# CSS High Resolution

Detects even very slight color nuances and masters changing distances
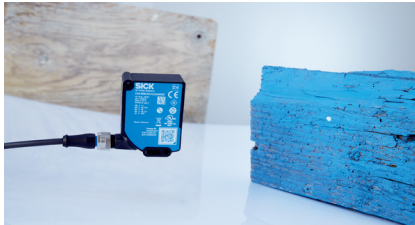
**SICK**
Sensor Intelligence.

Advantages



## Detects even very minor color differences

With its especially high color resolution and large depth of field, the CSS High Resolution color sensor can distinguish between color nuances that are even hard for the human eye to recognize. Color gradients and structured materials and surfaces such as stone or fabric also present no challenge thanks to the innovative teach-in method.



**Slight color nuances**
The CSS High Resolution precisely detects even very slight color differences.



**Structured material**
Natural materials such as wood, stone and leather as well as woven materials with an inhomogeneous color structure are reliably detected by the sensor.



**Color gradients and mixtures**
The color sensor even detects demanding heterogeneously colored materials.

**Thanks to its high performance and numerous application areas, the CSS High Resolution color sensor is an attractive alternative to expensive color measurement systems.**

# Innovative feature: the automatic sensing distance regulation

Different distances to the object normally affects the color perception of a sensor. SICK compensates for this effect with the automatic sensing distance regulation feature, using which the CSS High Resolution can correctly sort colors even with varying object heights. The automatic sensing distance regulation enables the sensor to detect different object sizes at changing distances in a process without having to teach in the device again. This saves time and ensures flexibility.
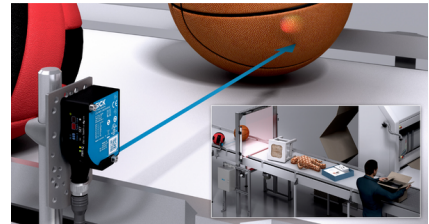


**Sensing distance up to 500 mm**
The large sensing distance means more flexibility when designing the machine and process.



**Object distance irrelevant**
The CSS High Resolution detects colors precisely regardless of the distance of the object.



**Automatic adjustment of the color evaluation**
The color evaluation automatically adjusts to the distance. No mechanical focus adjustment is necessary.

**The automatic sensing distance regulation makes the CSS High Resolution suitable for applications with changing distances and object sizes.**

# CSS High Resolution

## Precise color value display on a full color TFT display

The CSS High Resolution color sensor shows color values (RGB or L*a*b) on its display. It can also determine and visualize the difference between the taught-in color and the detected color. Not only raw data but also processed data are therefore available.

**RGB and L*a*b output**
In addition to displaying RGB color values, the CSS High Resolution also supports the L*a*b color space.

**Display of color similarity**
The similarity of a detected color to a taught-in color is also shown on the sensor display and transferred via IO-Link.

**Full color TFT display**
Thanks to its display, the CSS High Resolution is intuitive to operate. This makes it largely unnecessary to refer to the documentation for explanations.

**On its full color display, CSS High Resolution shows not only the RGB values but also L*a*b values as well as the similarity of the detected color to a taught-in color.**
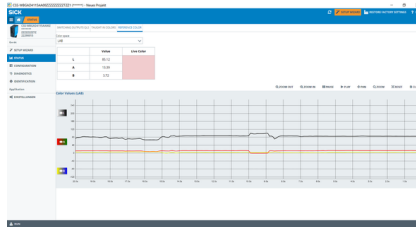
## More possibilities thanks to IO-Link

Thanks to the smart setup assistant in the SOPAS software, the color sensor is especially quick to install. Furthermore, the simple diagnostics, monitoring and adjustment of the CSS High Resolution during operation provides efficiency gains.
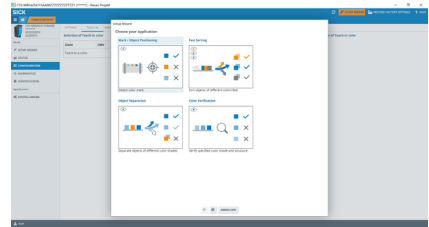
**24 colors can be saved in parallel**

Up to 24 colors can be transferred in parallel via the IO-Link interface and saved externally.



**Fast commissioning**

Using the setup assistant in the SOPAS interface, the new CSS High Resolution can be quickly and precisely configured for the specific application.



**Intelligent real-time monitoring**

Continuous monitoring in real time, fast diagnostics, and lots of process data thanks to IO-Link.

