

Background Suppression CMOS Laser Sensor

LA2-ZB Series



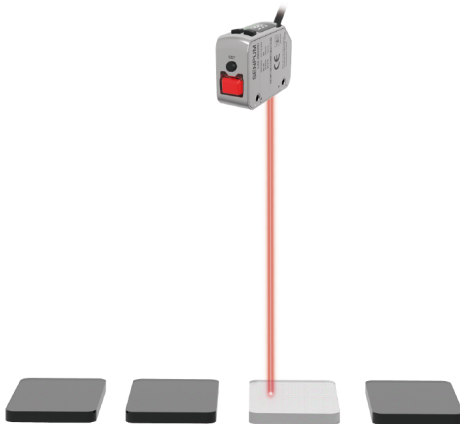
High-definition digital display, real-time display of the distance from the sensor to the object

Push-button operation, easy and convenient setting.



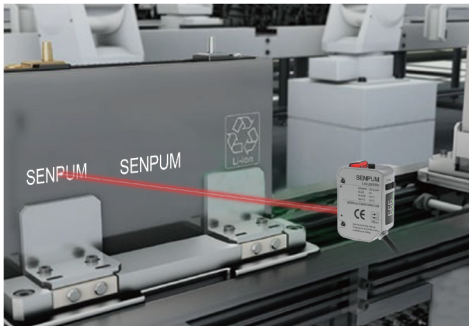
True black and white equidistant, completely color independent

The actual detection distance is unaffected whether the detected object is black, white or any other color.



Competent detection in complex environments

Segment differences can be detected even when the target is the same or similar to the background color.



Ask SENPUM

+86-755-83330055

Fast Delivery Standard Models



Most products are in stock. Upon receiving your order, we will arrange prompt shipment to minimize your downtime-related costs and losses.



WeChat



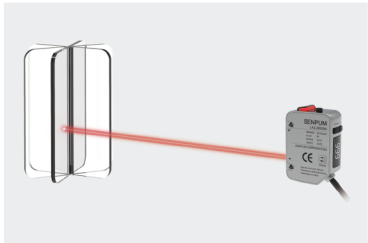
WhatsApp



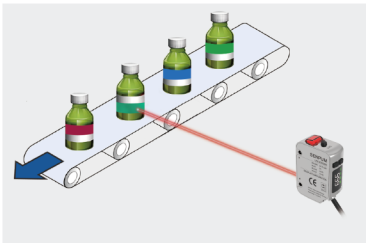
LINE

- More Features
- Metal housing for better impact resistance.
 - Highly accurate and stable resolution of object segment differences.
 - Strongly reflective or metallic objects can be detected.
 - Even light-colored objects with high reflectivity can be detected.

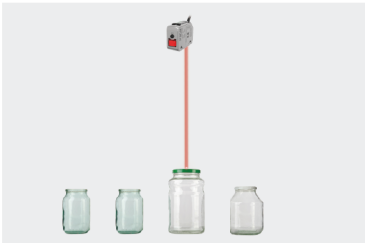
Applications



Unaffected by angle



Unaffected by object color changes



Detects whether a transparent bottle has a cap or not, regardless of size or color

Product List

Standard type

Appearance	Detection distance (mm)	Spot diameter	Output type	Model
	25-100	Approx. 1*2 mm at 100 mm	NPN	LA2-ZB100N
			PNP	LA2-ZB100P
	25-150	Approx. 1*2 mm at 100 mm	NPN	LA2-ZB150N
			PNP	LA2-ZB150P
	25-250	Approx. 1*2 mm at 100 mm	NPN	LA2-ZB250N
			PNP	LA2-ZB250P
	25-300	Approx. 1*2 mm at 100 mm	NPN	LA2-ZB300N
			PNP	LA2-ZB300P
	25-500	Approx. Φ2 mm at 500 mm	NPN	LA2-ZB500N
			PNP	LA2-ZB500P
	25-600	Approx. Φ2 mm at 500 mm	NPN	LA2-ZB600N
			PNP	LA2-ZB600P
	25-1000	Approx. Φ2 mm at 800 mm	NPN	LA2-ZB1000N
			PNP	LA2-ZB1000P

