Data sheet

V2D8509R-1MCXXXAL0SXXXX

Lector85x

IMAGE-BASED CODE READERS

SICK
Sensor Intelligence.

Ordering information

Type	part no.
V2D8509R-1MCXXXAL0SXXXX	1130539

Other models and accessories ➜ www.sick.com/Lector85x

Detailed technical data

Features

Application	Indoor area
Variant	Main unit
Optical focus	Adjustable focus (manual)
Sensor	CMOS monochrome
Sensor resolution	4,096 px x 2,176 px (9 MP)
Illumination	To be ordered separately as accessories
Feedback spot	LED, Visible, green, 530 nm, ± 15 nm LED, Visible, Red, 660 nm, ± 20 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″
Focal length	12 mm, 16 mm, 25 mm
Note	To be ordered separately as accessories
Scanning frequency	20 Hz, With resolution of 9 megapixels
Code resolution	≥ 0.1 mm [1]
Working range	500 mm ... 3,000 mm [1]

[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)

[1] Voltage source in accordance with ES1 (EN 62368-1) or SELV (EN 60950-1).
[2] The typical power consumption depends on the product configuration. The specified value applies to digital outputs without load.
[3] Only housing. Lens, integrated illumination unit, spacer and optics protection hood not included.

	3 x M12, 8-pin female connector, X-coded (Gigabit Ethernet)
Supply voltage	24 V DC, ± 20 % [1]
Power consumption	Typ. 24 W [2]
Current consumption	≤ max. 2 A
Housing material	Aluminum die cast
Housing color	Anthracite gray (RAL 7016)
Window material	Glass (2 mm thick, scratch-proof coating)
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 [3]
MTBF	100,000 h

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[2] The typical power consumption depends on the product configuration. The specified value applies to digital outputs without load.
[3] Only housing. Lens, integrated illumination unit, spacer and optics protection hood not included.

Performance

Readable code structures	1D codes, 2D codes, Stacked
Bar code types	Code 128, GS1-128, EAN 128, EAN 8, EAN 13, UPC-A, UPC-E, Interleaved 2 of 5, Codabar, Code 93, Postal code
2D code types	Data Matrix ECC200, GS1 Data-Matrix, MaxiCode, QR code, Aztec
Stacked code types	PDF417
Code printing process	Printed codes

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, RS-232
Function	Data interface
	Service interface
Data transmission rate	1.2 kBaud ... 115.2 kBaud
	57.6 kBaud
USB	✓ , USB 2.0
Function	Service interface (accessing the web server), Ethernet via USB (RNDIS)
Data transmission rate	480 Mbit/s
Digital inputs	2 (“Sensor 1”, “Sensor 2”, insulated, encoder input, external trigger)
Configurable digital inputs/outputs	
X1	4 (DIO 3, DIO 4, DIO 5, DIO 6)

[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.

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
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

Electromagnetic compatibility (EMC)	
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
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 ≥ 45 °C, ensure adequate heat dissipation when mounting the device.