**+ Thanks to its many intelligent tools, the CSS High Resolution color sensor saves valuable resources and increases the system productivity through predictive maintenance.**

# CSS High Resolution

## Technical data overview

| | |
|---|---|
| **Sensing distance** | 50 mm (150 mm)<br>50 mm (500 mm) |
| **Light spot size** | Ø 3.5 mm ... 6.5 mm [1]<br>Ø 8 mm ... 32 mm [1] |
| **Adjustment** | Single value teach-in, Multi value teach-in |
| **Connection type** | Male connector |

[1] Depends on the sensing distance.

## Product description

With its high color resolution and an innovative teach-in method, the new CSS High Resolution color sensor can even distinguish between fine color nuances. It also detects color gradients and structured materials like wood. Besides sensing distances of up to 500 mm, the CSS High Resolution comes with an automatic sensing distance regulation feature: The CSS High Resolution detects colors precisely even at changing distances and with varying object sizes. Furthermore, the full color TFT sensor display shows color values (L*a*b or RGB) as well as the similarity of a detected color to a taught-in color. Up to 24 colors per identification task (job) can be transferred via the IO-Link interface and saved externally. Thanks to an application-specific setup assistant, the sensor can be quickly installed via the SOPAS software.

## At a glance

- High color resolution
- Detects color gradients and structured materials
- Sensing distances up to 500 mm
- Automatic sensing distance regulation
- Output of color values (L*a*b/RGB) and color similarity
- Up to 24 colors per identification task (job) can be saved
- IO-Link interface, application-specific setup assistance via SOPAS
- Full color TFT display

## Your benefits

- Attractive alternative to expensive color measurement solutions thanks to the output of color values and high color resolution
- Saves resources and increases process flexibility because up to 24 colors per identification task (job) can be transferred via IO-Link or saved
- Can be used in many applications thanks to the large sensing distance and automatic sensing distance regulation
- Quick and easy commissioning
- Display of color values on the sensor display
- Fast sensor configuration with the help of the SOPAS software

## Fields of application

- Quality control: Thorough check of color tone and structure, for example after printing, dyeing or lacquering
- Object sorting and separation: differentiation of objects, for example components by color
- Mark and object positioning: detecting colored marks, labels, adhesive areas (splicing)

## Ordering information

Other models and accessories → www.sick.com/CSS_High_Resolution

- **Housing design:** small
- **Communication interface:** Modbus
- **Sensing distance:** ≤ 150 mm

| Switching output | Light spot size | Light spot direction | Light emission | Connection type Detail | Type | Part no. |
|---|---|---|---|---|---|---|
| Push-pull: PNP/NPN | Ø 3.5 mm … 6.5 mm | Round | Long side of housing | Male connector M12, 8-pin | CSS-WBG4C4118RZZZZ | 1120175 |

- **Housing design:** small
- **Communication interface:** Modbus
- **Sensing distance:** ≤ 500 mm

| Switching output | Light spot size | Light spot direction | Light emission | Connection type Detail | Type | Part no. |
|---|---|---|---|---|---|---|
| Push-pull: PNP/NPN | Ø 8 mm … 32 mm | Round, large | Long side of housing | Male connector M12, 8-pin | CSS-WB-GAD4118RZZZZ | 1120176 |

- **Housing design:** small
- **Communication interface:** IO-Link
- **Sensing distance:** ≤ 150 mm

| Switching output | Light spot size | Light spot direction | Light emission | Connection type Detail | Type | Part no. |
|---|---|---|---|---|---|---|
| Push-pull: PNP/NPN | Ø 3.5 mm … 6.5 mm | Round | Long side of housing | Plug, M12, 5-pin | CSS-WBG4C4115AA10Z | 1120173 |
| | | | | Male connector M12, 8-pin | CSS-WBG4C4118AA10Z | 1113521 |

- **Housing design:** small
- **Communication interface:** IO-Link
- **Sensing distance:** ≤ 500 mm

| Switching output | Light spot size | Light spot direction | Light emission | Connection type Detail | Type | Part no. |
|---|---|---|---|---|---|---|
| Push-pull: PNP/NPN | Ø 8 mm … 32 mm | Round, large | Long side of housing | Plug, M12, 5-pin | CSS-WB-GAD4115AA10Z | 1120174 |
| | | | | Male connector M12, 8-pin | CSS-WB-GAD4118AA10Z | 1120172 |

# SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

**For us, that is "Sensor Intelligence."**

# WORLDWIDE PRESENCE:

Contacts and other locations –**www.sick.com**

**SICK**
Sensor Intelligence.