module</p>	DIN rail mounting	NPN	LA-21
		PNP	LA-21P
<p>Expansion module</p>		NPN	LA-22
		PNP	LA-22P



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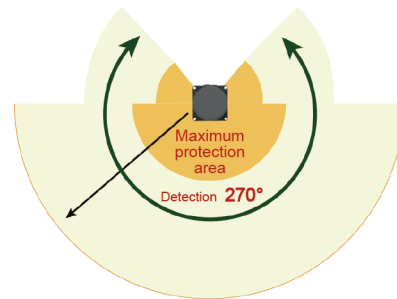
Using a new detection algorithm to avoid the interference of dust, maximum protection distance of 20 meters

1 unit protects a wide range

### Maximum protection area 20m

With a maximum protection area of 20 m, only one unit can be used for equipment that requires distance, such as vehicle body processes.

In addition, the guarding area can be recognized up to 270°, expanding the range of applications that can be supported.



Significantly improved environmental resistance


### Dirt resistant & High precision

Protection class IP65 to avoid dust interference. Highly accurate detection to recognize people or objects, comprehensively detecting the tiny gap of reflected light from objects.




#### Product list

##### High-speed obstacle avoidance type

Appearance	Detection range	Output method	Model
 High-speed obstacle avoidance type	6m (70% reflectance white object) 2m (10% reflective black object)	NPN	SC-V06N
		PNP	SC-V06P
		NPN	SC-V06GN
		PNP	SC-V06GP
	10m (70% reflectance white object) 4m (10% reflective black object)	NPN	SC-V10N
		PNP	SC-V10P
		NPN	SC-V10GN
		PNP	SC-V10GP

##### High-speed measurement type

Appearance	Detection range	Output method	Model
 High-speed measurement type	4m (10% reflective black object)	Ethernet, ROS, windows, and linux drivers are available	SC-V10MGS
	8m (10% reflective black object)		SC-V20MGS
	10m (70% reflectance white object) 4m (10% reflective black object)		SC-V10MS
	20m (70% reflectance white object) 8m (10% reflective black object)		SC-V20MS
	6m (70% reflectance white object) 2m (10% reflective black object)	RS232 output	SC-V06MGST

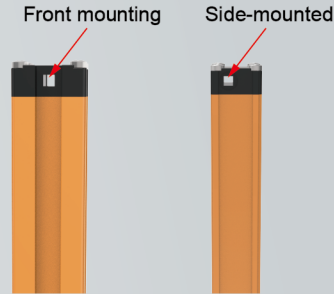
\* For more products and applications, please consult a SENPUM engineer;  
 \* Through on-site operation guidance and after-sales technical support, we provide customers with full support from product selection to production line operation.



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No brackets required, so easy to install



## High accuracy, wide sensing, fast response

### Anti-interference

Super anti-electromagnetic and anti-light interference capability

Super anti-electromagnetic, anti-light interference ability, does not affect the detection.

### Impact resistance

Compact and ruggedized body

Protection class IP65 ensures highest impact resistance in its class.

### Selection list

Please follow the selection steps 2-5 to select the model and parameters and then order.

Model(SA-V20-16-035-\*)

① Series name   ② Optical axis distance (mm)   ③ Number of optical axes   ④ Detection distance (m)  
⑤ Output signal (N:NPN/P:PNP)   Note: All SA-V series products have normally closed outputs.

Optical axis distance 8mm Selection table

Model	A Total length	Number of optical axes	B Detection height
SA-V10-16-035-*	197	16	150
SA-V10-24-035-*	277	24	230
SA-V10-32-035-*	357	32	310
SA-V10-40-035-*	437	40	390
SA-V10-48-035-*	517	48	470
SA-V10-56-035-*	597	56	550
SA-V10-64-035-*	677	64	630
SA-V10-72-035-*	757	72	710
SA-V10-80-035-*	837	80	790
SA-V10-88-035-*	917	88	870
SA-V10-96-035-*	997	96	950
SA-V10-104-035-*	1077	104	1030
SA-V10-112-035-*	1157	112	1110
SA-V10-120-035-*	1237	120	1190
SA-V10-128-035-*	1317	128	1270
SA-V10-136-035-*	1397	136	1350
SA-V10-144-035-*	1477	144	1430
SA-V10-152-035-*	1557	152	1510
SA-V10-160-035-*	1637	160	1590
SA-V10-168-035-*	1717	168	1670

\*1. Customized production is possible for special requirements

Optical axis distance 24mm Selection table

Model	A Total length	Number of optical axes	B Detection height
SA-V20-08-035-*	182	8	140
SA-V20-12-035-*	262	12	220
SA-V20-16-035-*	342	16	300
SA-V20-20-035-*	422	20	380
SA-V20-24-035-*	502	24	460
SA-V20-28-035-*	582	28	540
SA-V20-32-035-*	662	32	620
SA-V20-36-035-*	742	36	700
SA-V20-40-035-*	822	40	780
SA-V20-44-035-*	902	44	860
SA-V20-48-035-*	982	48	940
SA-V20-52-035-*	1062	52	1020
SA-V20-56-035-*	1142	56	1100
SA-V20-60-035-*	1222	60	1180
SA-V20-64-035-*	1302	64	1260
SA-V20-68-035-*	1382	68	1340
SA-V20-72-035-*	1462	72	1420
SA-V20-76-035-*	1542	76	1500
SA-V20-80-035-*	1622	80	1580
SA-V20-84-035-*	1702	84	1660
SA-V20-88-035-*	1782	88	1740
SA-V20-92-035-*	1862	92	1820
SA-V20-96-035-*	1942	96	1900

\*1. Customized production is possible for special requirements

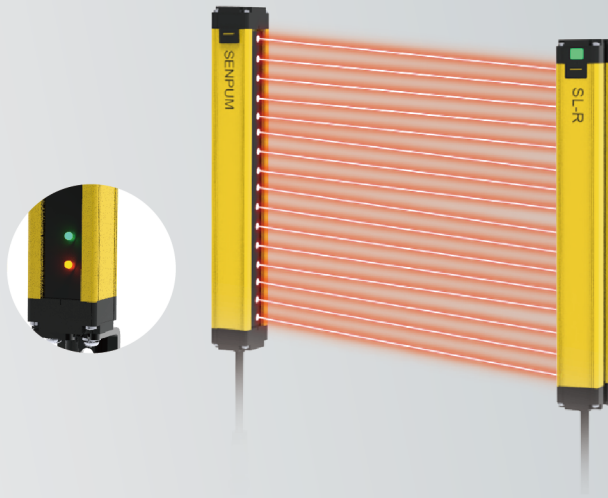
Optical axis distance 40mm Selection table

Model	A Total length	Number of optical axes	B Detection height
SA-V40-04-035-*	182	4	120
SA-V40-06-035-*	262	6	200
SA-V40-08-035-*	342	8	280
SA-V40-10-035-*	422	10	360
SA-V40-12-035-*	502	12	440
SA-V40-14-035-*	582	14	520
SA-V40-16-035-*	662	16	600
SA-V40-18-035-*	742	18	680
SA-V40-20-035-*	822	20	760
SA-V40-22-035-*	902	22	840
SA-V40-24-035-*	982	24	920
SA-V40-26-035-*	1062	26	1000
SA-V40-28-035-*	1142	28	1080
SA-V40-30-035-*	1222	30	1160
SA-V40-32-035-*	1302	32	1240
SA-V40-34-035-*	1382	34	1320
SA-V40-36-035-*	1462	36	1400
SA-V40-38-035-*	1542	38	1480
SA-V40-40-035-*	1622	40	1560
SA-V40-42-035-*	1702	42	1640
SA-V40-44-035-*	1782	44	1720
SA-V40-46-035-*	1862	46	1800
SA-V40-48-035-*	1942	48	1880

\*1. Customized production is possible for special requirements



# Safety Type 4 Safety Light Curtain SL-R Series



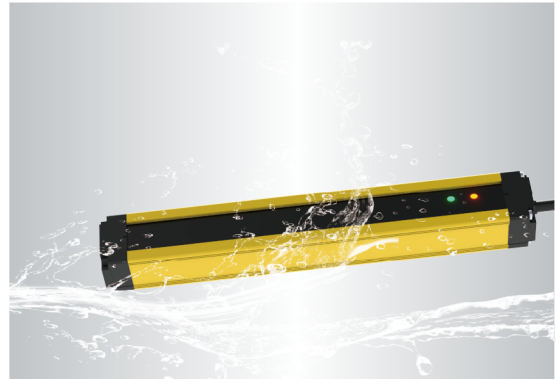
Simple to use, robust body, stable grating for long term use

### High protection class

Impact-resistant, thick and robust housing

High safety, TUV4 safety level, performance up to PLe level, IP65/IP67 protection level.

