

SICK Sensor Intelligence.

IMAGE-BASED CODE READERS

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Ordering information

Туре	Part no.
V2D8505R-1MCXXXALOSXXXX	1130543

Other models and accessories -> www.sick.com/Lector85x



Detailed technical data

Features

Application	Indoor area
Variant	Main unit
Optical focus	Adjustable focus (manually)
Sensor	CMOS matrix sensor, grayscale values
Sensor resolution	2,464 px x 2,048 px (5 Mpixel)
Illumination	To be ordered separately as accessories
Feedback spot	LED, Visible, green, 525 nm, ± 15 nm LED, Visible, Red, 645 nm, ± 15 nm
Alignment aid	Laser, Red, 630 nm 680 nm
Laser class	1, complies with 21 CFR 1040.10 except for the conformance according to "Laser Notice No. 56" from May 8, 2019 (EN 60825-1:2014+A11:2021, IEC 60825-1:2014)
Lens	C-mount
Optical format	1/1.8"
Focal length	8 mm, 12 mm, 16 mm, 25 ″
Note	To be ordered separately as accessories
Scanning frequency	30 Hz, With resolution of 5 megapixels
Code resolution	≥ 0.1 mm ¹⁾
Working range	500 mm 3,000 mm (depends on lens used)

 $^{1)}$ Depends on lens used.

Mechanics/electronics

Connection type	1 x M12,17-pin male connector, A-coded (power, CAN, serial interface, I/O) 1 x M12, 5-pin male connector, A-coded (power, CAN) 3 x M12, 8-pin female connector, X-coded (Gigabit Ethernet)
Supply voltage	24 V DC, ± 20 % ¹⁾

 $^{(1)}$ Voltage source in accordance with ES1 (EN 62368-1) or SELV (EN 60950-1).

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Power consumption	Тур. 24 W
Current consumption	Max. 2 A
Housing material	Aluminum die cast
Housing color	Anthracite gray (RAL 7016)
Window material	Glass
Enclosure rating	IP65 (IEC 60529:2013 +C1:2013 +C2:2015 +AMD2 C1:2019, EN 60529:1991 +A1:2010 +A2:2013 +AC:2019-02)
Electrical safety	EN 61010:2010 / EN 61010-1:2010/A1:2019/AC:2019-04
Weight	640 g, without lens and connection cables
Dimensions (L x W x H)	143.4 mm x 90 mm x 46 mm
MTBF	100,000 h

 $^{1)}$ Voltage source in accordance with ES1 (EN 62368-1) or SELV (EN 60950-1).

Performance

Readable code structures	1D codes, 2D codes, Stacked
Bar code types	GS1-128 / EAN 128, UPC / GTIN / EAN, Interleaved 2 of 5, Code 39, Code 128, Codabar, Code 93
2D code types	Data Matrix ECC200, MaxiCode, QR code, Aztec
Stacked code types	PDF417

Interfaces

Ethernet	✓ (3), TCP/IP
Function	Data interface (read result output), service interface, FTP (image transmission)
Data transmission rate	10/100/1,000 Mbit/s, MAC address (device-specific), see type label
CAN	✓
Function	Data interface (read result output), Trigger interface
Data transmission rate	500 kbit/s
Serial	✓, RS-232, RS-422
Data transmission rate	1.2 kBaud 115.2 kBaud
USB	✔, USB 2.0
Function	Service interface (accessing the web server)
Data transmission rate	480 Mbit/s
Digital inputs	2 ("Sensor 1", "Sensor 2", insulated, encoder input, external trigger)
Configurable digital inputs/outputs	
X1	3 ("DIO 4", "DIO 5", "DIO 6")
Reading pulse	Digital inputs, CAN, auto pulse
Optical indicators	12 LEDs (10 x status displays, 2 x feedback spot)
Operator interfaces	Web server
Configuration software	SOPASair
Memory card slot	Micro SD memory card (not included with delivery) ¹⁾
Parameter cloning	Micro SD memory card Control software

¹⁾ Memory card is available as an optional accessory. To ensure that the memory card functions reliably, only use card types (industrial standard) approved by SICK. Other functions are available upon request.

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Data storage and retrieval	Image and data storage via external FTP
EncoderFrequency	Max. 50 kHz
External illumination control	Via digital output (max. 24 V trigger)

¹⁾ Memory card is available as an optional accessory. To ensure that the memory card functions reliably, only use card types (industrial standard) approved by SICK. Other functions are available upon request.