Certificates

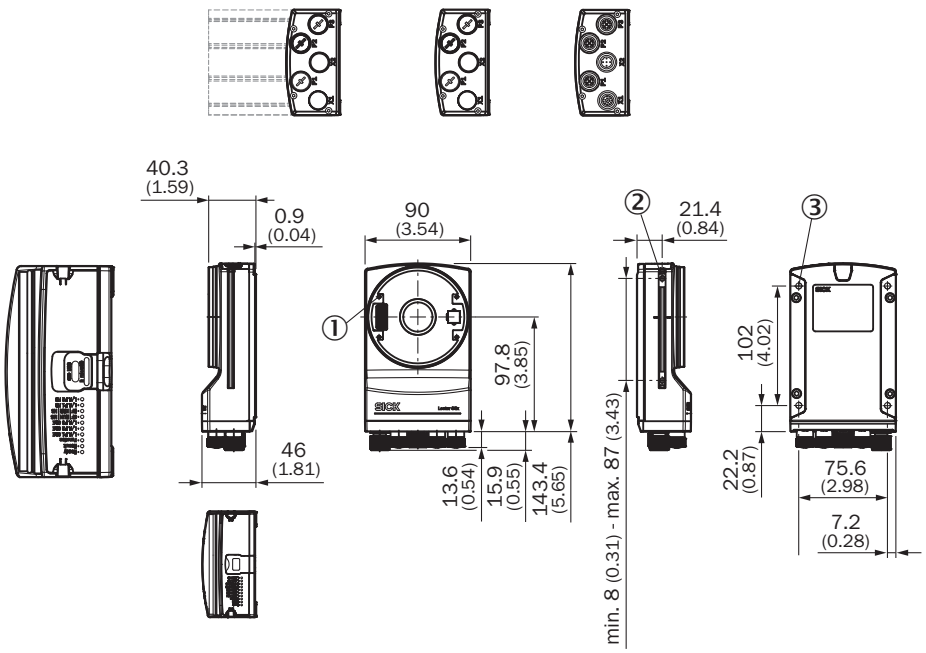
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓
cULus certificate	✓
BIS registration	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

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

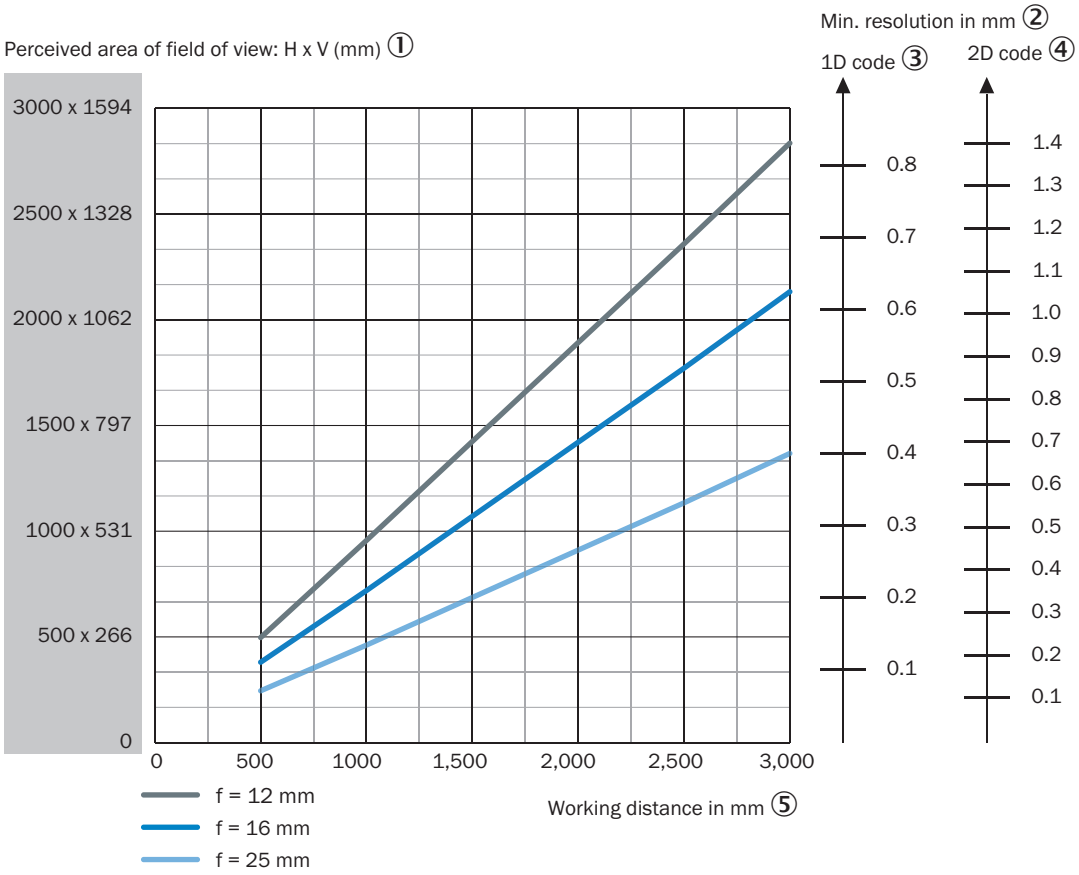
ECLASS 8.1	27280103
ECLASS 9.0	27280103
ECLASS 10.0	27280103
ECLASS 11.0	27280103
ECLASS 12.0	27280103
ETIM 5.0	EC002550
ETIM 6.0	EC002550
ETIM 7.0	EC002999
ETIM 8.0	EC002999
UNSPSC 16.0901	43211701

