



# CSS-WBGAD4118AA10Z

CSS High Resolution

COLOR SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

| Type               | Part no. |
|--------------------|----------|
| CSS-WBGAD4118AA10Z | 1120172  |

Other models and accessories → [www.sick.com/CSS\\_High\\_Resolution](http://www.sick.com/CSS_High_Resolution)

## Detailed technical data

### Features

|                                      |                                                                              |
|--------------------------------------|------------------------------------------------------------------------------|
| <b>Dimensions (W x H x D)</b>        | 26 mm x 62 mm x 47.5 mm                                                      |
| <b>Sensing distance</b>              | 50 mm ... 500 mm                                                             |
| <b>Housing design</b>                | S housing                                                                    |
| <b>Light source</b>                  | LED, RGB <sup>1)</sup>                                                       |
| <b>LED risk group marking</b>        | 2                                                                            |
| <b>Wave length</b>                   | 450 nm, 550 nm, 610 nm                                                       |
| <b>Light emission</b>                | Long side of housing                                                         |
| <b>Light spot size</b>               | Ø 8 mm ... 32 mm <sup>2)</sup>                                               |
| <b>Light spot direction</b>          | Round, large                                                                 |
| <b>Teach-in mode</b>                 | Single value teach-in<br>Multi value teach-in                                |
| <b>Color mode</b>                    | C (Color)<br>C + I (Color + Illumination)                                    |
| <b>Output mode</b>                   | 4 colors in standard mode/best fit mode<br>15 colors in coded mode           |
| <b>Adjustment of the sensitivity</b> | Continuous: 0 ... 999                                                        |
| <b>Available job banks</b>           | 4                                                                            |
| <b>Output (channel)</b>              | 4 x hardware switching outputs<br>24 x virtual switching outputs via IO-Link |
| <b>Parameter presets</b>             | None                                                                         |

<sup>1)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

<sup>2)</sup> Depends on the sensing distance.

## Mechanics/electronics

|                                                   |                                                                                                                     |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>Supply voltage</b>                             | 10.8 V DC ... 28.8 V DC <sup>1)</sup>                                                                               |
| <b>Ripple</b>                                     | $\leq 5 V_{pp}$ <sup>2)</sup>                                                                                       |
| <b>Current consumption</b>                        | $< 150 \text{ mA}$ <sup>3)</sup>                                                                                    |
| <b>Switching frequency</b>                        | 4 kHz                                                                                                               |
| <b>Response time</b>                              | 120 $\mu\text{s}$                                                                                                   |
| <b>Jitter</b>                                     | 60 $\mu\text{s}$                                                                                                    |
| <b>Switching output</b>                           | Push-pull: PNP/NPN                                                                                                  |
| <b>Switching output (voltage)</b>                 | Push-pull: PNP/NPN HIGH = $U_V - 3 \text{ V}$ /LOW $\leq 3 \text{ V}$                                               |
| <b>Output current <math>I_{\text{max}}</math></b> | 100 mA <sup>4)</sup>                                                                                                |
| <b>Input, teach-in (ET)</b>                       | Teach: $U = 10 \text{ V} \dots < V_S$                                                                               |
| <b>Input, blanking input (AT)</b>                 | Blanked: $U = 10 \text{ V} \dots < U_V$                                                                             |
| <b>Retention time (ET)</b>                        | 3 s, non-volatile memory                                                                                            |
| <b>Connection type</b>                            | Male connector M12, 8-pin                                                                                           |
| <b>Protection class</b>                           | III                                                                                                                 |
| <b>Circuit protection</b>                         | $U_V$ connections, reverse polarity protected<br>Output Q short-circuit protected<br>Interference pulse suppression |
| <b>Enclosure rating</b>                           | IP67                                                                                                                |
| <b>Weight</b>                                     | 70 g                                                                                                                |
| <b>Housing material</b>                           | Plastic, VISTAL®                                                                                                    |
| <b>Optics material</b>                            | Glass                                                                                                               |

<sup>1)</sup> Limit values: DC 12 V (-10 %) ... DC 24 V (+20 %). Operation in short-circuit protected network max. 8 A.

<sup>2)</sup> May not exceed or fall below  $U_V$  tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> Total current of all Outputs.

## Communication interface

|                               |                                                                                                               |
|-------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>IO-Link</b>                | ✓, IO-Link                                                                                                    |
| VendorID                      | 26                                                                                                            |
| DeviceID HEX                  | 80028E                                                                                                        |
| DeviceID DEC                  | 8389262                                                                                                       |
| <b>Process data structure</b> | Byte 0 ... 3 = Switching output and status<br>Byte 4 ... 11 = Color measurement values and color match values |
| <b>Digital output</b>         | $Q_1 \dots Q_4$                                                                                               |
| Number                        | 4                                                                                                             |
| <b>Digital input</b>          | $In_1, In_2$                                                                                                  |
| Number                        | 2                                                                                                             |