Ambient data

Interference resistance	IEC 61000-6-2:2016 / EN IEC 61000-6-2:2019
Interference emission	IEC 61000-6-4:2018 / EN IEC 61000-6-4:2019
Vibration resistance	EN 60068-2-6:2007, EN 60068-2-64:2019
Shock resistance	EN 60068-2-27:2008
Ambient operating temperature	0 °C +50 °C ¹⁾
Storage temperature	-20 °C +70 °C
Permissible relative humidity	≤ 90 %, Non-condensing
Ambient light immunity	2,000 lx, on code
Contamination rating	2 (EN 61010-1)
Altitude (above sea level)	< 5,000 m

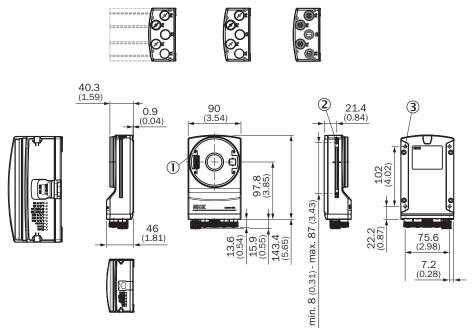
¹⁾ If the ambient operating temperature will be \geq 45 °C, ensure adequate heat dissipation when mounting the device.

Classifications

ECLASS 5.0	27280103
ECLASS 5.1.4	27280103
ECLASS 6.0	27280103
ECLASS 6.2	27280103
ECLASS 7.0	27280103
ECLASS 8.0	27280103
ECLASS 8.1	27280103
ECLASS 9.0	27280103
ECLASS 10.0	27280103
ECLASS 11.0	27280103
ECLASS 12.0	27280103
ETIM 5.0	EC002550
ETIM 6.0	EC002550
ETIM 7.0	EC002999
ETIM 8.0	EC002999
UNSPSC 16.0901	43211701

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Dimensional drawing (Dimensions in mm (inch))

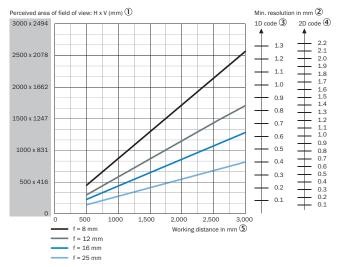


① 4 tapped blind holes, M2.5, 5.5 mm deep, for mounting the spacer

② 2 M5 sliding nuts; 5.5 mm deep; pivoting; as an alternative method of mounting the product

3 4 tapped blind holes, M5, 5.5 mm deep for mounting the product

Field of view



① Perceived field of view area: horizontal x vertical (mm)

- Minimum resolution in mm
- ③ 1D code
- ④ 2D code
- ⑤ Working distance in mm

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Selection Guide

V2D8505R, focal length: 16mm

FIELD OF VIEW

V2D8505R-xxxxxxxxx, focal length: 16 mm



Figure 25: Field of view V2D8505R-xxxxxxxxx, focal length: 16 mm

- Working distance in mm Perceived field of view area: horizontal (mm) Min, perceived field of view area: horizontal (mm) () (2) (3)

Table 7: Perceived field of view area

Working distance (mm)	Horizontal (mm)	Vertical (mm)	
500	230	191	
1000	441	366	
1500	652	542	
2000	863	717	
2500	1073	892	
3000	1284	1068	
Table 8: Minimum resolution			
	1D code (mm)	2D code (mm)	
Working distance (mm)	1D code (mm) 0.11	2D code (mm) 0.18	
Working distance (mm) 500			
Working distance (mm) 500 1000	0.11	0.18	
Working distance (mm) 500 1000 1500	0.11 0.21	0.18	
Table 8: Minimum resolution Working distance (mm) 500 1000 1500 2000 2500	0.11 0.21 0.32	0.18 0.36 0.52	

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V2D8505R, focal length: 8mm

FIELD OF VIEW

V2D8505R-xxxxxxxx, focal length: 8 mm



Figure 23: Field of view V2D8505R-xxxxxxxx, focal length: 8 mm

- Working distance in mm Perceived field of view area: horizontal (mm) Perceived field of view area: vertical (mm)
- 1) (2) (3)

Table 3: Perceived field of view area

Working distance (mm)	Horizontal (mm)	Vertical (mm)	
500	453	376	
1000	875	727	
1500	1297	1078	
2000	1719	1429	
2500	2141	1779	
3000	2563	2130	
Table 4: Minimum resolution			
Working distance (mm)	1D code (mm)	2D code (mm)	
500	0.22	0.36	_
1000	0.43	0.72	
1500	0.63	1.06	
2000	0.84	1.4	
2500	1.04	1.74	
3000	1.25	2.08	