- IP65** Dust-proof and anti-jet type
- IP67** Dustproof and waterproof



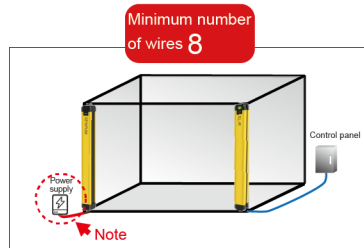
### Optional simplified wiring

Compatible with both optical and wire synchronization communication methods



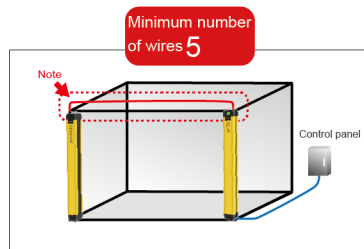
#### Optical synchronization system

- No need to assemble synchronization cables.
- Wiring operations are simple.



#### Single-line system

- The number of wiring and the amount of wiring work is reduced to 1\*3.
- Simply wire the receiver to the control panel.



\*Comparison with our SA-V series products.

### Product list

#### Connection cable (optional)

Appearance	Cable specification	Length	Model
	UL2464 ( 8×24AWG )	5m	OW-SLR-5M
		10m	OW-SLR-10M
		20m	OW-SLR-20M

#### Mounting accessories (optional)

Appearance	Installation method	Model
	Front side mounting bracket	OW-SLR001
	T-bracket	OW-SLR002
	Tube mounting bracket	OW-SLR003



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## Selection list

Please follow the selection steps 2~5 to select the model and parameters and then order.

Model (SL-R150-08-\*)

① ② ③ ④ ⑤

① Series name    ② Total length of grating(mm)    ③ Optical axis distance (mm)    ④ Detection distance(m)

⑤ Output signal (N:NPN/P:PNP)    Note: Safety type is recommended to choose PNP output, safety encoder products are all normally closed outputs

Optical axis distance 8mm Selection table

Model	A Total length	Number of optical axes	B Detection height
SL-R150-8-*	150	15	112
SL-R190-8-*	190	20	152
SL-R230-8-*	230	25	192
SL-R270-8-*	270	30	232
SL-R310-8-*	310	35	272
SL-R350-8-*	350	40	312
SL-R390-8-*	390	45	352
SL-R430-8-*	430	50	392
SL-R470-8-*	470	55	432
SL-R510-8-*	510	60	472
SL-R550-8-*	550	65	512
SL-R590-8-*	590	70	552
SL-R630-8-*	630	75	592
SL-R670-8-*	670	80	632
SL-R710-8-*	710	85	672
SL-R750-8-*	750	90	712
SL-R790-8-*	790	95	752
SL-R830-8-*	830	100	792
SL-R870-8-*	870	105	832
SL-R910-8-*	910	110	872
SL-R950-8-*	950	115	912
SL-R990-8-*	990	120	952
SL-R1030-8-*	1030	125	992
SL-R1070-8-*	1070	130	1032
SL-R1110-8-*	1110	135	1072
SL-R1150-8-*	1150	140	1112
SL-R1190-8-*	1190	145	1152
SL-R1230-8-*	1230	150	1192
SL-R1270-8-*	1270	155	1232
SL-R1310-8-*	1310	160	1272
SL-R1350-8-*	1350	165	1312
SL-R1390-8-*	1390	170	1352
SL-R1430-8-*	1430	175	1392
SL-R1470-8-*	1470	180	1432
SL-R1510-8-*	1510	185	1472
SL-R1550-8-*	1550	190	1512
SL-R1590-8-*	1590	195	1552
SL-R1630-8-*	1630	200	1592
SL-R1670-8-*	1670	205	1632
SL-R1710-8-*	1710	210	1672
SL-R1950-8-*	1950	240	1912
SL-R2190-8-*	2190	270	2152
SL-R2430-8-*	2430	300	2392
SL-R2910-8-*	2910	360	2872

Optical axis distance 24mm Selection table

Model	A Total length	Number of optical axes	B Detection height
SL-R150-24-*	150	5	112
SL-R190-24-*	190	7	152
SL-R230-24-*	230	9	192
SL-R270-24-*	270	11	232
SL-R310-24-*	310	13	272
SL-R350-24-*	350	15	312
SL-R390-24-*	390	16	352
SL-R430-24-*	430	18	392
SL-R470-24-*	470	20	432
SL-R510-24-*	510	21	472
SL-R550-24-*	550	23	512
SL-R590-24-*	590	25	552
SL-R630-24-*	630	26	592
SL-R670-24-*	670	28	632
SL-R710-24-*	710	30	672
SL-R750-24-*	750	31	712
SL-R790-24-*	790	33	752
SL-R830-24-*	830	35	792
SL-R870-24-*	870	36	832
SL-R910-24-*	910	38	872
SL-R950-24-*	950	40	912
SL-R990-24-*	990	41	952
SL-R1030-24-*	1030	43	992
SL-R1070-24-*	1070	45	1032
SL-R1110-24-*	1110	46	1072
SL-R1150-24-*	1150	48	1112
SL-R1190-24-*	1190	50	1152
SL-R1230-24-*	1230	51	1192
SL-R1270-24-*	1270	53	1232
SL-R1310-24-*	1310	55	1272
SL-R1350-24-*	1350	56	1312
SL-R1390-24-*	1390	58	1352
SL-R1430-24-*	1430	60	1392
SL-R1470-24-*	1470	61	1432
SL-R1510-24-*	1510	63	1472
SL-R1550-24-*	1550	65	1512
SL-R1590-24-*	1590	66	1552
SL-R1630-24-*	1630	68	1592
SL-R1670-24-*	1670	70	1632
SL-R1710-24-*	1710	71	1672
SL-R1950-24-*	1950	81	1912
SL-R2190-24-*	2190	91	2152
SL-R2430-24-*	2430	101	2392
SL-R2910-24-*	2910	121	2872

Optical axis distance 40mm Selection table

Model	A Total length	Number of optical axes	B Detection height
SL-R150-40-*	150	4	112
SL-R190-40-*	190	5	152
SL-R230-40-*	230	6	192
SL-R270-40-*	270	7	232
SL-R310-40-*	310	8	272
SL-R350-40-*	350	9	312
SL-R390-40-*	390	10	352
SL-R430-40-*	430	11	392
SL-R470-40-*	470	12	432
SL-R510-40-*	510	13	472
SL-R550-40-*	550	14	512
SL-R590-40-*	590	15	552
SL-R630-40-*	630	16	592
SL-R670-40-*	670	17	632
SL-R710-40-*	710	18	672
SL-R750-40-*	750	19	712
SL-R790-40-*	790	20	752
SL-R830-40-*	830	21	792
SL-R870-40-*	870	22	832
SL-R910-40-*	910	23	872
SL-R950-40-*	950	24	912
SL-R990-40-*	990	25	952
SL-R1030-40-*	1030	26	992
SL-R1070-40-*	1070	27	1032
SL-R1110-40-*	1110	28	1072
SL-R1150-40-*	1150	29	1112
SL-R1190-40-*	1190	30	1152
SL-R1230-40-*	1230	31	1192
SL-R1270-40-*	1270	32	1232
SL-R1310-40-*	1310	33	1272
SL-R1350-40-*	1350	34	1312
SL-R1390-40-*	1390	35	1352
SL-R1430-40-*	1430	36	1392
SL-R1470-40-*	1470	37	1432
SL-R1510-40-*	1510	38	1472
SL-R1550-40-*	1550	39	1512
SL-R1590-40-*	1590	40	1552
SL-R1630-40-*	1630	41	1592
SL-R1670-40-*	1670	42	1632
SL-R1710-40-*	1710	43	1672
SL-R1950-40-*	1950	49	1912
SL-R2190-40-*	2190	55	2152
SL-R2430-40-*	2430	61	2392
SL-R2910-40-*	2910	73	2872

Remarks:

1. Maximum optical axis number is related to the pitch.
2. Special requirements can be customized, please consult with SENPUM sales engineers.