Relay type

Appearance	Detection distance (mm)	Spot diameter	Output type	Model
	25-100	Approx. 1*2 mm at 100 mm	NPN	LA2-ZB100CAN
			PNP	LA2-ZB100CAP
	25-150	Approx. 1*2 mm at 100 mm	NPN	LA2-ZB150CAN
			PNP	LA2-ZB150CAP
	25-250	Approx. 1*2 mm at 100 mm	NPN	LA2-ZB250CAN
			PNP	LA2-ZB250CAP
	25-300	Approx. 1*2 mm at 100 mm	NPN	LA2-ZB300CAN
			PNP	LA2-ZB300CAP
	25-500	Approx. Φ2 mm at 500 mm	NPN	LA2-ZB500CAN
			PNP	LA2-ZB500CAP
	25-600	Approx. Φ2 mm at 500 mm	NPN	LA2-ZB600CAN
			PNP	LA2-ZB600CAP

Laser Sensors

- LA2-ZB
- LA-ZB
- LO-Z
- LA-ZH
- LA-X
- LA-N
- LA-H
- LA2-S
- LA3-P
- LA-MR
- LA-T

Fiber Optic Sensors

Photoelectric Sensors

Color Sensors

Laser Sensors

Proximity Sensors

Precision Contact Sensors

Area Sensors/ Safety Light Curtains

Laser Scanners

Digital Contact Sensors

Laser Displacement Sensors

Laser Micrometers

Confocal Displacement Sensors

Barcode Readers

AI Vision Sensors

RFID

Infrared Temperature Sensors

Pressure Sensors

Flow Sensors

Magnetic Sensors

Ultrasonic Sensors

Magnetic Scales

Static Eliminators



LA2-ZB

LA-ZB

LO-Z

LA-ZH

LA-X

LA-N

LA-H

LA2-S

LA3-P

LA-MR

LA-T

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Magnetic Scales

Static Eliminators



SEN-PUM
0457

LA2-ZB

Background Suppression CMOS Laser Sensor

Mounting Bracket (Adjustable Bracket) (sold separately)

Type		Material/Weight	Model
	Adjustable bracket (with M3 screws x 2 pcs)	Zinc nickel plating and others Approx. 95 g	OW-LA2Z001
	Screw length: 45 mm	Iron nickel plated Approx. 70 g	OW-LA2Z002
	Screw length: 65 mm	Iron nickel plated Approx. 80 g	OW-LA2Z003

Cable (sold separately)

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

Mounting bracket (sold separately)

Type		Material/Weight	Model
	Standard mounting bracket (t = 2) (with M3 screws x 2 pcs)	SUS316L Approx. 24 g	OW-LA2Z004
	Rear mounting bracket (t = 2) (with M3 screws x 2 pcs)		OW-LA2Z005
	Fastening mounting bracket (t = 3) (with M3 screws x 2 pcs)	SUS316L Approx. 155 g	OW-LA2Z006

