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DATA SHEET

CSS-WBGAD4118RZZZZ

CSS High Resolution
Color sensors

SICK Sensor Intelligence



Illustration may differ

COLOR SENSORS

CSS-WBGAD4118RZZZZ

ORDERING INFORMATION

Type	part no.
CSS-WBGAD4118RZZZZ	1120176

Further device versions and accessories at www.sick.com/CSS_High_Resolution

DETAILED TECHNICAL DATA

FEATURES

Parameter presettings	None
Housing design	Small
Dimensions (W x H x D)	26 mm x 62 mm x 47.5 mm
Light source	LED, RGB [1]
Light emission	Long side of housing
Light spot size	Ø 8 mm ... 32 mm [2]
Light spot direction	Round, large
Wave length	450 nm, 550 nm, 610 nm
LED risk group marking	2
Color mode	C (Color) C + I (Color + Illumination)
Sensing distance	50 mm ... 500 mm
Teach-in mode	Single value teach-in Multi value teach-in
Output mode	4 colors in standard mode/best fit mode 15 colors in coded mode
Output (channel)	4 x hardware switching outputs 24 x virtual switching outputs via RS-485
Adjustment of the sensitivity	Continuous: 0 ... 999
Available job banks	4
Safety-related parameters	
$MTTF_D$	179.9 years

[1] Average service life: 100,000 h at T_U = +25 °C.

[2] Depends on the sensing distance.

INTERFACES

IO-Link		✓, IO-Link V1.1.2
	VendorID	26
	DeviceID HEX	80028E
	DeviceID DEC	8389262
Modbus®		✓, RS-485
Process data structure		Byte 0 ... 3 = switching output and status Byte 4 ... 11 = measured color values and color adjustment values
Digital output		Q_1, Q_2
	Number	2
Digital input		In_1, In_2
	Number	2

ELECTRONICS

Supply voltage	10.8 V DC ... 28.8 V DC [1]
Ripple	≤ 5 V_{pp} [2]
Current consumption	< 150 mA [3]
Switching frequency	4 kHz
Response time	120 µs
Jitter	60 µs
Switching output	Push-pull: PNP/NPN
Switching output (voltage)	Push-pull: PNP/NPN HIGH = U_V - 3 V/LOW ≤ 3 V
Output current $I_{max.}$	100 mA [4]
Input, teach-in (ET)	Teach: U = 10 V ... < V_S
Input, blanking input (AT)	Blanked: U = 10 V ... < Uv
Retention time (ET)	3 s, non-volatile memory
Time delay	None
Protection class	III
Circuit protection	U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Connection type	Male connector M12, 8-pin
Pinouts	
WH 1	In_1
BN 2	+ (L+)
GN 3	Q_{L1}/C
YE 4	Q_{L2}
GY 5	In_2
PK 6	RS-485_A
BU 7	- (M)
RD 8	RS-485_B

[1] Limit values: DC 12 V (–10 %) ... DC 24 V (+20 %). Operation in short-circuit protected network max. 8 A.

[2] May not fall below or exceed U_V tolerances.

[3] Without load.

[4] Total current of all Outputs.