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

Selection Guide V2D8509R, focal length: 25 mm

FIELD OF VIEW

V2D8509R-xxxxxxxxxx, focal length: 25 mm

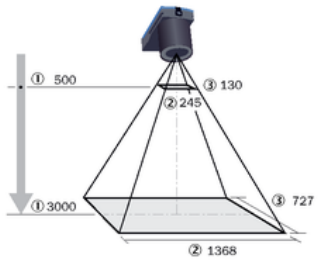


Figure 29: Field of view V2D8509R-xxxxxxxxxx, focal length: 25 mm

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

Table 15: Perceived field of view area

Working distance (mm)	Horizontal (mm)	Vertical (mm)
500	245	130
1000	470	250
1500	694	369
2000	919	488
2500	1143	607
3000	1368	727

Table 16: Minimum resolution

Working distance (mm)	1D code (mm)	2D code (mm)
500	0.07	0.12
1000	0.14	0.22
1500	0.20	0.34
2000	0.27	0.44
2500	0.33	0.56
3000	0.40	0.66

Selection Guide V2D8509R, focal length: 16mm

FIELD OF VIEW

V2D8509R-xxxxxxxxxx, focal length: 16 mm

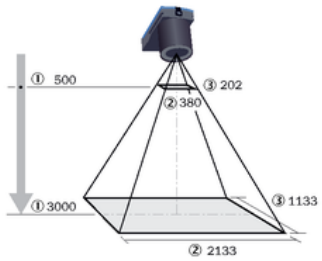


Figure 28: Field of view V2D8509R-xxxxxxxxxx, focal length: 16 mm

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

Table 13: Perceived field of view area

Working distance (mm)	Horizontal (mm)	Vertical (mm)
500	380	202
1000	731	388
1500	1081	574
2000	1432	761
2500	1783	947
3000	2133	1133

Table 14: Minimum resolution

Working distance (mm)	1D code (mm)	2D code (mm)
500	0.11	0.18
1000	0.21	0.36
1500	0.32	0.52
2000	0.42	0.70
2500	0.52	0.88
3000	0.62	1.04

Selection Guide V2D8509R, focal length: 12mm

FIELD OF VIEW

V2D8509R-xxxxxxxxxx, focal length: 12 mm

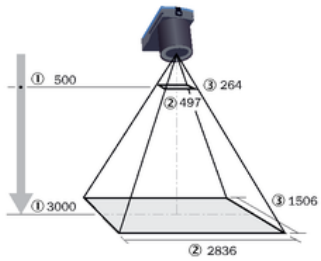


Figure 27: Field of view V2D8509R-xxxxxxxxxx, focal length: 12 mm

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

Table 11: Perceived field of view area

Working distance (mm)	Horizontal (mm)	Vertical (mm)
500	497	264
1000	965	513
1500	1433	761
2000	1900	1010
2500	2368	1258
3000	2836	1506

Table 12: Minimum resolution

Working distance (mm)	1D code (mm)	2D code (mm)
500	0.15	0.24
1000	0.28	0.48
1500	0.42	0.70
2000	0.56	0.92
2500	0.69	1.16
3000	0.83	1.38

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.”

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