OMRON

E3MC

RGB Color Sensor

CE



Refined Performance and Easy Operation

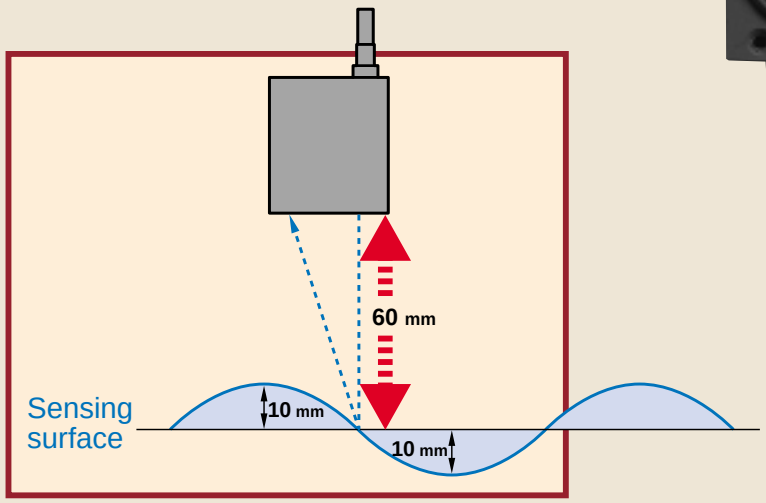
Easy-to-see Double Indication

- Conformity with the registered colors can be monitored at eight levels.
  (Detection level indicators)
- Allows adjustments between fine or rough discrimination while monitoring the measured results.



Stable and Powerful Detection for Inline Use

- Stable detection is assured with a threshold of ±10 mm for built-in amplifier type and ±4 mm for optical fiber type.



Long-distance Sensing with Built-in Amplifier Type

- Built-in amplifier type with a sensing distance of 60±10 mm is available for a wide range of color discriminating applications.

Highly Resistant to Changes in Sensing Object Brightness and Ambient Temperature.

- OMRON's unique Free Angle Optics (FAO: multi-layer polarized filter) ensure stable detection performance and is highly resistant to changes in the tint or brightness of sensing objects.
  Capable of discriminating over 90 different colors.
- Wide temperature range from -20¡C to 55¡C and excellent detection stability.

Maintenance-free LED Light Source

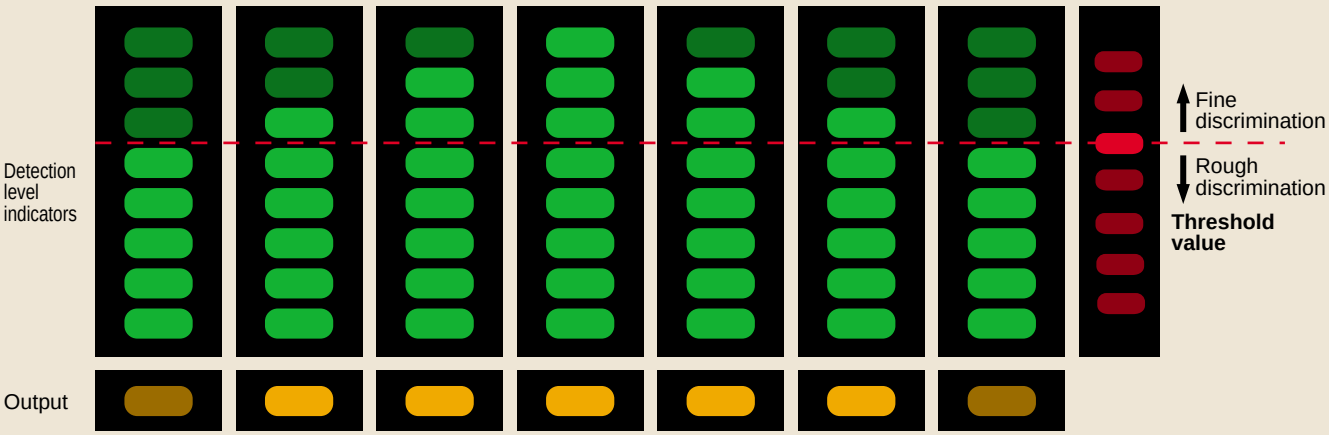
- Incorporates RGB LED light sources with a long service life more than several tens of thousand hours, thus greatly saving maintenance cost and ensuring high performance.
  (On the other hand, halogen lamps used as light sources need to be replaced or re-adjusted every nine months or so.)