Specifications								
Standard type								
Model	NPN	LA2-ZB100N	LA2-ZB150N	LA2-ZB250N	LA2-ZB300N	LA2-ZB500N	LA2-ZB600N	LA2-ZB1000N
	PNP	LA2-ZB100P	LA2-ZB150P	LA2-ZB250P	LA2-ZB300P	LA2-ZB500P	LA2-ZB600P	LA2-ZB1000P
Actual detection distance (mm)	25–100		25–150	25–250	25–300	25–500	25–600	25–1000
Spot size	Approx. 1*2 mm at 100 mm			Approx. 1*2 mm at 100 mm		Approx. Φ2 mm at 500 mm		Approx. Φ2 mm at 800 mm
Standard detection step	25–50 mm: 1.2 mm			25–60 mm: 4.5 mm		25–60 mm: 4.5 mm		
	50–80 mm: 1.8 mm			60–100 mm: 6 mm		60–100 mm: 6 mm 100–200 mm: 12 mm		
	80–110 mm: 2.4 mm			100–200 mm: 12 mm		200–300 mm: 24 mm 300–380 mm: 30 mm		
	110–150 mm: 3.6 mm			200–300 mm: 24 mm		380–500 mm: 48 mm 500–600 mm: 90 mm		
Display resolution	25–50 mm: 0.1 mm			25–100 mm: 0.5 mm		25–100 mm: 0.5 mm 100–200 mm: 1 mm		
	50–110 mm: 0.2 mm			100–200 mm: 1 mm		200–300 mm: 2 mm 300–380 mm: 2.5 mm		
	110–150 mm: 0.4 mm			200–300 mm: 2 mm		380–500 mm: 4 mm 500–600 mm: 5 mm		
Light source	Type	Red laser (650 nm)						
	Laser classification	Class 2 laser products						
Function	Indicator	4-digit 7-segment display (white), output indicator (red), RNG indicator (green), 1spot indicator (green)						Output and power supply: Red LED Stabilized operation: Green LED
	Timer	OFF/ON delay/OFF delay/One-shot						
Power voltage	12 to 30 VDC, including 10% fluctuation (p-p)							
Power consumption	550 mW or less (22 mA or less at 24 V, 42 mA or less at 12 V)							
Response time	2 ms/10 ms/50 ms						1.5 ms	
Control output	LA2-ZB*N: NPN open collector / LA2-ZB*P: PNP open collector Extruded voltage below 30 VDC, control current below 100 mA Residual voltage: 2 V or less at 100 mA							
Protection circuit	Power reverse connection protection, power surge protection, output overcurrent protection, output reverse connection protection							
Output type	LIGHT-ON/DARK-ON							
External input	Input time Tuning: ON when 35 ms or more, OFF when 35 ms or less Light emission stop: ON when 2 ms or more, OFF when 20 ms or more Short-circuit current: NPN: 1 mA or less / PNP: 2 mA or less							
Housing rating	IP67							
Ambient light	Incandescent lamp: 5,000 lux or less; Sunlight: 10,000 lux or less							
Ambient temperature	Use: -10 to +50 °C (no freezing); Storage: -25 to +75 °C (no freezing)							
Relative humidity	35 to 85% RH (no condensation)							
Shock resistance	1,000 m/s ² , 6 times in each of the X, Y, and Z directions							
Vibration resistance	10 to 55 Hz, Double amplitude 1.5 mm, 2 hours in each of the X, Y, and Z directions							
Insulation resistance	10 MΩ or more (500 VDC)							
Withstanding voltage	AC 500 V 50/60 Hz 1 min							
Material	Housing: Zinc alloy, Indicator cover: PC, Lens cap: PMMA, Button: ABSA, Cable: PVC							
Weight	Approx. 90 g (incl. cable)						Approx. 150 g (incl. cable)	
Note: When the measurement conditions are not specified, the conditions of use are as follows: supply voltage: 24 VDC; ambient temperature: 20 °C; response time: 10 ms; detection object: white cardboard								

Note: When the measurement conditions are not specified, the conditions of use are as follows: supply voltage: 24 VDC; ambient temperature: 20 °C; response time: 10 ms; detection object: white cardboard

