



Light Convergent Reflective Sensor B5W-LB



Reliable Detection of Shiny, Black or Transparent objects

Light Convergent Reflective Sensor

Robustness of the distance / Robustness of color / Line up



Reliable Detection of Shiny, Black or Transparent objects

Light Convergent Reflective sensor for embedding in 24 VDC equipment

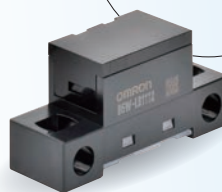
Miniature type



B5W-LB2 □

Sensing distance: 10 to 55 mm

Super miniature type



B5W-LB1 □

Sensing distance: 2 to 10 mm



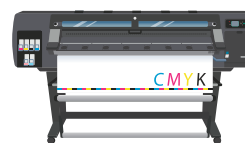
Applications

Container detection



Analysis equipment

Printed paper detection

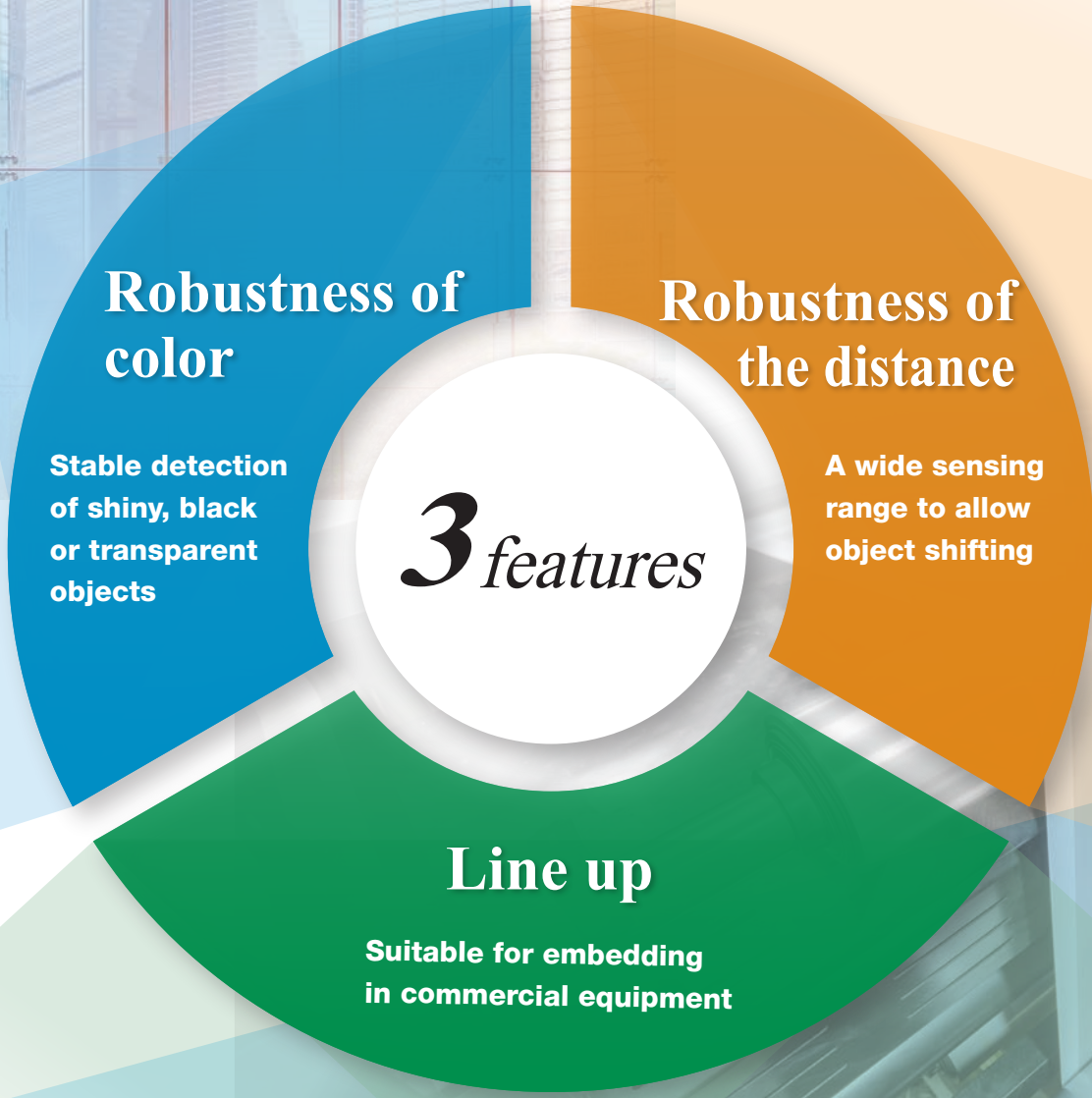


Printing equipment

Tablet package detection



Tablet packagers

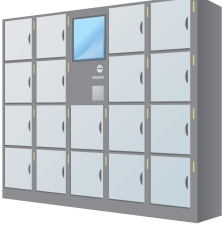


Cup detection



Coffee makers

Article detection inside boxes



Delivery boxes

Hand detection



Sanitation equipment



Building