MECHANICS

Housing material	VISTAL®
Optics material	Glass
Weight	70 g

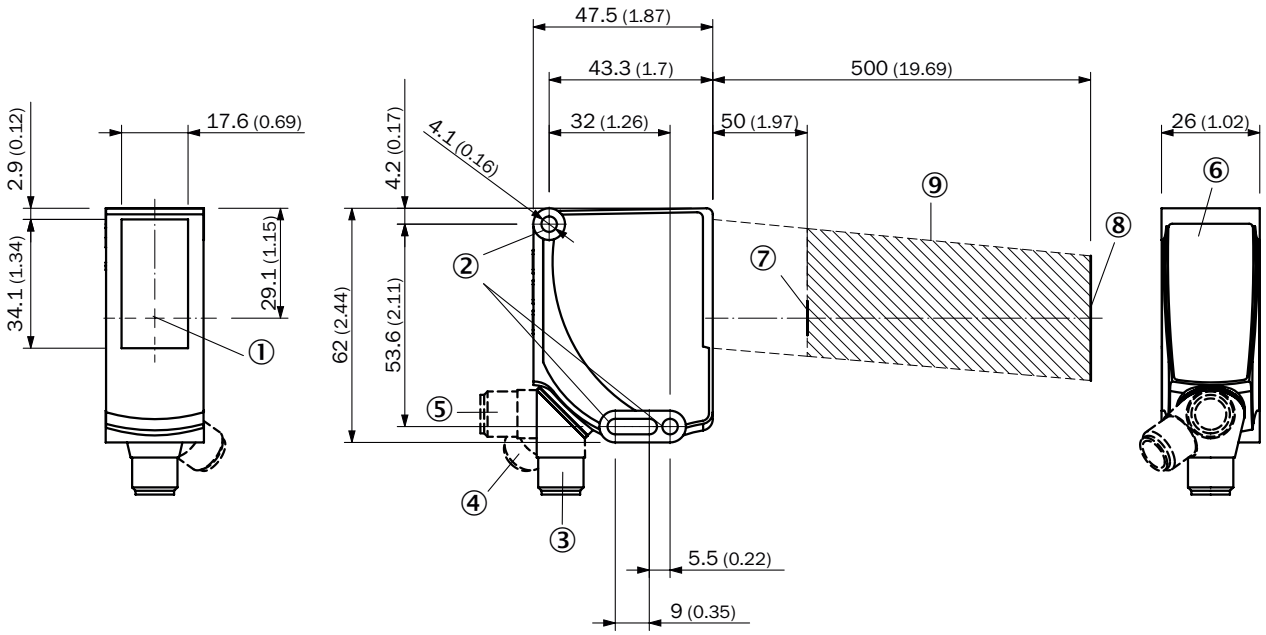
AMBIENT DATA

Ambient operating temperature	–20 °C ... +55 °C
Ambient temperature, storage	–25 °C ... +75 °C
Shock load	According to IEC 60068-2-27 (30 g/11 ms)
Enclosure rating	IP67
UL File No.	E181493

CERTIFICATES

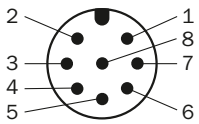
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
cULus certificate	✓
IO-Link certificate	✓
Photobiological safety (IEC EN 62471)	✓
Optical radiation safety (GB 44703:2024) declaration of manufacturer (medium risk)	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

DIMENSIONAL DRAWING, SENSOR



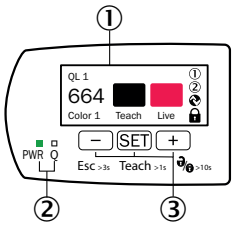
Dimensions in mm (inch)
① Optical axis
② fixing hole
③ M12 male connector, delivery state
④ M12 male connector, end stop right
⑤ M12 male connector, end stop left
⑥ display and adjustment elements
⑦ Light spot size (distance): Ø 8.8 mm (50 mm)
⑧ Light spot size (distance): Ø 32 mm (500 mm)
⑨ working range

PINOUTS, SEE TABLE TECHNICAL DATA: ELECTRONICS



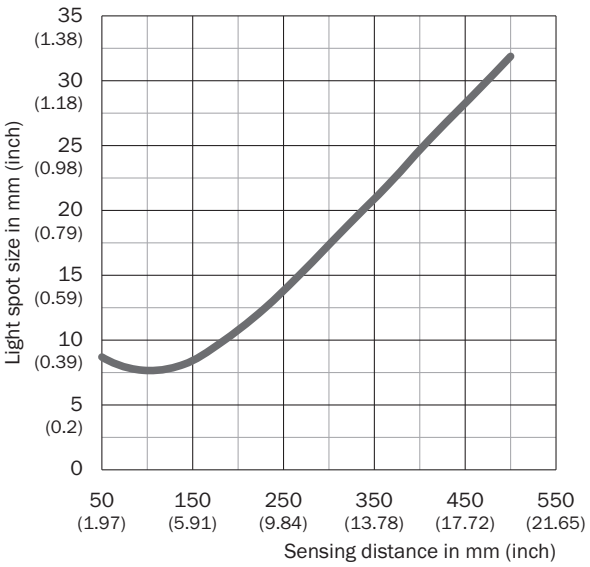
Connector M12, 8-pin, A-coded

DISPLAY AND ADJUSTMENT ELEMENTS



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

LIGHT SPOT SIZE



Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1120176

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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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