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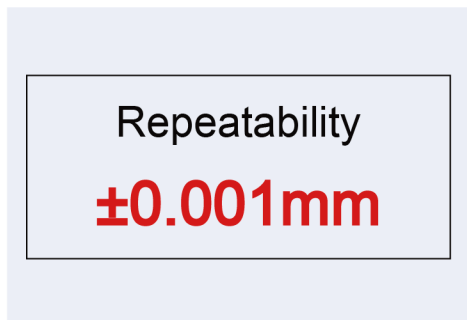
# Precision Contact Standard Pole Type Precision Contact Sensors MT-M Series



## Precision contact sensors with ultra-high repeatability

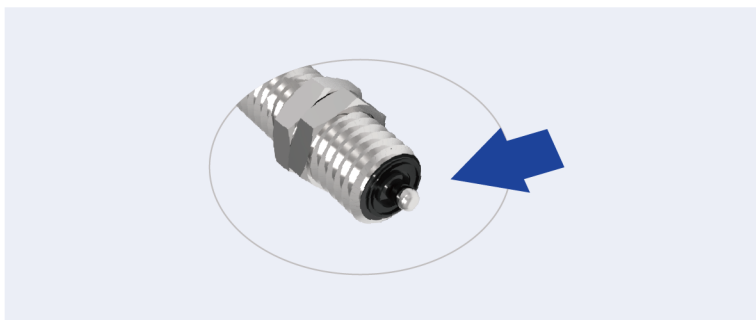
### Ultra-high repeatability

±0.001mm ultra-high repeatability, precise positioning accuracy



### Straight-in lever type, easy to use

The use of straight into the rod contact mode, no contact principle service life greatly extended M6/M8/M10 three kinds of universal thread, installation convenience



### Product list

Type	Appearance	Itinerary	Position repeatability(mm)	Operating force(N)	Mounting dimension(mm)	Model
Standard pole type	 Cable $\Phi 2.8 \times 1m$	0~1.2mm	±0.001mm	0.25N	M6×18.5	MT-M006*
	 Cable $\Phi 2.8 \times 1m$	0~1.5mm		0.4N	M8×20	MT-M008*
	 Cable $\Phi 2.8 \times 1m$			0.6N	M8×30	MT-M008S*
	 Cable $\Phi 3.1 \times 1m$	0~3mm		1N	M10×17.5	MT-M010*
	 Cable $\Phi 3.1 \times 1m$				M10×17	MT-MH010*



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# Contact Displacement Digital Display Type Contact Displacement Sensor MT1 Series



EtherCAT

RS-232C/RS-485

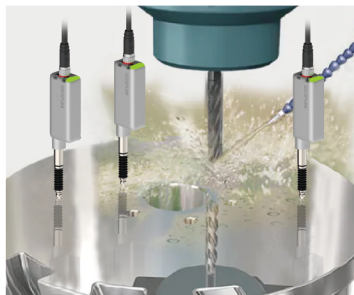


## High-precision absolute measurement method

### Can be used in oily environments

Even in water/oil splash environments, there are no restrictions on installation sites, and detection is not affected by the presence or absence of the environment.

High-precision measurement from 0mm to 50mm through contact, as durable as water and oil environments; 1μm accuracy, 200 million cycles of service life.



Oil/water resistance meets IP67 standards and can be used in oily environments such as machining processes.



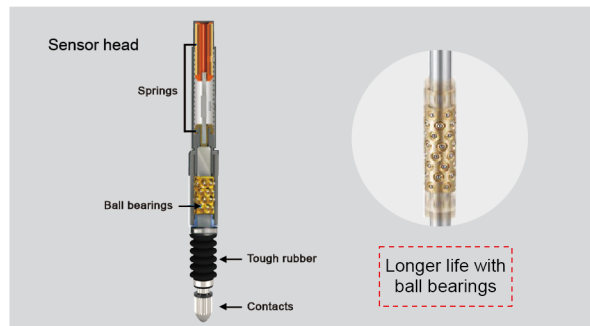
### Strength to withstand bending

#### Flexible free cutting of robot cables



### Long service life

#### Detection endurance: 210 million times



Fiber Optics

Photoelectric / Proximity

Color

Laser

Safety

Precision Contact / Contact Displacement

Laser Displacement

Barcode / Temperature

Static



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Outstanding performance

## Ultra-high true absolute accuracy

Resolution  
**0.1 $\mu$ m**

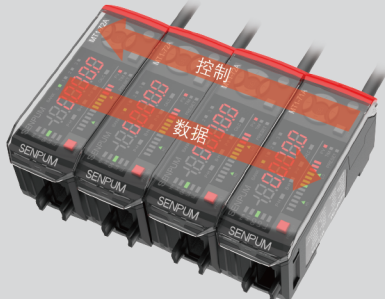
Accuracy  
**1 $\mu$ m**

Repeatability  
 **$\pm$ 0.1 $\mu$ m**

\*All products can be tested at the provincial level and above in the national measurement units

Helps to significantly reduce maintenance costs and replacement time

## Can be installed in cascade



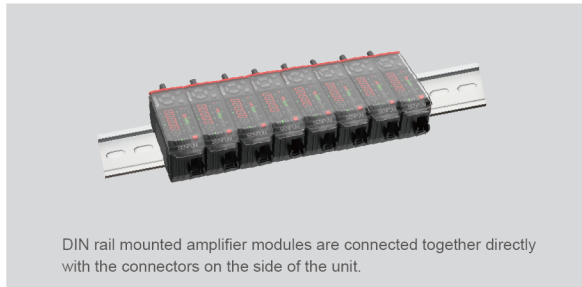
- One-touch zeroing or externally triggered zeroing
- Automatic tolerance setting and manual tolerance setting
- Batch read multiple controller data or change settings

Up to **16** units can be connected through the main module and expansion module to realize batch data communication. Setting values can be rewritten by PC or PLC, which **helps to significantly reduce working hours.**

## Multi-test calculations and cable savings

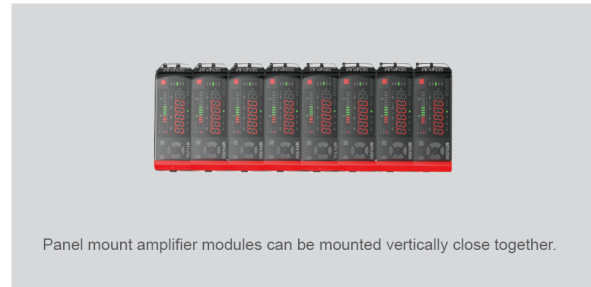
### Expandable to 15 modules

Due to the addition of the ability to communicate between each amplifier, the data for each amplifier is saved on the host computer for easy arithmetic.



