



JULONG Photoelectric



JL-50 — Series

— Smart Color Mark Sensor

■ Main Features

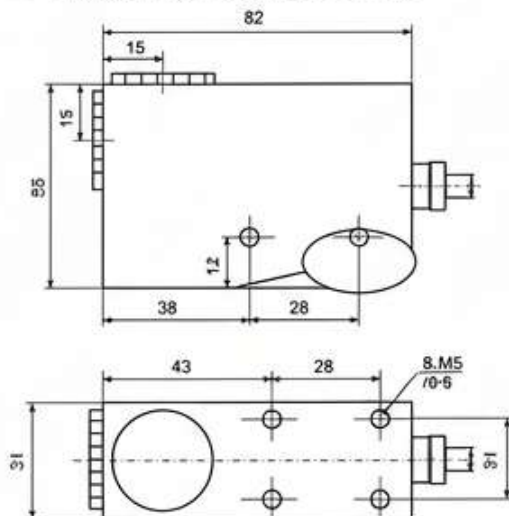
The JL-50 series smart color mark photoelectric sensor features a built-in PIC chip, allowing for intelligent identification of background colors and mark colors, automatically selecting the most suitable light source based on color difference to adapt to various background colors and marks. With high precision and fast response speed, it is very convenient to use and offers automatic light source selection during mark or background changes, compared to traditional Z3N and Z3S series color mark sensors.



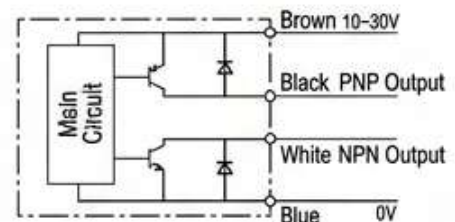
■ Main Technical Parameters

Supply Voltage	DC10-24V
电源纹波	2Vpp Max
输出信号	1-way NPN, 1-way PNP
输出电流	100mA Max
输出饱和电压	≤ 2V
响应时间	33 μs
开关频率	15kHz
状态指示	Output Indicator (Yellow) / Ready Indicator (Green)
输出方式	Automatic
环境温度	Operating: -10~55°C, Storage: -20~70°C
检测距离	9mm
光源类型	Red, Green, Blue automatic selection
外壳材料	ABS
镜头材质	PMMA
防护等级	IP67
接线方式	M12 4-core cable wire
重量	90g

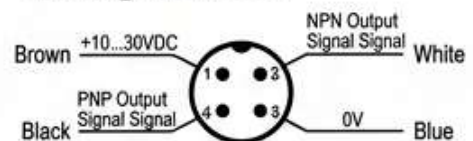
■ External Dimensions



■ Output Circuit Diagram



■ Wiring Method



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■ Installation

All three sides of the sensor have M5x5 mounting holes. Do not use excessive force when locking the screws after focus adjustment (maximum 2.2Nm).

Only the lens cover and lens need adjustment. Detection can be selected from the front or side.

The distance from the lens to the detection surface must be identical to the lens's focal length to achieve the highest detection sensitivity.

Under normal conditions, the lens should be perpendicular to the detection surface.

For detection of materials with high light reflectivity, it is recommended to adjust the detection angle to 5-20 degrees, and make appropriate adjustments based on the detected material and its movement direction.

■ Operating Instructions

1. Place the color mark in front of the sensor light spot. Press and hold ▲ button until the ready light (green) goes off. At this point, the sensor will alternate between red, yellow, and blue light sources to identify the color mark. Do not move the color mark during this process.
2. Place the background color in front of the sensor light spot. Briefly press the ▼ button. At this point, the sensor will alternate between red, yellow, and blue light sources to identify the background color. Do not move the background color during this process.

The sensor can automatically select Light-on / Dark-on operating modes.

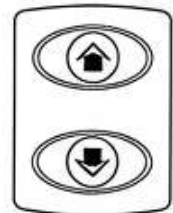
For dark color as mark, light color as background, set to Dark-on mode;

For light color as mark, dark color as background, set to Light-on mode.

If the ready light (green) remains on after the above operations, the setting is successful.

If the ready light flashes slowly, it indicates insufficient contrast between the color mark and

If setting failed, please repeat the ▲ button press or ▼ button press once. The sensor will return to its original setting state. Restart the setting from step 1.



■ Precautions

1. Before powering on, verify that the power supply meets the requirement: $DC10-24V \pm 10\%$. Do not exceed 30V, otherwise the photoelectric switch may be damaged.
2. To ensure high stability detection, two points must be ensured: One is that the detection distance meets the rated detection distance of the sensor. If the detection distance is 12mm, it must be installed at exactly 12mm. This will keep the anti-vibration area above and below 4mm. Second is strictly following the operating steps to adjust sensitivity, and re-adjust whenever a different packaging paper is changed.
3. When installing, prevent strong light from entering the optical lens, or take appropriate shading measures.
4. Working environment temperature, humidity, vibration, impact and other corrosive gases can affect the operation of photoelectric switch. Please minimize these effects.
5. Maintain the cleanliness of the optical lens. Avoid direct exposure of the lens upwards to minimize dust accumulation.
6. This product is warranted for one year against non-human factors. Defective units can be returned to the factory for repair or replacement.

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