Specifications							
Relay type							
Model	NPN	LA2-ZB100CAN	LA2-ZB150CAN	LA2-ZB250CAN	LA2-ZB300CAN	LA2-ZB500CAN	LA2-ZB600CAN
	PNP	LA2-ZB100CAP	LA2-ZB150CAP	LA2-ZB250CAP	LA2-ZB300CAP	LA2-ZB500CAP	LA2-ZB600CAP
Actual detection distance (mm)	25-100		25-150	25-250	25-300	25-500	25-600
Spot size	Approx. 1*2 mm at 100 mm			Approx. 1*2 mm at 100 mm		Approx. Φ2 mm at 500 mm	
Standard detection step	25-50 mm: 1.2 mm			25-60 mm: 4.5 mm		25-60 mm: 4.5 mm	
	50-80 mm: 1.8 mm			60-100 mm: 6 mm		60-100 mm: 6mm 100-200 mm: 12 mm	
	80-110 mm: 2.4 mm			100-200 mm: 12 mm		200-300 mm: 24mm 300-380 mm: 30 mm	
	110-150 mm: 3.6 mm			200-300 mm: 24 mm		380-500 mm: 48mm 500-600 mm: 90 mm	
Display resolution	25-50 mm: 0.1 mm			25-100 mm: 0.5 mm		25-100 mm: 0.5mm 100-200 mm: 1 mm	
	50-110 mm: 0.2 mm			100-200 mm: 1 mm		200-300 mm: 2mm 300-380 mm: 2.5 mm	
	110-150 mm: 0.4 mm			200-300 mm: 2 mm		380-500 mm: 4mm 500-600 mm: 5 mm	
Light source	Type	Red laser (650 nm)					
	Laser classification	Class 2 laser products					
Function	Indicator	4-digit 7-segment display (white), output indicator (red), RNG indicator (green), 1spot indicator (green)					
	Timer	OFF/ON delay/OFF delay/One-shot					
Power voltage	12 to 30 VDC, including 10% fluctuation (p-p)						
Power consumption	550 mW or less (22 mA or less at 24 V, 42 mA or less at 12 V)						
Response time	2 ms/10 ms/50 ms						
Control output	LA2-ZB*N: NPN open collector / LA2-ZB*P: PNP open collector Extruded voltage below 30 VDC, control current below 100 mA Residual voltage: 2 V or less at 100 mA						
Protection circuit	Power reverse connection protection, power surge protection, output overcurrent protection, output reverse connection protection						
Output type	LIGHT-ON/DARK-ON						
External input	Input time Tuning: ON when 35 ms or more, OFF when 35 ms or less Light emission stop: ON when 2 ms or more, OFF when 20 ms or more Short-circuit current: NPN: 1 mA or less / PNP: 2 mA or less						
Housing rating	IP67						
Ambient light	Incandescent lamp: 5,000 lux or less; Sunlight: 10,000 lux or less						
Ambient temperature	Use: -10 to +50 °C (no freezing); Storage: -25 to +75 °C (no freezing)						
Relative humidity	35 to 85% RH (no condensation)						
Shock resistance	1,000 m/s², 6 times in each of the X, Y, and Z directions						
Vibration resistance	10 to 55 Hz, Double amplitude 1.5 mm, 2 hours in each of the X, Y, and Z directions						
Insulation resistance	10 MΩ or more (500 VDC)						
Withstanding voltage	AC 500 V 50/60 Hz 1 min						
Material	Housing: Zinc alloy, Indicator cover: PC, Lens cap: PMMA, Button: ABSA, Cable: PVC						
Weight	Approx. 90 g (incl. cable)						

Note: When the measurement conditions are not specified, the conditions of use are as follows: supply voltage: 24 VDC; ambient temperature: 20 °C; response time: 10 ms; detection object: white cardboard