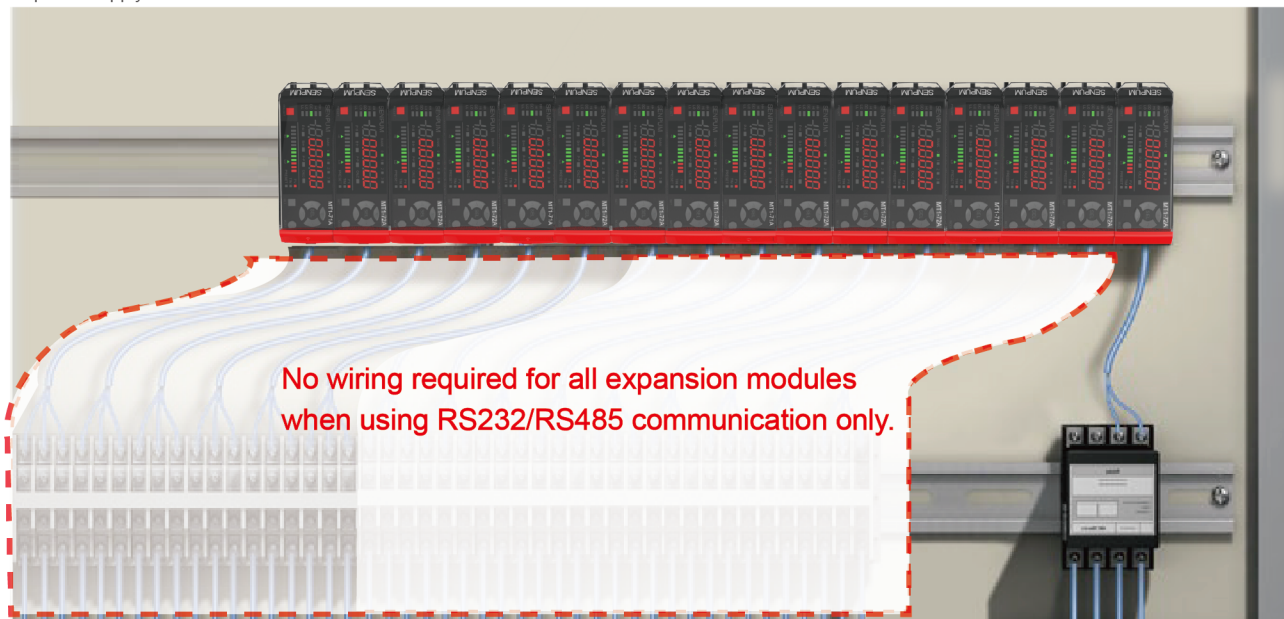
### Save cabling

Since the additional power supply is also supplied from the side connector, one amplifier can save the wiring of two power cables.



## Reduction of wiring and installation labor hours

For example, if there are 16 units of main module and expansion module combinations, and the three signals HI/GO/LO are output from their respective amplifiers to the PLC, 50 wires (including power supply cables) are required for wiring. If RS232/485 is used for communication, only 3 wires are needed for power supply and communication cable for the main module.



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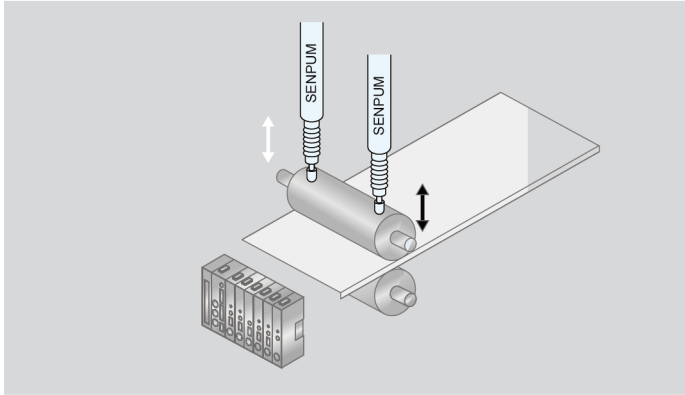
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# PC connection with data export

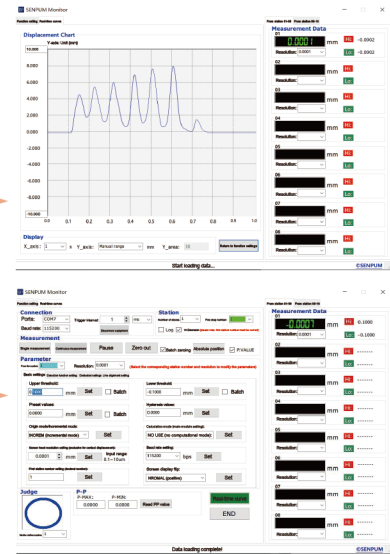
Data export can be realized, export CSV format to EXCEL worksheet to open the view, PC software to be purchased separately.

## Displayable items

- Maximum value
- Minimum value
- Baseline difference
- Warp value
- Peak-to-peak value
- Average value
- Thickness
- Warpage



## Data shows



### Sensor head

Appearance	Detection range	Precision	Type / Model	
			Standard spring linear type	Standard flange type
	12mm	Resolution 0.1µm Accuracy 1µm	MT1-H12K	MT1-H12KF
			MT1-H12	MT1-H12F
		Resolution 0.5µm Accuracy 2µm	MT1-H12S	-
	32mm	Resolution 0.5µm Accuracy 5µm	MT1-H32	-

### Controllers

Controller type	Output method	Model
	NPN	MT1-71AN
	PNP	MT1-71AP
	NPN/PNP	MT1-71A
	NPN	MT1-71AMN
	PNP	MT1-71AMP
	NPN/PNP	MT1-71AM
	NPN	MT1-72AN
	PNP	MT1-72AP
	NPN/PNP	MT1-72A

### Cable (extension cable to connect the probe to the controller)

Appearance	Cable termination	Material	Cable length	Model
	Controllers	Highly flexible drag chain type	2M	OW-MT2000
			5M	OW-MT5000
			10M	OW-MT10M
			20M	OW-MT20M
	Controllers	Highly flexible drag chain type	2M	OW-MT2000L
			5M	OW-MT5000L
			10M	OW-MT10ML
			20M	OW-MT20ML

### Communication module

Appearance	Internet	Model
	EtherCAT	OW-EC2A
	PROFINET	OW-PN2
	RS-232C / RS-485	OW-RS1A

Fiber Optics

Photoelectric / Proximity

Color

Laser

Safety

Precision Contact / Contact Displacement

Laser Displacement

Barcode / Temperature

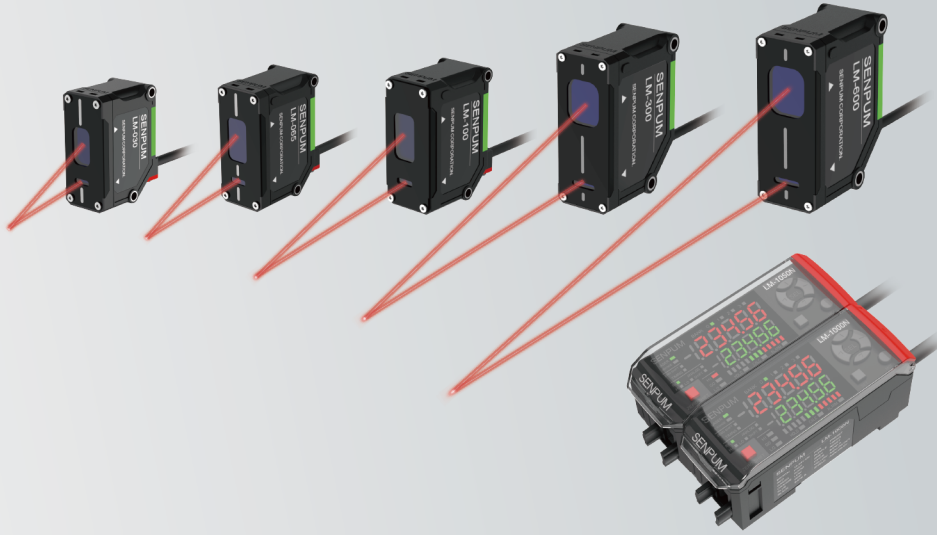
Static



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# Laser Displacement CMOS Type Laser Displacement Sensors