Robustness of color

Stable detection for of shiny, black or transparent objects

Past problem

Sensing of shiny, black or transparent objects was unstable, requiring more man-hours for development and production processes.

Solution!

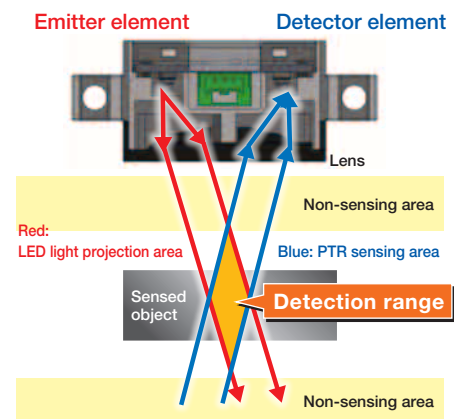
With OMRON's Light Convergent Reflective Sensors, unstable sensing of shiny, black or transparent objects is no longer a problem, meaning less man-hours! Contributing to reduction of man-hours.



Here's why

Light Convergent Reflective Sensor Principles

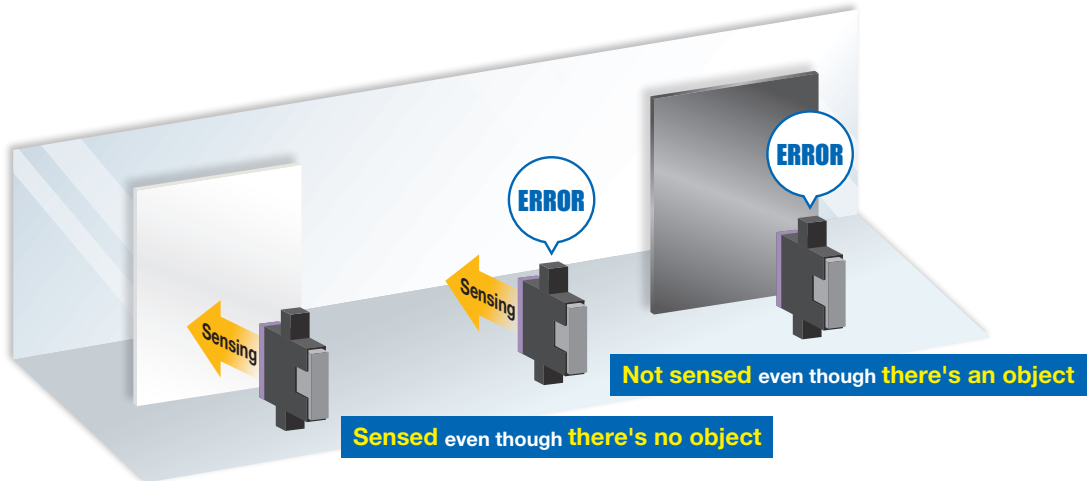
The presence of an object is detected by the received light reflected off a sensed object. The sensor's optical system has a limited projection beam and light sensing area, so the system is capable of sensing objects only within a specific distance from the sensor (the range in which the projection beam and the light sensing area overlap).