I/O Circuit Diagrams

LA2-ZB100*/LA2-ZB150*/LA2-ZB250*/LA2-ZB300*/LA2-ZB500*/LA2-ZB600*

NPN output type

LA2-ZB1000*

NPN output type

PNP output type

LA2-ZB1000*

PNP output type

Connector Schematic

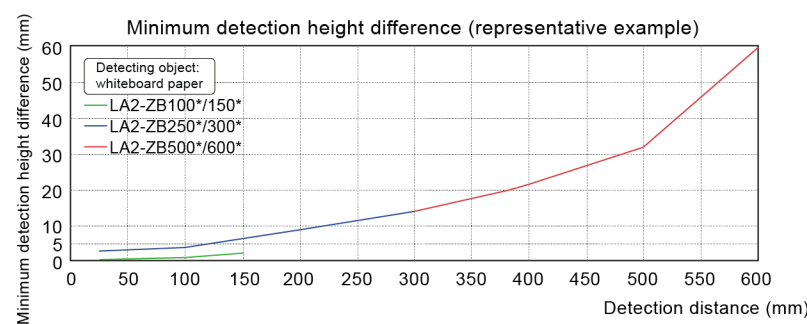
Wiring Diagram

No.	Jacket color
①	Brown
②	Pink
③	Blue
④	Black

Laser Sensors	LA2-ZB
	LA-Z
	LA-ZH
	LA-X
	LA-N
	LA-H
	LA2-S
	LA3-P
Fiber Optic Sensors	LA-MR
	LA-T
Photoelectric Sensors	
Color Sensors	
Laser Sensors	
Proximity Sensors	
Precision Contact Sensors	
Area Sensors/ Safety Light Curtains	
Laser Scanners	
Digital Contact Sensors	
Laser Displacement Sensors	
Laser Micrometers	
Confocal Displacement Sensors	
Barcode Readers	
AI Vision Sensors	
RFID	
Infrared Temperature Sensors	
Pressure Sensors	
Flow Sensors	
Magnetic Sensors	
Ultrasonic Sensors	
Magnetic Scales	
Static Eliminators	



Characteristic Diagram

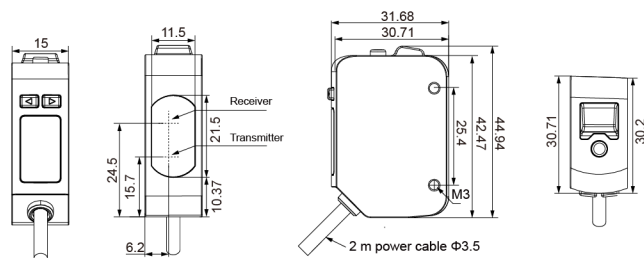


Dimensions

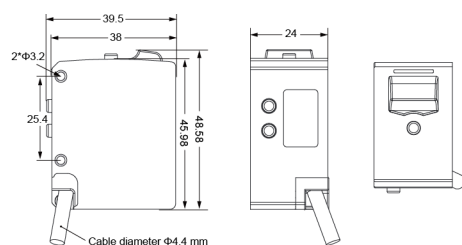
Unit: mm

Standard type

LA2-ZB100N/P LA2-ZB250N/P LA2-ZB500N/P
LA2-ZB150N/P LA2-ZB300N/P LA2-ZB600N/P

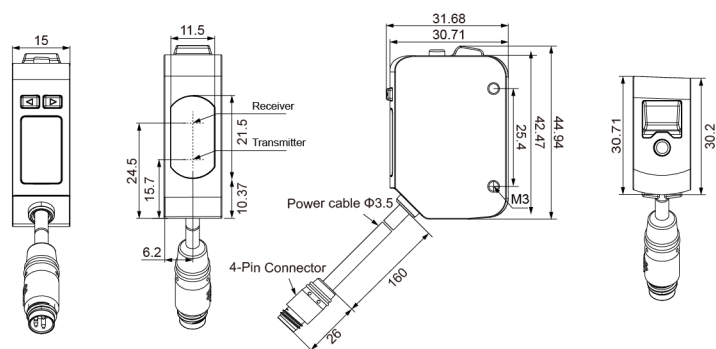


LA2-ZB1000N/P



Relay type

LA2-ZB100CAN/P LA2-ZB250CAN/P LA2-ZB500CAN/P
LA2-ZB150CAN/P LA2-ZB300CAN/P LA2-ZB600CAN/P



Cable (sold separately)