## LM Series



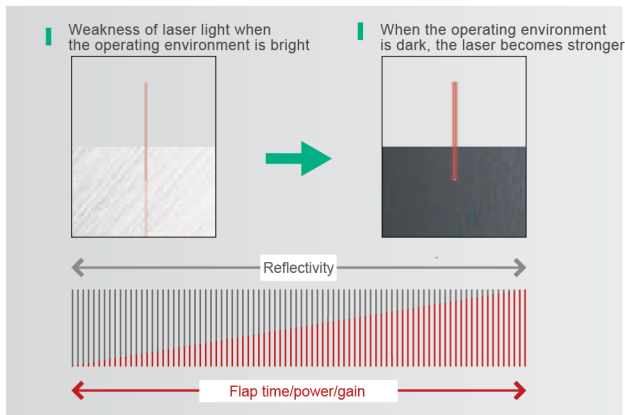





## Automatic laser control according to target reflectivity

Optimization by automatically controlling the laser according to the target's reflectivity

Stable detection is achieved by real-time control based on the detection target and surface state.

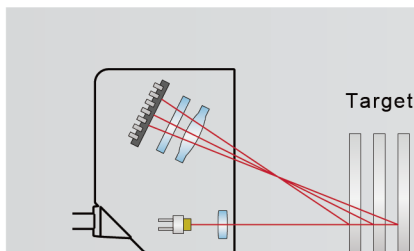


Ruggedized sensor construction

Ultra-small sensor construction realized through the use of a unique aspherical lens; IP67 optical base compression molded parts.



Triangulation principle



The determination principle of triangulation is applied.

When the position of the target changes, the incoming light position on the CMOS moves. By detecting the incoming light position, the amount of target shift is measured.

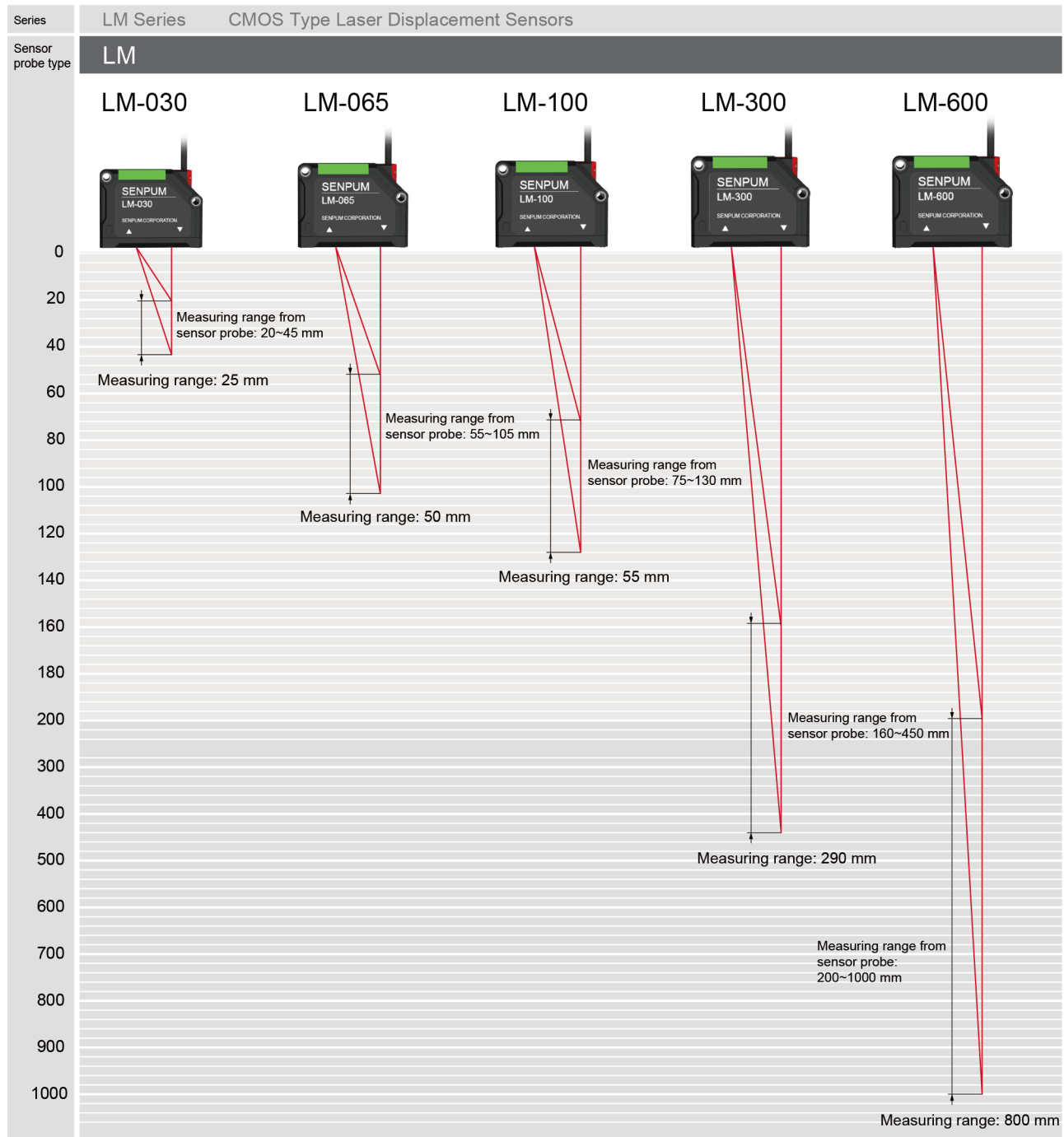


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# A variety of sensors are prepared to cope with various functions



## Product list

### Sensor head

Appearance	Repeatability	Linearity*	Reference distance	Model
	1 μm	±0.1%F.S.	30 mm	LM-030
	2 μm	±0.1%F.S.	65 mm	LM-065
	5 μm	±0.15%F.S.	100 mm	LM-100
	30 μm	±0.25%F.S.	300 mm	LM-300
	50 μm	±0.5%F.S.	600 mm	LM-600

\* F.S. for each model is as follows: LM-030: ±5mm, LM-065: ±10mm, LM-100: ±20mm, LM-300: ±140mm, LM-600: ±400mm.

### Cable (connecting cable between sensor head and controller) (optional)

Appearance	Sensor side	Cable termination	Material	Cable length	Model
	M8 4PIN Straight	Controllers	Highly flexible drag chain type	2M	OW-LM2000
				5M	OW-LM5000
				10M	OW-LM10M
				20M	OW-LM20M

### Controllers

Appearance	Type	Output method	Model
	DIN rail mounting	NPN	LM-1000N
		PNP	LM-1000P
		NPN/PNP	LM-1000
	DIN rail mounting	NPN	LM-1050N
		PNP	LM-1050P
		NPN/PNP	LM-1050

### Communication module (optional)

Appearance	Internet	Model
	EtherCAT	OW-EC2A
	PROFINET	OW-PN2
	RS-232C / RS-485	OW-RS1A



### LM2-Q Series



A wide range of sensing heads are available for a variety of functions with detection distances ranging from 25 to 2,000 mm.