Discriminating Delicate Color Differences

The detection level indicators are lit according to the degree of conformity between registered and detected colors.

Delicate color differences are discriminated by setting the threshold to an upper level. (Fine discrimination is expected.)

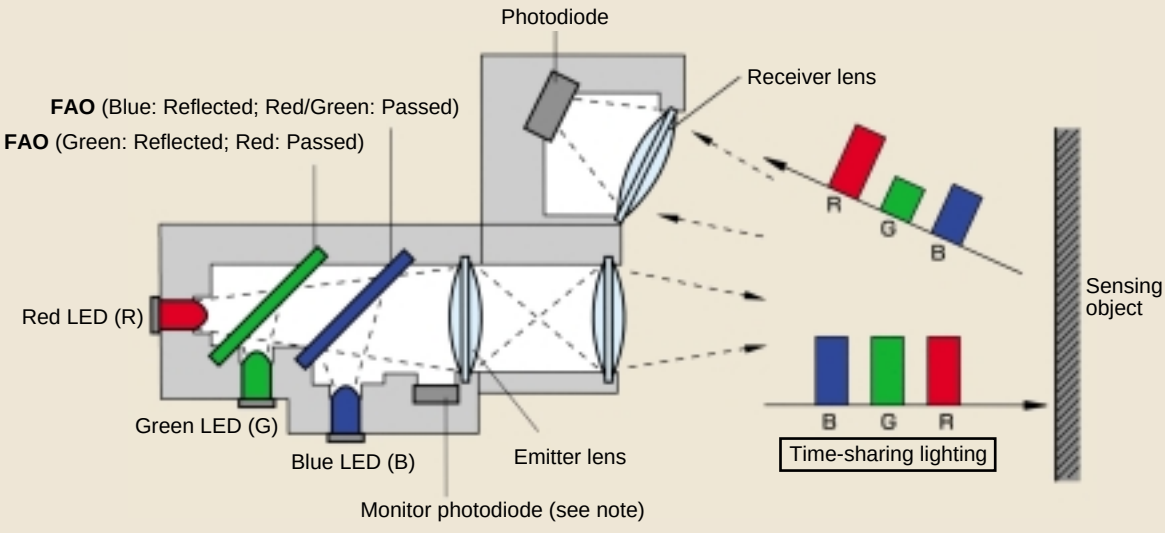
Sensor errors that may be caused by minor tint differences or dirt retention are prevented by setting the threshold to a lower level. (Rough discrimination is expected.)



Principles of Detection

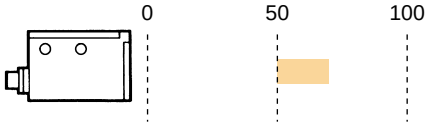
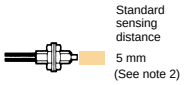
The E3MC detects colors by making use of the fact that the reflection ratio of a primary color (i.e., red, green, or blue) reflected by an object varies with the chromaticity of the object. By using a high-tech, multi-layer polarized filter called FAO (free angle optics), the E3MC emits red, green, and blue light on a single optical axis so that the light will be reflected by sensing objects. The E3MC receives the light reflected by the sensing objects through the receiver and processes the red-green-blue ratio of the light to discriminate the color of the sensing object.

In Mode C (Refer to the E3MC Datasheet)



Note: The monitor photodiode compensates LED output deviation that may be caused by a temperature change.

