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Precise Color Differentiation
Color Sensor P1PF



P1PF Color Sensor – Process-Stable Color Evaluation and Intuitive Color Control

The P1PF color sensor combines two views of color: It enables the precise technical evaluation in RGB and offers the visually comprehensible setting using HSL. This means that the color sensor can be used both for precise processes and intuitively in everyday operation. Up to eight colors can be differentiated and color tolerances can be conveniently adjusted via IO-Link. With a high switching frequency of 8 kHz, the P1PF sensor reacts reliably to rapid color changes – even in challenging applications at high speeds.



Product Highlights

9-LED Bar Graph for Displaying the Detected Color

The color detected by the sensor and the taught-in references of the outputs are displayed in real time – for immediate feedback and easy adjustment directly on the device, without any additional tools.

Parameterization in RGB and HSL

The sensor offers two views of color: technically in the RGB color space and visually comprehensible in the HSL color space. This allows color detection to be adapted precisely to the process and operating environment.

High Switching Frequencies for Dynamic Processes

With a switching frequency of 8 kHz, the sensor reacts reliably to rapid color changes – ideal for applications with high cycle times or moving objects.

Up to Eight Switching Outputs

Two teach-in-capable outputs on the device and six additional virtual outputs via IO-Link enable multiple colors to be detected with just one sensor.



P1PF in Use



Color-Coded Packaging Sorting

Packaged toys are automatically sorted by color. The packaging is differentiated by a printed color code that corresponds to the color of the toy it contains. This is detected by a color sensor, which then controls the forwarding of the packaging to the corresponding packaging station. Thanks to high switching frequency and precise RGB detection, the sensor can distinguish colors even at high speeds and direct each product to the corresponding station.



Installation Check of Fuses

In the automotive industry, fuses of different colors are installed in passenger car fuse boxes depending on the amperage. A color sensor checks whether all components have been correctly positioned and assigned to the correct type. The light reflected by the object is evaluated and the received data is compared with the specified color positions in the layout of the fuse box. Missing fuses or incorrect colors are immediately detected, which ensures error-free assembly.



Detection of Caps

After the filling and closing process of small bottles in the pharmaceutical industry, it must be ensured that each bottle is capped with the matching color. A color sensor mounted above the conveyor tracks the color values of each lid and checks that they match the stored reference colors. Thanks to its high switching frequency, the sensor operates precisely and reliably even at high flow rates.

Typical Industries

Automotive Industry

Packaging Industry

Food Industry

Printing Industry

Product Overview

Product		Format	Light source	Detection range / working range	Switching frequency	Output
	P1PF	50 × 50 × 20 mm (1P)	White light	30...40 mm	8 kHz	NO

Find all the details and even more highlights of color sensors on our website.

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