OW-LAZ2000 / OW-LAZ5000
OW-LAZ10M / OW-LAZ20M



Pin definition

No.	Jacket color	Cable	L (cable length)
①	Brown	OW-LAZ2000	2 m
②	Pink	OW-LAZ5000	5 m
③	Blue	OW-LAZ10M	10 m
④	Black	OW-LAZ20M	20 m

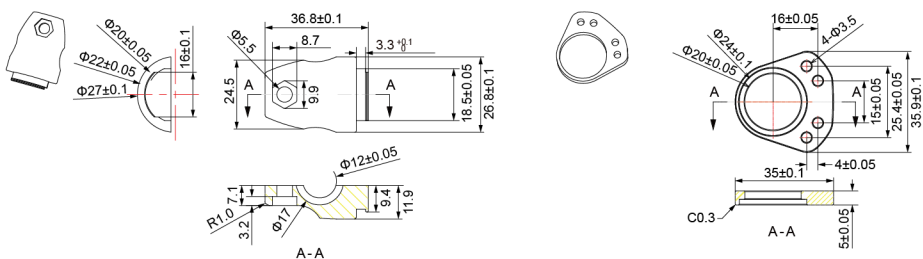


Dimensions

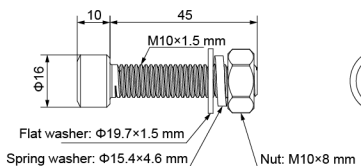
Unit: mm

Bracket (sold separately)

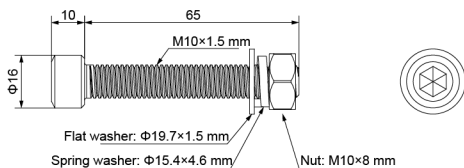
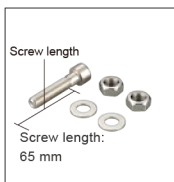
OW-LA2Z001



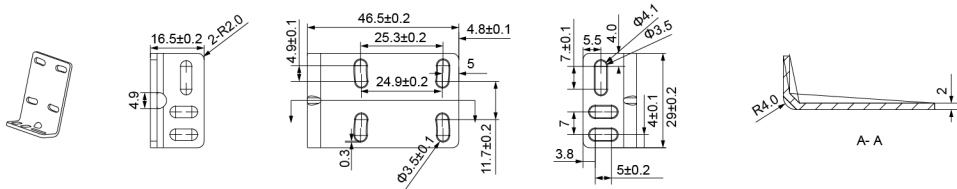
OW-LA2Z002



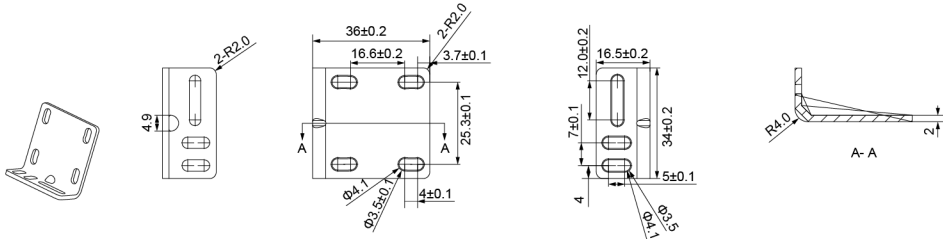
OW-LA2Z003



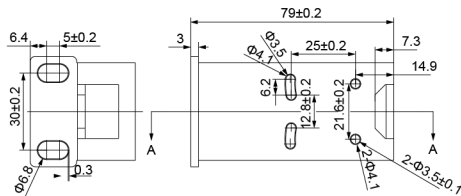
OW-LA2Z004



OW-LA2Z005



OW-LA2Z006



Laser Sensors

- LA2-ZB
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- LO-Z
- LA-ZH
- LA-X
- LA-N
- LA-H
- LA2-S
- LA3-P
- LA-MR
- LA-T

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- Static Eliminators