## Ambient data

|                                      |                                          |
|--------------------------------------|------------------------------------------|
| <b>Ambient operating temperature</b> | -20 °C ... +55 °C                        |
| <b>Ambient temperature, storage</b>  | -25 °C ... +75 °C                        |
| <b>Shock load</b>                    | According to IEC 60068-2-27 (30 g/11 ms) |
| <b>UL File No.</b>                   | E181493                                  |

Classifications

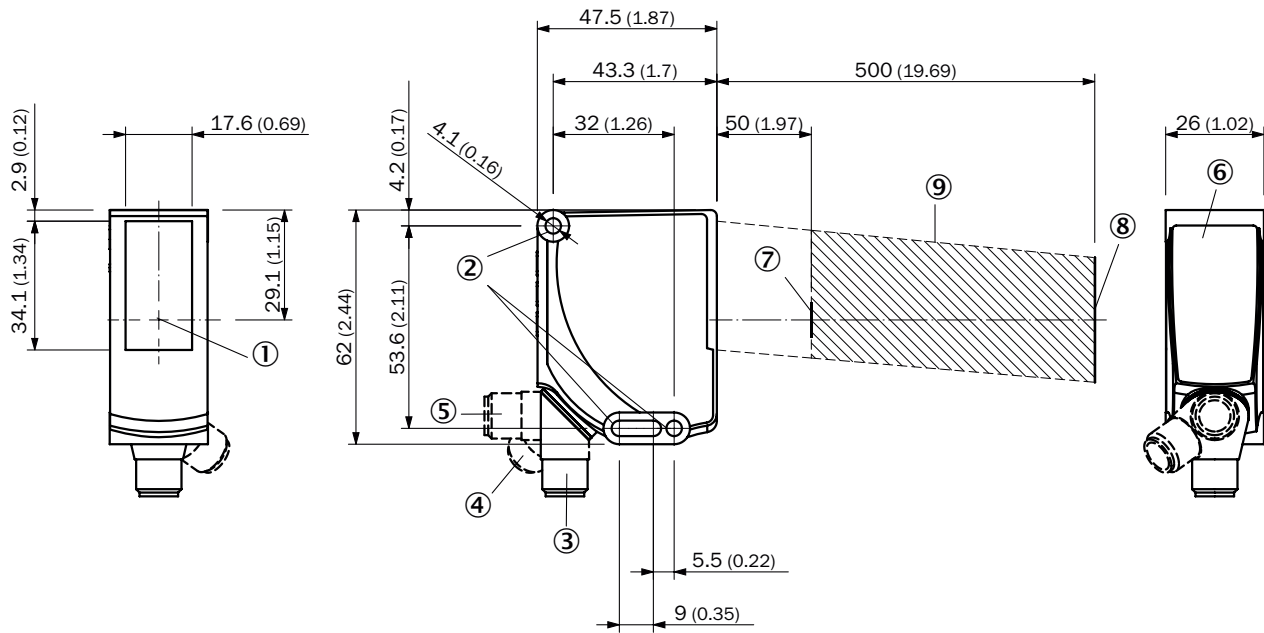
|                |          |
|----------------|----------|
| ECLASS 5.0     | 27270907 |
| ECLASS 5.1.4   | 27270907 |
| ECLASS 6.0     | 27270907 |
| ECLASS 6.2     | 27270907 |
| ECLASS 7.0     | 27270907 |
| ECLASS 8.0     | 27270907 |
| ECLASS 8.1     | 27270907 |
| ECLASS 9.0     | 27270907 |
| ECLASS 10.0    | 27270907 |
| ECLASS 11.0    | 27270907 |
| ECLASS 12.0    | 27270907 |
| ETIM 5.0       | EC001817 |
| ETIM 6.0       | EC001817 |
| ETIM 7.0       | EC001817 |
| ETIM 8.0       | EC001817 |
| UNSPSC 16.0901 | 39121528 |

Connection/Pin assignment

|                 |                           |                                  |
|-----------------|---------------------------|----------------------------------|
| Connection type | Male connector M12, 8-pin |                                  |
| Pin assignment  |                           |                                  |
|                 | WH 1                      | Q <sub>L1</sub> /IN <sub>1</sub> |
|                 | BN 2                      | + (L+)                           |
|                 | GN 3                      | Q <sub>L1</sub> /C               |
|                 | YE 4                      | Q <sub>L2</sub>                  |
|                 | GY 5                      | IN <sub>2</sub>                  |
|                 | PK 6                      | Q <sub>L3</sub>                  |
|                 | BU 7                      | - (M)                            |
|                 | RD 8                      | Q <sub>L4</sub>                  |

## Dimensional drawing (Dimensions in mm (inch))

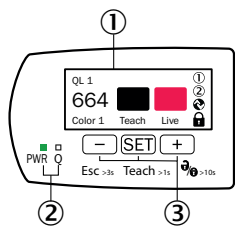
CSS-xxGxDx1xxxxxx



- ① Optical axis
- ② Fixing hole
- ③ M12 male connector, delivery state
- ④ M12 male connector, end stop right
- ⑤ M12 male connector, end stop left
- ⑥ Display and adjustment elements
- ⑦ Light spot size (distance): Ø 8.8 mm (50 mm)
- ⑧ Light spot size (distance): Ø 32 mm (500 mm)
- ⑨ Working range