#### Product list


##### Cable type

Appearance	Diffuse reflective	Detection distance (mm)	Repeatability	Output method	Model	
	Short-range type	25~45	10µm	NPN/PNP Analog voltage/current	LM2-Q045AV	
				NPN/PNP RS-485	LM2-Q045T	
	Medium-range type	35~80	30µm	NPN/PNP Analog voltage/current	LM2-Q080AV	
				NPN/PNP RS-485	LM2-Q080T	
		60~165	70µm	NPN/PNP Analog voltage/current	LM2-Q165AV	
				NPN/PNP RS-485	LM2-Q165T	
	100~400	200µm	NPN/PNP Analog voltage/current	LM2-Q400AV		
			NPN/PNP RS-485	LM2-Q400T		
			150~1000	0.5mm	NPN/PNP Analog voltage/current	LM2-Q1000AV
					NPN/PNP RS-485	LM2-Q1000T
	150~2000	0.5mm	NPN/PNP Analog voltage/current	LM2-Q2000AV		
			NPN/PNP RS-485	LM2-Q2000T		

##### Relay type

Appearance	Diffuse reflective	Detection distance (mm)	Repeatability	Output method	Model	
	Short-range type	25~45	10µm	NPN/PNP Analog voltage/current	LM2-Q045CAAV	
				NPN/PNP RS-485	LM2-Q045CAT	
	Medium-range type	35~80	30µm	NPN/PNP Analog voltage/current	LM2-Q080CAAV	
				NPN/PNP RS-485	LM2-Q080CAT	
		60~165	70µm	NPN/PNP Analog voltage/current	LM2-Q165CAAV	
				NPN/PNP RS-485	LM2-Q165CAT	
	100~400	200µm	NPN/PNP Analog voltage/current	LM2-Q400CAAV		
			NPN/PNP RS-485	LM2-Q400CAT		
			150~1000	0.5mm	NPN/PNP Analog voltage/current	LM2-Q1000CAAV
					NPN/PNP RS-485	LM2-Q1000CAT
	150~2000	0.5mm	NPN/PNP Analog voltage/current	LM2-Q2000CAAV		
			NPN/PNP RS-485	LM2-Q2000CAT		

##### Cable (Relay type option)

Appearance	Sensor side	Cable termination	Material	Cable length	Model
	M8 6PIN Straight	Loose wires	PVC	2m	OW-LM2Q2000
				5m	OW-LM2Q5000
				10m	OW-LM2Q10M



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## High-definition digital display

The white LED display makes the status clear at a glance, and the large indicator lights make it easy for the customer to see from all angles.

White display



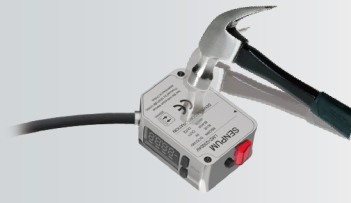
Large indicator light



## Sturdy and durable

It is made of zinc alloy and complies with IP67 enclosure protection class.

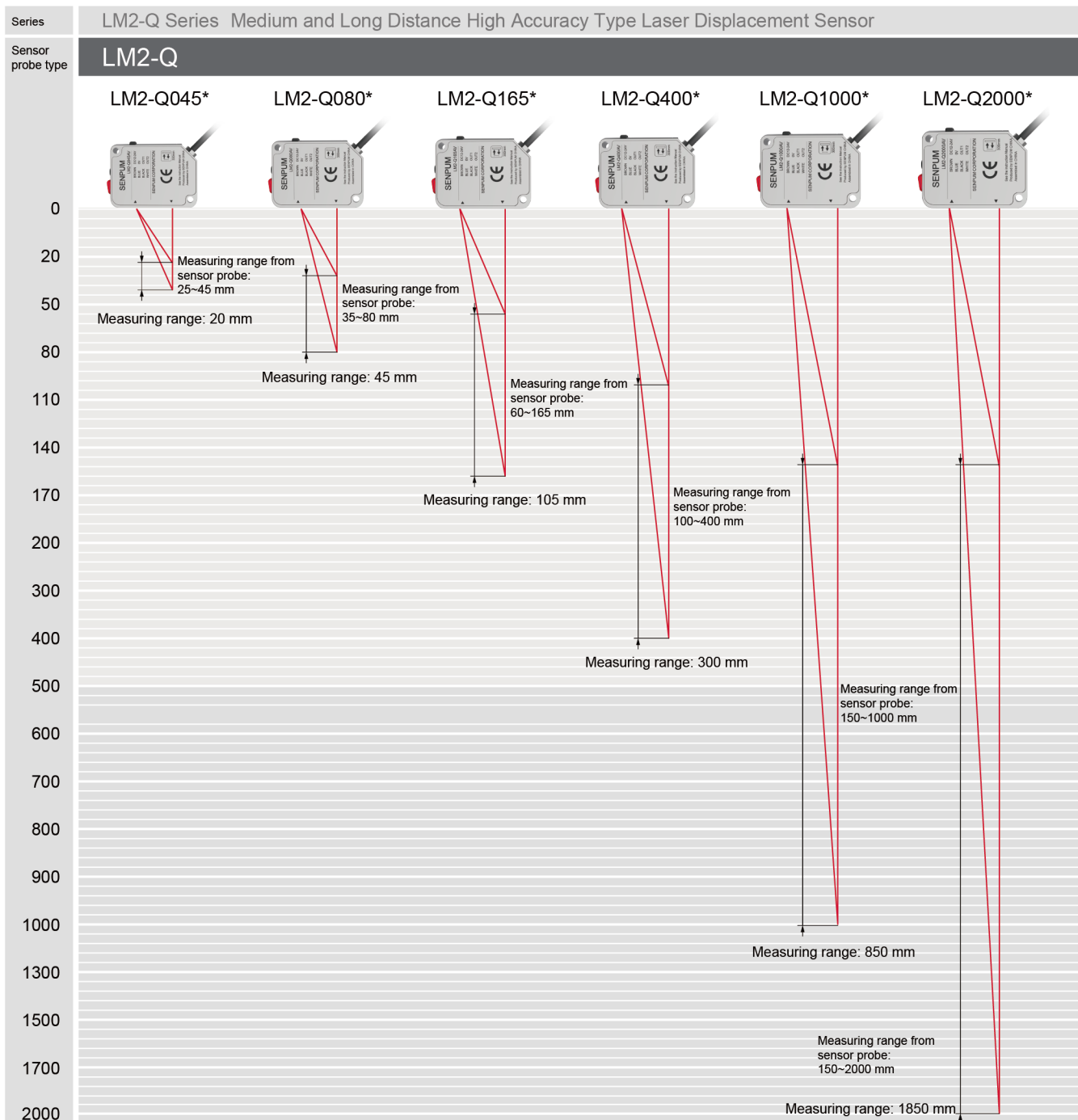
Rugged metal body



IP67 protection class



## Six different sensing heads from long range to high precision detection



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Fiber Optics

Photoelectric / Proximity

Color

Laser

Safety

Precision Contact / Contact Displacement

Laser Displacement

Barcode / Temperature

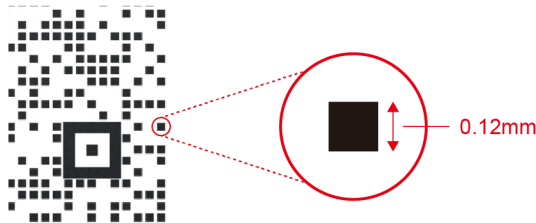
Static



## 1 megapixel processor for minimum resolution of 0.12mm

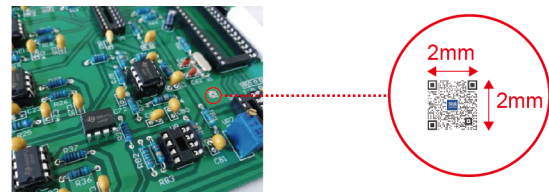
1 megapixel processor for minimum resolution of 0.12mm

1 megapixel processor with the latest technology to ensure stable readings.



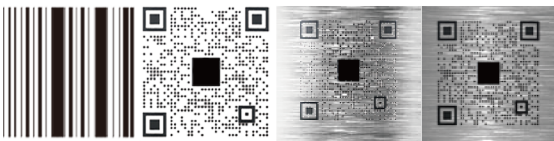
High-speed dynamic reading at speeds up to 100 codes/second

Built-in new reading algorithm, can efficiently read a variety of code system barcode and DPM code, reading speed up to 100 codes / sec, 2 \* 2mm miniature barcode can also be easily read.



