

B5W-LB series

Light Convergent Reflective Sensor

Light Convergent Reflective Type for Reduced Color and Material Susceptibility Reliable Detection of Shiny, Black or Transparent objects



- <Robustness of color>
 - Stable detection of shiny, black or transparent objects
 - Unaffected by backgrounds, meaning only the intended object is sensed accurately.
- <Robustness of the distance>
 - A wide sensing range to allow object shifting
- Robust design resistant to ambient lights
- Analog voltage output and digital output models are available
- 55 mm and 10 mm sensing distances are available



Be sure to read Safety Precautions on page 7.

Model Number Legend

B5W-LB- ☐ ☐ ☐ ☐ -☐
1. 2. 3. 4. 5.

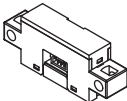
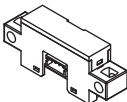
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|--------------------|-----------------------------------|---------------------------------------|-------------------------|--|
| 1. Size | 2. Maximum sensing distance | 3. Output | 4. Degree of protection | 5. Minimum number of deliverable units |
| 1: Super miniature | Super miniature | 0: Analog voltage | 1: Not supported | 1: 1 piece |
| 2: Miniature | 1: 10 mm
Miniature
1: 55 mm | 1: NPN / Light-ON
2: NPN / Dark-ON | 2: Supported | |

B
5
W
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B

Ordering Information

Sensors (Dimensions→P.6)

☐ infrared

Sensing method	Appearance	Size	Connecting method	Output type	Sensing distance	Operating mode	Model	Minimum number of deliverable units (Unit: pieces)
Light Convergent Reflective		Super miniature	Connector	NPN open collector	2 to 10 mm *	Light-ON	B5W-LB1112-1	1
	Dark-ON	B5W-LB1122-1						
		Miniature			10 to 55 mm *	Light-ON	B5W-LB2112-1	
						Dark-ON	B5W-LB2122-1	
			Analog voltage output	---	B5W-LB2101-1			

* White paper

Ratings and Specifications

Digital output models

Sensing method		Light Convergent Reflective					
Item	Model	NPN output		B5W-LB1112-1	B5W-LB1122-1	B5W-LB2112-1	B5W-LB2122-1
Sensing distance	White paper	2 to 10 mm				10 to 55 mm	
	Black paper	3 to 8 mm				10 to 40 mm	
Non-sensing distance (White paper)		20 mm min.				85mm min.	
Minimum detectable object (reference value)		0.05 mm dia.				0.15 mm dia.	
Differential travel		20% max.					
Light source (wavelength)		Infrared LED (850 nm)					
Power supply voltage		24 VDC ±10%, including 10% ripple (p-p)					
Current consumption		15 mA max. (at 26.4 VDC)				20mA max. (at 26.4 VDC)	
Operating mode		Light-ON		Dark-ON		Light-ON	Dark-ON
Control output		Load power supply voltage: 26.4 VDC, load current: 50 mA max. Residual voltage; 0.8 V max. at 50 mA load current and 0.32 V at 10 mA load current, Open collector output (NPN)					
Indicator		Not supported					
Response time		Operate/reset: 1 ms max.					
Ambient illumination		Incandescent lamp: 3,000 lx max., Sunlight: 10,000 lx max.					
Ambient temperature range		Operating: -10 to +60°C, Storage: -25 to +80°C (with no icing or condensation)					
Vibration resistance		10 to 55 Hz, 1.5-mm double amplitude for 2 h each in X, Y, and Z directions					
Shock resistance		500 m/s² for 3 times each in X, Y, and Z directions					
Degree of protection		IEC IP50 (not including terminals)					
Connecting method		Connector models					
Weight (unit only)		Approx 1.6 g				Approx 3.4 g	
Material	Case	Polycarbonate (PC)					
	Lens	Acrylic (PMMA)					
	Cover	Polycarbonate (PC)					

I/O Circuit Diagrams

NPN output

Model	Operating mode	Timing charts	Output circuit								
B5W-LB1112-1 B5W-LB1122-1 B5W-LB2112-1 B5W-LB2122-1	Light-ON ON	Incident light No incident light Output transistor ON OFF Operate Reset Load	Sensor Main Circuit 24 VDC 0 V Load ③ ② ① <table><thead><tr><th>Terminal No.</th><th>Name</th></tr></thead><tbody><tr><td>1</td><td>GND</td></tr><tr><td>2</td><td>Vout</td></tr><tr><td>3</td><td>Vcc</td></tr></tbody></table>	Terminal No.	Name	1	GND	2	Vout	3	Vcc
	Terminal No.	Name									
1	GND										
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