## Adjustments

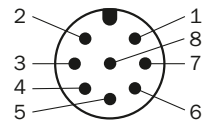
Display and adjustment elements



- ① TFT display
- ② LEDs (status display)
- ③ Plus/minus button

Pin assignment

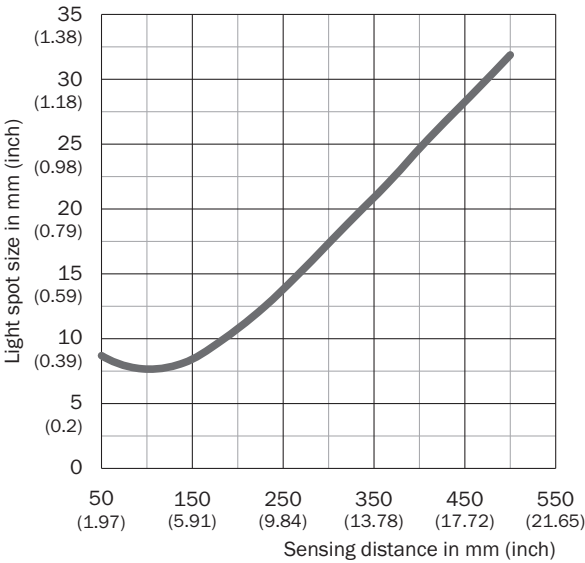
See table: **Connection/pin assignment**



Connector M12, 8-pin, A-coded

Light spot size

CSS-xxx**AD**xxxxxxxxx



Recommended accessories

Other models and accessories → [www.sick.com/CSS\\_High\\_Resolution](http://www.sick.com/CSS_High_Resolution)

|                                                                                     | Brief description                                                                                     | Type                           | Part no. |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------|----------|
| Connection modules                                                                  |                                                                                                       |                                |          |
|  | IO-Link V1.1 Class A port, USB2.0 port, optional external power supply 24V / 1A                       | IOLA2US-01101 (SiLink2 Master) | 1061790  |
| Universal bar clamp systems                                                         |                                                                                                       |                                |          |
|  | Plate K for universal clamp bracket, steel, zinc coated, Universal clamp (2022726), mounting hardware | BEF-KHS-K01                    | 2022718  |
|  | Mounting bar, straight, 200 mm, steel, steel, zinc coated, without mounting hardware                  | BEF-MS12G-A                    | 4056054  |

|                                                                                   | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Type               | Part no. |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
|  | Mounting bar, L-shaped, 150 mm x 150 mm, steel, steel, zinc coated, without mounting hardware                                                                                                                                                                                                                                                                                                                                                                      | BEF-MS12L-A        | 4056052  |
| Mounting brackets and plates                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |          |
|  | Adaptation of CSS High Resolution and CSS High Speed to third party hole pattern, Aluminum, mounting hardware for the sensor included                                                                                                                                                                                                                                                                                                                              | BEF-AP-CSS         | 2137662  |
| Plug connectors and cables                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |          |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 8-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with oils and lubricants, Drag chain operation, Robot</li> </ul> | YF2A18-050UA5XLEAX | 2095653  |
| Sensor Integration Gateway                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |          |
|  | <ul style="list-style-type: none"> <li>• <b>Further functions:</b> Web server integrated, IIoT interface available (dual talk)</li> <li>• <b>Logic editor:</b> no</li> <li>• <b>Communication interface:</b> IO-Link, Ethernet, PROFINET, REST API, MQTT, OPC UA</li> <li>• <b>Product category:</b> IO-Link Master</li> </ul>                                                                                                                                     | SIG350-0004AP100   | 6076871  |
|                                                                                   | <ul style="list-style-type: none"> <li>• <b>Further functions:</b> Web server integrated, IIoT interface available (dual talk)</li> <li>• <b>Logic editor:</b> no</li> <li>• <b>Communication interface:</b> IO-Link, Ethernet, EtherNet/IP™, REST API, MQTT, OPC UA</li> <li>• <b>Product category:</b> IO-Link Master</li> </ul>                                                                                                                                 | SIG350-0005AP100   | 6076923  |
|                                                                                   | <ul style="list-style-type: none"> <li>• <b>Further functions:</b> Web server integrated, IIoT interface available (dual talk)</li> <li>• <b>Logic editor:</b> no</li> <li>• <b>Communication interface:</b> IO-Link, Ethernet, EtherCAT®, REST API, MQTT, OPC UA</li> <li>• <b>Product category:</b> IO-Link Master</li> </ul>                                                                                                                                    | SIG350-0006AP100   | 6076924  |

## 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](http://www.sick.com)