

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.

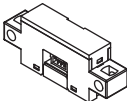
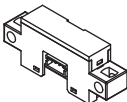
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|--------------------|-----------------------------------|---------------------------------------|-------------------------|--|
| 1. Size | 2. Maximum sensing distance | 3. Output | 4. Degree of protection | 5. Minimum number of deliverable units |
| 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
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 $\pm$ 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
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/s ² 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		
	Dark-ON ON		