Reliably read 1D and 2D codes

1D / 2D barcodes can be read stably regardless of the barcode status.



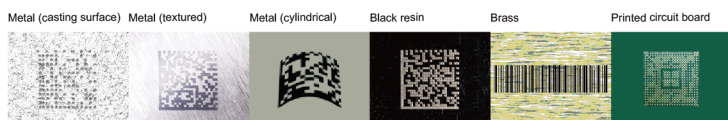
Product list

Appearance	Read distance (mm)	Model
	70	XR-1000S
	100	XR-1000M
	150	XR-1000L

\* For more products and applications, please consult a SENPUM engineer;  
 \* Through on-site operation guidance and after-sales technical support, we provide customers with full support from product selection to production line operation.

## Multiple detection conditions

Examples of readable materials



Readable barcodes of difficulty



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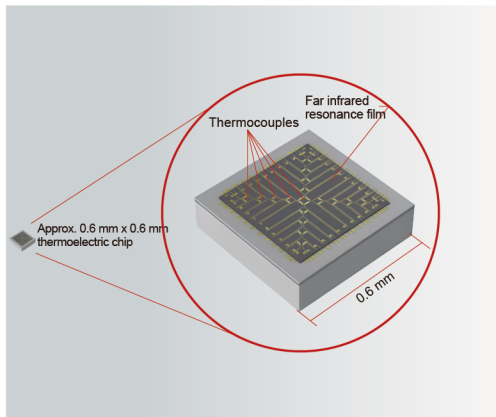
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## Easily detects surface temperatures up to 1600°C

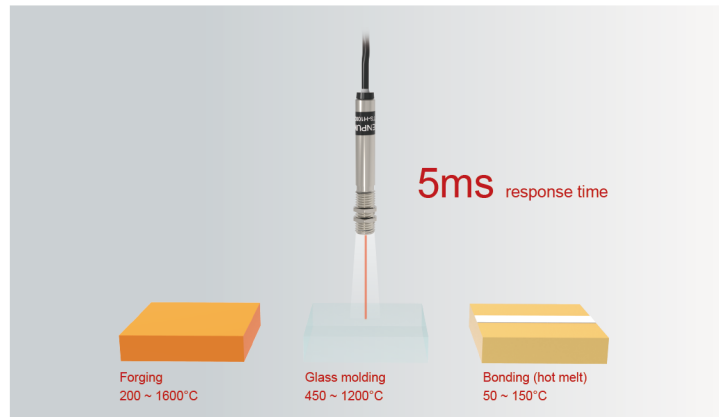
### 5ms high speed response

1. Dramatically reduces the thickness of the far infrared resonance film.
2. Extremely efficient positioning of thermocouples for fast and accurate detection of absorbed heat.



### Non-contact temperature sensor

High-temperature type for temperatures up to 1600°C.



### Laser indication

Two laser pointers clearly indicate the detection range and make sensor installation easy.



#### Product list

Appearance	Operating wavelength	Measured temperature		Model	
		Celsius temperature (°C)	Fahrenheit temperature (°F)	With SF focusing lens	With CF2 focusing lens
	8~14µm	0~500°C	32~932°F	TS-D500V	-
				TS-D500K	-
	2.3µm	100~600°C	212~1112°F	TS-D600S	TS-D600S-CF2
	1.6µm	300~1300°C	572~2372°F	TS-D1300S	TS-D1300S-CF2
	1µm	600~1600°C	1112~2912°F	TS-D1600S	TS-D1600S-CF2

#### Bracket (optional)

Appearance	Type	Model
	M16 bracket	OW-TSD001
	M22 bracket	OW-TSD002
	Adjustment bracket	OW-TSD003

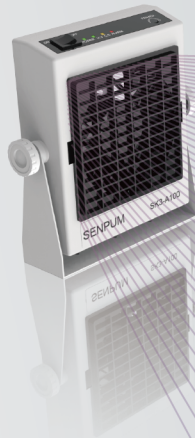


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# Static Fans

## Ultra-compact Static Fans

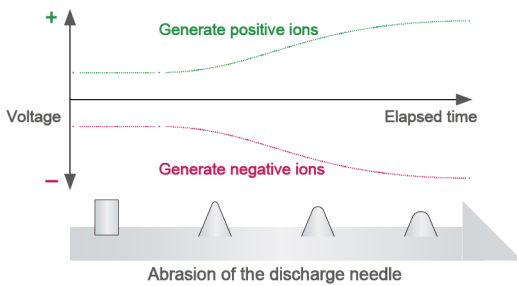
### SK3-A Series



## Self-cleaning function, also long-term without changing the electrode needle

### Static electricity elimination performance

Ion generation is monitored in real time, and the applied voltage is automatically increased according to the decrease in the amount of ions caused by the wear of the discharge needle. Therefore, it is possible to maintain static electricity elimination capability without changing the needle.



### Cylindrical discharge needles

The static elimination speed is twice as fast as conventional models, which greatly improves work efficiency.



### No need for regular maintenance & superb static dissipation performance

Ion balance up to  $\pm 5$  V.

Installation and removal with a single touch. Discharge window and discharge pin assembly can be mounted and dismantled with a single touch, improving maintainability. The angle is adjusted by a locking mechanism so that the angle does not change due to vibration.

### LED display alerts to dirt, wear on discharge needle

Monitor the dirt and wear of the discharge needle, which can be alerted by the LED display and abnormal output.



### Product list

Appearance	Air volume (m <sup>3</sup> /min)	Model
	1.6~3.3	SK3-A100



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# Static Wind Wand Intelligent Static Wind Wand

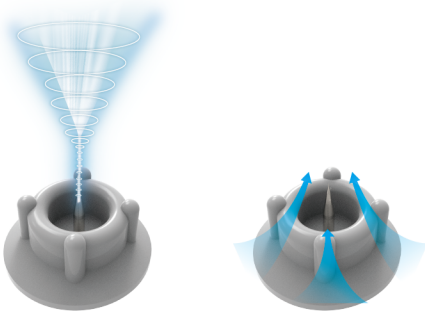
## SK-E Series



## Super static elimination x energy saving

### Ultra-fast static elimination

Twice as much as conventional products.



### High voltage alarm indication

Red light alarm when positive or negative high pressure is abnormal;  $\Phi 8$  intake throttle valve.



### Easy to install

Stainless steel mounting corners are provided to accommodate a variety of different installation environments.



### Product list

#### Main body

Model	SK-E350	SK-E400	SK-E500	SK-E600	SK-E800	SK-E1000	SK-E1200	SK-E1500	SK-E1800	SK-E2000	SK-E2200	SK-E2500	SK-E2800	SK-E3000
Effective length (mm)	250	300	400	500	700	900	1100	1400	1700	1900	2100	2400	2700	2900
Pin spacing (mm)	50													

#### Cable wire (optional)

Appearance	Cable length	Model
	2M	OW-SKE2000*
	3M	OW-SKE3000
	5M	OW-SKE5000
	10M	OW-SKE10M
	15M	OW-SKE15M

\*OW-SKE2000 is a standard cable

#### Network port communication cable (optional)

Appearance	Cable length	Model
	3M	OW-SKE-TP3000
	5M	OW-SKE-TP5000
	10M	OW-SKE-TP10M
	15M	OW-SKE-TP15M



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# Static Nozzle

## Ultra-compact Static Nozzle

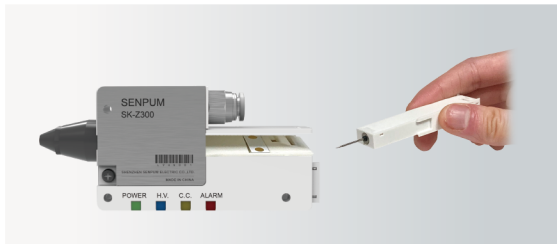
### SK-Z300 Series



When cleaning and inspection is required, it can be detected by the LED indicator and the abnormal discharge of the discharge pin can be notified.