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V2D8505R, focal length: 12mm

FIELD OF VIEW					
2D8505R-xxxxxxxxx, focal le	ength: 12 mm				
Figure 24: Field of view V2D8505R-soccoccox, focal length: 12 mm Working distance in mm Proceeded field of view area: hottoontal (mm) Proceeded field of view area: hottoontal (mm)					
 Working distance in mm Perceived field of view are Perceived field of view are 	a: horizontal (mm) a: vertical (mm)				
Working distance in mm Perceived field of view are Perceived field of view are Perceived field of view are Pable 5: Perceived field of view are	a: horizontal (mm) a: vertical (mm) ea	Vertical (mm)			
Working distance in mm Perceived field of view are Perceived field of view are able 5: Perceived field of view ar Working distance (mm)	a: horizontal (mm) a: vertical (mm)	Vertical (mm) 251			
Working distance in mm Perceived field of view are Perceived field of view are able 5: Perceived field of view ar Working distance (mm)	a: horizontal (mm) a: vertical (mm) ee Horizontal (mm)				
Working distance in mm Perceived field of view are Perceived field of view are able 5: Perceived field of view are Working distance (mm) 500	a: horizontal (mm) a: vertical (mm) ee Horizontal (mm) 301	251			
Working distance in mm Perceived field of view are Perceived field of view are able 5: Perceived field of view ar Working distance (mm) 500 1000	a: horizontal (mm) a: vertical (mm) ee Horizontal (mm) 301 583	251 484			
Working distance in mm Perceived field of view are Perceived field of view are Table 5: Perceived field of view are Working distance (mm) 500 1000 2000	a: horizontal (mm) a: vertical (mm) ee 301 583 864	251 484 718			
 Working distance in mm Perceived field of view are 	a: horizontal (mm) a: vertical (mm) ea biological (mm) 301 563 664 1145	251 484 718 952			
Working distance in mm Working distance in mm Perceived field of view are able 5: Perceived field of view are working distance (mm) 500 1500 2000 2000 3000	a: horizontal (mm) a: vertical (mm) 89 80 583 664 1145 1427	251 484 718 952 1186			
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Working distance in mm Working distance in mm Perceived field of view are able 5: Perceived field of view are working distance (mm) 500 1500 2500 2500 2500 2600	a: horizontal (mm) a: vertical (mm) 89 80 583 664 1145 1427	251 484 718 952 1186 1420			
b. Werking distance in mm 20 Perceived field of view are 30 Perceived field of view are 32 Perceived field view are 32	a: horizontal (mm) a: vertical (mm) ee Biorizontal (mm) 301 583 864 1455 1457 14708 1D code (mm)	251 484 718 552 1186 1420 2D code (mm)			
Working distance in mm Working distance in mm Pereceved field of view are Working distance (mm) Soo S	a: borisontal (mm) a: vertical (mm) estimation (mm) 301 583 664 1145 1427 1427 1427 1427 1427 10 code (mm) 0.15	251 454 7.18 952 1186 1420 20 code (mm) 0.24			
Working distance in mm Working distance in mm Preceived field of view are working distance (mm) 500 1500 2500 2500 2000 2500 2000 2500 2000 2500 2000	a: horizontal (mm) a: vettical (mm) ee 301 301 583 864 1145 145 1427 1708 0 D Code (mm) 0.15 0.28	251 484 738 952 1186 1420 20 code (mm) 0.224 0.48			
Working distance in mm Preceived field of view are Preceived field of view are rable 5: Preceived field of view are working distance (mm) 500 1500 1500 2500	a: horizontal (mm) a: vertical (mm) ee Botontal (mm) 301 583 864 1455 1457 1457 1457 1470 0.05 0.15 0.28 0.42	251 484 718 952 1186 1420 20code (mm) 0.24 0.24 0.48 0.70			

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V2D8505R, focal length: 25mm