Ordering Information

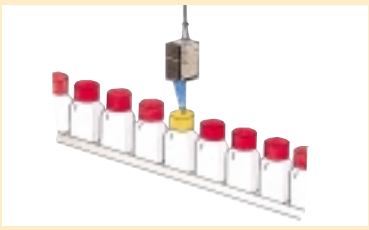
Type	Model	Appearance	Sensing distance	Spot diameter	No. of output	Out-put
Built-in Amplifier Type	E3MC-A11		 60±10 mm (See note 1)	12 mm	1	NPN
	E3MC-A41					PNP
	E3MC-MA11				4	NPN
	E3MC-MA41					PNP
	E3MC-A81				3	Analog
Optical Fiber Type	E3MC-X11	 The shape of the amplifier section is the same as for the E3MC-□A□	 0 50 100 20±4 mm (See note 1)	3 mm	1	NPN
	E3MC-X41					PNP
	E3MC-MX11				4	NPN
	E3MC-MX41					PNP
	E3MC-X81				3	Analog
General-Purpose Optical Fiber Type	E3MC-Y11		E32-CC200  E32-T16 	Varies with the recom-mended optical fiber.	1	NPN
	E3MC-Y41					PNP
	E3MC-MY11				4	NPN
	E3MC-MY41					PNP
	E3MC-Y81				3	Analog

Note: 1. Refer to the *E3MC Datasheet (E256)*.
2. Eleven colors are discriminated at this distance. For a typical example, nine colors are discriminated at a sensing distance or 12 mm.

Application Examples

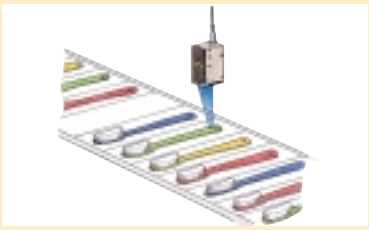
Built-in Amplifier Type

Detection of a Mixture of Different Color Parts



Detects caps of different colors in a bottling process. Easy-to-change settings using the 4-color registration/bank selection.

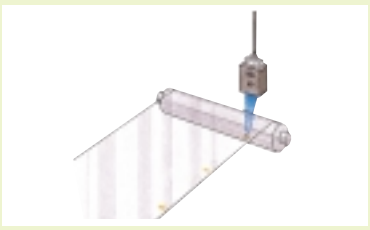
Extraction and Sorting by Color



Sorts toothbrushes by the color of their handles. Stable detection can be obtained without being influenced by changes in brightness of sensing objects.

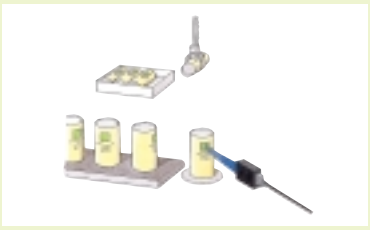
Optical Fiber Type

Detection of Hard-to-discriminate Marks (Yellow Marks on a White Background, etc.)



Highly resistant to up and down fluctuation of sensing objects and offers stable detection of marks with delicate color differences such as yellow marks on a white background.

Detection of Directional Alignment for Packing



Used for aligning directions for packaging by detecting delicate color differences or very fine marks.

General-purpose Optical Fiber Type

Color Discrimination and Sorting of Bottles Using a Through-beam Optical Fiber Type (E32-T17L)



Discriminates bottles or transparent films by their color.

Detection of Small Marks Using a Reflective Optical Fiber Type (E32-CC200)



Suited for applications where working space is so limited that the E3MC-X cannot be used.

The product has been produced at OMRON Ayabe which obtained ISO9001-approval for its quality system and ISO14001-approval for its environmental management system from international certification bodies.

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Note: Specifications subject to change without notice.

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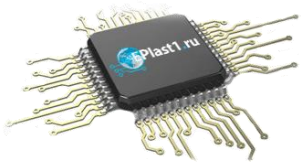
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- Поставка более 17-ти миллионов наименований электронных компонентов;
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- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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