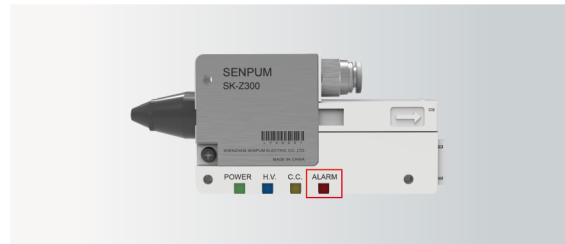
#### Detachable discharge pin for easy maintenance

Automatic stopping of the high voltage output by means of a safety device in case of disassembly.

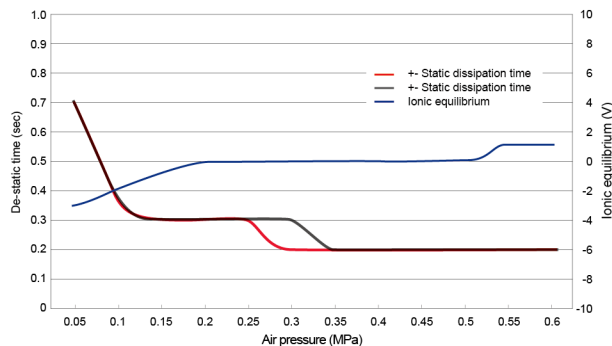


#### High voltage stop alarm

With high voltage stop alarm display function.





#### Anti-static properties



Note 1: Measured using a 150 mm, 20 pF charged board monitor  
 Note 2: Static elimination time is  $\pm 1000\text{ V} \rightarrow \pm 100\text{ V}$  decay time  
 Note 3: Measurement distance from the board monitor 50 mm  
 Note 4: The nozzle is to use our standard nozzle

#### Product list

Appearance	Type	Model
	High frequency standard type	SK-Z300
	High frequency clean type	SK-Z300C



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# Static Air Gun

## High Frequency Static Air Gun

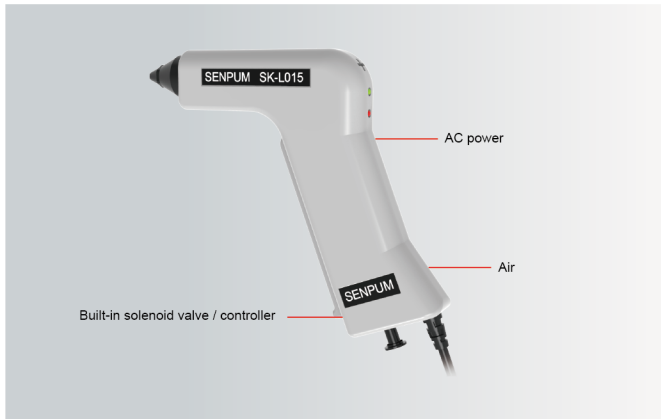
### SK-L Series



## Static elimination air guns for powerful static elimination

### One-piece construction (built-in solenoid valve/controller)

Ready for immediate use as long as there is power and clean, dry air. Controller and solenoid valve can be easily introduced without wiring. Also suitable for replacing ordinary air pressure wheels.



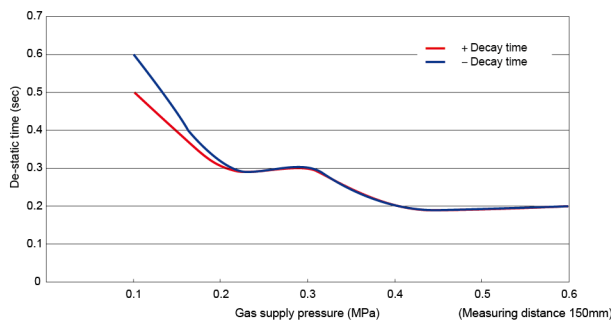
### Strong dust removal capability, powerful air impact

An air nozzle ionizer with a built-in ultra-small high-voltage transformer is standardly equipped with a safety circuit for high-voltage anomaly detection and an alarm in case of anomaly.

### The shape of the plastic gun fits in the hand, and it is lightweight at only 250g

The air gun is designed to be safe, with a built-in piezoelectric transformer, no exposed high-voltage parts and no high-voltage cables.

### De-static characteristics



### Product list

Appearance	Type	Ionic equilibrium	Model
	High-frequency type	±10V or less	SK-L015

Fiber Optics

Photoelectric / Proximity

Color

Laser

Safety

Precision Contact / Contact Displacement

Laser Displacement

Barcode / Temperature

Static



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# Static Measuring Instrument

## SK-T Series



### Non-contact vibration capacitance electrostatic detection technology

#### Ultra-long detection distance

It can be detected at a certain distance from each other, so you don't have to worry about the detection



#### Extensive product lineup

Hand-held type for easy measurement of static electricity or compact stationary type for on-line monitoring of static electricity at any time.



#### Head can be rotated 180° with 45° stops each

Bright and wide LCD display for easy viewing of measurement results.



#### Setting the static alarm threshold

Set the electrostatic safety (alarm) threshold by remote control or monitoring software, beyond the threshold red light alarm, within the electrostatic threshold, the indicator light is green.



#### Product list

##### Handheld

Appearance	Measuring distance (mm)	Model
	30	SK-T030

##### Power cord (optional)

Appearance	Cable length	Model
	5M	OW-SK5000
	10M	OW-SK10M

##### In-line sensor head

Appearance	Measuring distance (mm)	Model
	5-500	SK-500

##### Network port communication cable (optional)

Appearance	Cable length	Model
	5M	OW-SK-TP5000
	10M	OW-SK-TP10M
	15M	OW-SK-TP15M



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EtherCAT® EtherCAT  
OW-EC2A

PROFINET® PROFINET  
OW-PN2

RS-232C / RS-485  
OW-RS1A



## Communications modules

Supports Ethercat® network units

Model: OW-EC2A



EtherCAT®

Supports PROFINET network units

Model: OW-PN2



PROFINET®

Support RS-232C / RS-485 network unit

Model: OW-RS1A



RS-232C / RS-485

## Product advantages

Dramatically reduce wiring labor hours with open field network connectivity

When connecting multiple sensor amplifiers for use, a lot of wiring labor is spent. However, with the OW Series, wiring other than the amplifier's main unit power supply line is not required, and wiring time can be reduced.



Save Wiring

Network communication unit

Communication with the field network simplifies the processing of various data.

### • Monitoring

The status of sensors can be confirmed on PLCs and computers; easy confirmation makes it easy to detect problems before they become abnormal.

### • Change settings

Settings can be changed by external devices such as PLCs and computers; switching time can be shortened.

### Product list (optional)

Appearance	Internet	Model
	EtherCAT®	OW-EC2A
	PROFINET®	OW-PN2
	RS-232C / RS-485	OW-RS1A



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SHENZHEN SENPUM ELECTRIC CO.,LTD. [www.senpum.com/en](http://www.senpum.com/en)

24-hour pre-sale and after-sale consultation: **+86-755-83330055**

Tel: +86-0755-83330055

Fax: +86-0755-83330055

Email: [info@senpum.com](mailto:info@senpum.com)

Website: [www.senpum.com/en](http://www.senpum.com/en)

**Shenzhen:** Room 2905-2910, Block A, Sunshine Science and Innovation Center, Nanshin Road, Nanshan District, Shenzhen, China

**Shanghai:** Room 310, Building 6, Hongqiao Hui, Lane 990, Shenchang Road, Minhang District, Shanghai, China.

**Suzhou:** Room 1501, Tower B, Suzhou Center, Suzhou Industrial Park, Suzhou, China

**Tianjin:** Room 5103, Century Metropolis Commercial Building, No. 183 Nanjing Road, Heping District, Tianjin, China.



Latest Information

Sweep to follow  
SENPUM public number



#### Safety Precautions

For safe use of the product,  
be sure to read the Instruction  
Manual carefully before use.

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