FIELD OF VIEW					
2D8505R-xxxxxxxxx, focal le	ength: 25 mm				
Figure 26: Field of view are: horizontal (mm) Worling distance in mm Preceived field of view are: torizontal (mm) Preceived field of view are: trefical (mm)					
 Working distance in mm Perceived field of view are 	a: horizontal (mm) a: vertical (mm)				
 Working distance in mm Perceived field of view are Perceived field of view are 	a: horizontal (mm) a: vertical (mm)	Vertical (mm)			
Working distance in mm Perceived field of view are Perceived field of view are Perceived field of view are Pable 9: Perceived field of view are	a: horizontal (mm) a: vertical (mm) ea	Vertical (mm) 120			
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Working distance in mm Perceived field of view are Perceived field of view are able 9: Perceived field of view an Working distance (mm) 500	a: horizontal (mm) a: vertical (mm) ee Horizontal (mm) 144 279	120 232			
Working distance in mm Perceived field of view are Perceived field of view are sable 9: Perceived field of view an Working distance (mm) 500 1000	a: horizontal (mm) a: vertical (mm) ee Horizontal (mm) 144 279 414	120 232 344			
Working distance in mm Perceived field of view are Perceived field of view are Perceived field of view are Vorking distance (mm) Soo 1000 1000 2000	a: horizontal (mm) a: vertical (mm) ee 444 279 414 549	120 232 344 456			
Working distance in mm Working distance in mm Perceived field of view are able 9: Perceived field of view are working distance (mm) 500 1500 2000 500 3000	a: horizontal (mm) a: vertical (mm) ee 30 3144 3279 414 549 684	120 232 344 456 569			
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Working distance in mm Working distance in mm Perceived field of view are able 9: Perceived field of view are Working distance (mm) 500 1000 2500 2500 2500 2000 2600 2000 2600 2000	a: horizontal (mm) a: vertical (mm) es 144 279 414 549 684 819 10 code (mm)	120 232 344 456 569 681 2D code (mm)			
b. Werking distance in mm 20 Perceived field of view are 21 Perceived field of view are 22 Perceived field of view are 24 Perceived field of view are 250 1000 2000 2000	a: horizortal (mm) a: vortical (mm) ese Horizontal (mm) 144 279 414 549 684 819 10 code (mm) 0.07	120 232 344 455 569 681 2D code (mm) 0.12			
Working distance in mm Working distance in mm Perecked field of view are working distance (mm) Soo So	a: horizontal (mm) a: vortical (mm) ee 144 279 414 549 694 819 0006 (mm) 0,07 0,14	120 232 344 456 599 681 20 code (mm) 0.12 0.22			
Working distance in mm Working distance in mm Preceived field of view are able 9: Perceived field of view are working distance (mm) 500 1500 2000 able 10: Minimum resolution Working distance (mm) 500 1000 1500	a: horizontal (mm) a: vertical (mm) see 144 279 414 549 684 684 819 10 code (mm) 0.07 0.14 0.20	120 232 344 455 681 20 code (mm) 0.12 0.22 0.34			
0 Working distance in mm 2 Percelved field of view and 3 Percelved field of view and 4 Percelved field of view and 4 Percelved field of view and 5 Percelved field of view and 4 Percelved field of view and 5 Percelved field of view and 5 Percelved field of view and 4 Percelved field of view and 5 Percelved field v	a: horizortal (mm) a: vortical (mm) BB 444 279 414 549 684 819 Docee (mm) 0.07 0.14 0.20 0.27	120 232 344 455 569 681 2D code (mm) 0.12 0.22 0.34 0.44			
Working distance in mm Working distance in mm Preceived field of view are able 9: Perceived field of view are working distance (mm) 500 1500 2000 able 10: Minimum resolution Working distance (mm) 500 1000 1500	a: horizontal (mm) a: vertical (mm) see 144 279 414 549 684 684 819 10 code (mm) 0.07 0.14 0.20	120 232 344 455 681 20 code (mm) 0.12 0.22 0.34			

Recommended services

Additional services -> www.sick.com/Lector85x

	Туре	Part no.
Performance check		
 Product area: Image-based code readers Range of services: Inspection of defined functions, e.g., reading performance Duration: Additional work will be invoiced separately 	Performance check Lector	1608207
Maintenance		
 Product area: Image-based code readers Range of services: Inspection, analysis and restoring of defined functions, Inspection and adaptation of previously defined functions of possible Lector6xx illumination, code configuration, trigger and digital inputs, interfaces and digital outputs as well as data processing Duration: Additional work will be invoiced separately 	Maintenance Lector	1611421

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	Туре	Part no.
Commissioning		
 Product area: Image-based code readers Range of services: Inspection of connection, fine adjustment, optimization of parameters of SICK product as well as tests, Set-up of previously defined functions of possible illumination, code configuration, trigger and digital inputs, interfaces and digital outputs as well as data processing Duration: Additional work will be invoiced separately 	Commissioning Lector	1608206

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



Online data sheet