Unaffected by backgrounds, meaning only the intended object is sensed accurately.

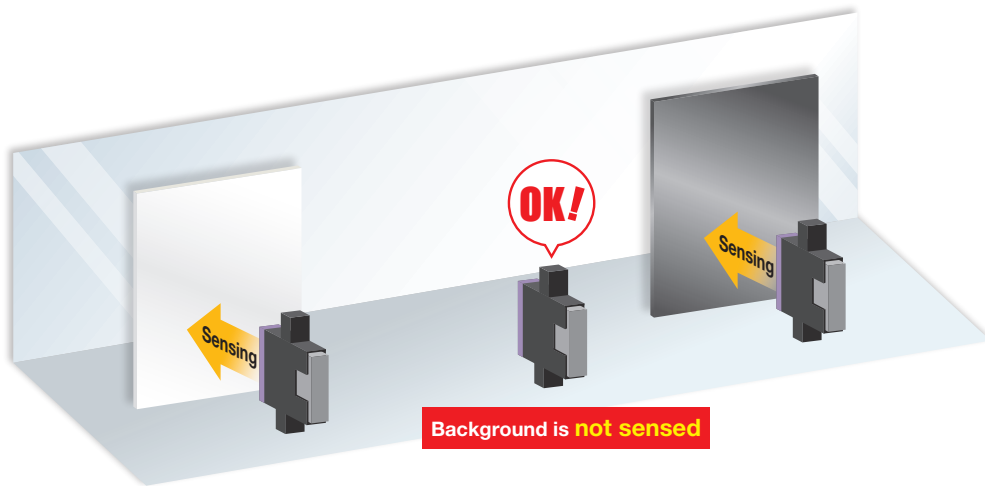
Past problem

- (1) At a sensing distance for white objects, a black object is not sensed.
- (2) At a sensing distance for black objects, a white background is sensed.



Solution!

Objects can be sensed accurately, regardless of object color.



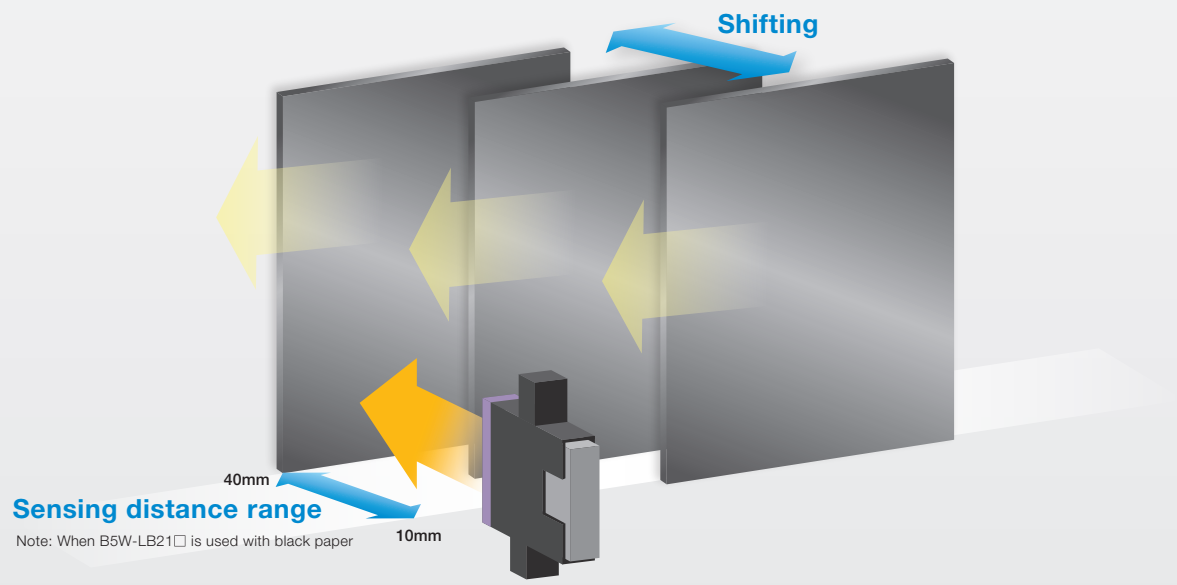
Robustness of the distance



A wide sensing range to allow object shifting

Past problem
Sensing was not possible due to object shifting.

Answer!
A wider sensing range has been realized through the use of four types of toroidal lenses. Sensing is even possible in the case of object shifting.



Here's why

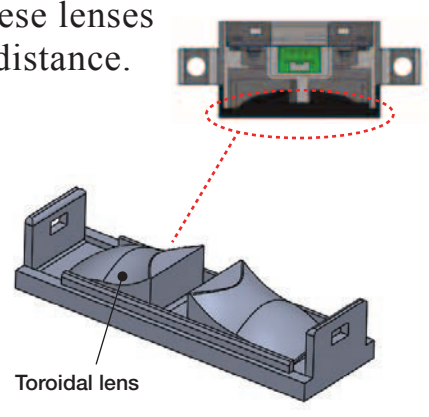
Optical simulations were used in the design of these lenses to provide robustness in terms of both color and distance. Lens design using optical simulation.

Past

The low levels of light reflected off shiny, black or transparent objects made detection unstable.

Answer!

OMRON's unique structure uses four types of toroidal lenses to enable stable sensing, even at minimal light levels.





Toroidal lens

Patent pending

Line up

Suitable for embedding in commercial equipment

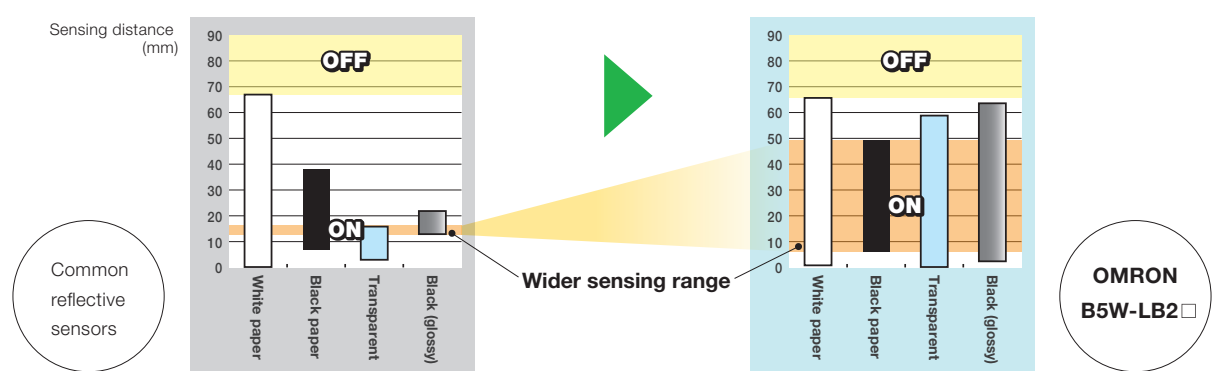


Output type	Analog output type		Digital output type	
	Miniature type		Super miniature type	
Exterior				
Power supply voltage	5 VDC ±10%		24 VDC ±10%	
Output type	Analog (photo transistor output)		ON/OFF (NPN open collector output)	
Degree of protection	-		IP50	
Sensing distance (Target object: white paper)	10 to 55 mm Note: When using a predetermined threshold value		2 to 10 mm	
Model	B5W-LB2101-1		B5W-LB2112-1 B5W-LB2122-1	B5W-LB1112-1 B5W-LB1122-1

- 24 VDC** Noise-resistant, 24 V types ideal for use in commercial equipment are also available in our lineup.
- Connects easily** An ON/OFF output that enables direct connections to control equipment such as PLCs.
- Environmental resistance** IP50 for use in a wide range of applications, including heavy dust.
Note: Only digital output type

Performance comparison with conventional sensors

Capable of sensing workpieces of various colors over a wide sensing range



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OMRON Corporation

Electronic and Mechanical Components Company

Regional Contact

Americas

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