



# V2D8509R-1MCIDXAF2SXXXX

Lector85x

IMAGE-BASED CODE READERS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
V2D8509R-1MCIDXAF2SXXXX	1134349

**Included in delivery:** C-mount lens (1), Spacer (1), Optics protection hood (glass) (1), V2D8509R-1MCXXXAF0SXXXX (1), V183I-WH3047H0 (1)

Product is supplied fully assembled. See individual components for further technical data

Other models and accessories → [www.sick.com/Lector85x](http://www.sick.com/Lector85x)



### Detailed technical data

#### Features

<b>Application</b>	Indoor area
<b>Variant</b>	Complete device
<b>Optical focus</b>	Adjustable focus (manually)
<b>Sensor</b>	CMOS matrix sensor, grayscale values
<b>Sensor resolution</b>	4,096 px x 2,176 px (9 Mpixel)
<b>Illumination</b>	Integrated
<b>Illumination color</b>	White, LED, Visible,
<b>Anzahl LED</b>	32
<b>Aperture angle</b>	47°, illumination
<b>LED class</b>	Risk group 1 (low risk) according to EC 62471-1: 2006-07 / EN 62471-1: 2008-09
<b>Feedback spot</b>	LED, Visible, green, 525 nm, ± 15 nm LED, Visible, Red, 645 nm, ± 15 nm
<b>Alignment aid</b>	Laser, Red, 630 nm ... 680 nm
<b>Laser class</b>	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)
<b>Lens</b>	C-mount
Optical format	1"
Focal length	16 mm
Aperture	1.8 ... 16
<b>Scanning frequency</b>	20 Hz, With resolution of 9 megapixels
<b>Code resolution</b>	≥ 0.1 mm <sup>1)</sup>
<b>Working range</b>	500 mm ... 3,000 mm (depends on lens used)

<sup>1)</sup> Depends on lens used.

## Mechanics/electronics

<b>Connection type</b>	1 x M12,17-pin male connector, A-coded (power, CAN, serial interface, I/O) 1 x M12, 5-pin female connector, A-coded (power, external illumination, I/O) 2 1 x M12, 8-pin female connector, X-coded (Gigabit Ethernet)
<b>Supply voltage</b>	24 V DC, $\pm 20\%$ <sup>1)</sup>
<b>Power consumption</b>	Typ. 24 W
<b>Current consumption</b>	Max. 2 A
<b>Housing material</b>	Aluminum die cast
<b>Housing color</b>	Anthracite gray (RAL 7016)
<b>Window material</b>	Glass
<b>Enclosure rating</b>	IP65 (IEC 60529:2013 +C1:2013 +C2:2015 +AMD2 C1:2019, EN 60529:1991 +A1:2010 +A2:2013 +AC:2019-02)
<b>Electrical safety</b>	EN 61010:2010 / EN 61010-1:2010/A1:2019/AC:2019-04
<b>Weight</b>	640 g, without lens and connection cables
<b>Dimensions (L x W x H)</b>	143.4 mm x 90 mm x 46 mm
<b>MTBF</b>	100,000 h

<sup>1)</sup> Voltage source in accordance with ES1 (EN 62368-1) or SELV (EN 60950-1).

## Safety-related parameters

<b>Conformities</b>	Conformance Class B
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## Performance

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

## Interfaces

<b>Ethernet</b>	Function	✓, TCP/IP
	Data transmission rate	Data interface (read result output), service interface, FTP (image transmission) 10/100/1,000 Mbit/s, MAC address (device-specific), see type label
<b>EtherNet/IP™</b>	Function	✓ (2)
	Data transmission rate	Data interface (read result output), Trigger interface 10/100 MBit/s
<b>CAN</b>	Function	✓
	Data transmission rate	Data interface (read result output), Trigger interface 500 kbit/s
<b>Serial</b>	Function	✓, RS-232, RS-422
	Data transmission rate	1.2 kBaud ... 115.2 kBaud
<b>USB</b>	Function	✓, USB 2.0
	Data transmission rate	Service interface (accessing the web server) 480 Mbit/s

<sup>1)</sup> 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.

<b>PROFINET</b>	✓ (2)
Function	Data interface (read result output), Trigger interface
Data transmission rate	10/100 MBit/s
<b>Fieldbus, industrial network</b>	
Supported protocol versions	PROFINET specification V2.43
GSDML	According to GSDML specification V2.43
Conformance	Conformance Class B
Network management	SNMP, MIB-2, LLDP, MRP client support
Switch properties	2 port real-time switch compliant with IEEE 802
Port properties	100Base-TX, auto-negotiation, auto-crossover (MDIX), auto-polarity
Net load	Net load class III in accordance with security level 1 test
<b>Digital inputs</b>	2 ("Sensor 1", "Sensor 2", insulated, encoder input, external trigger)
<b>Configurable digital inputs/outputs</b>	
X1	3 („DIO 4“, „DIO 5“, „DIO 6“)
<b>Reading pulse</b>	Digital inputs, CAN, auto pulse
<b>Optical indicators</b>	12 LEDs (10 x status displays, 2 x feedback spot)
<b>Operator interfaces</b>	Web server
<b>Configuration software</b>	SOPASair
<b>Memory card slot</b>	Micro SD memory card (not included with delivery) <sup>1)</sup>
<b>Parameter cloning</b>	Micro SD memory card Control software
<b>Data storage and retrieval</b>	Image and data storage via external FTP
<b>EncoderFrequency</b>	Max. 50 kHz
<b>External illumination control</b>	Via digital output (max. 24 V trigger)

<sup>1)</sup> 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

<b>Electromagnetic compatibility (EMC)</b>	
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
<b>Vibration resistance</b>	EN 60068-2-6:2007, EN 60068-2-64:2019
<b>Shock resistance</b>	EN 60068-2-27:2008
<b>Ambient operating temperature</b>	0 °C ... +50 °C <sup>1)</sup>
<b>Storage temperature</b>	-20 °C ... +70 °C
<b>Permissible relative humidity</b>	≤ 90 %, Non-condensing
<b>Ambient light immunity</b>	2,000 lx, on code
<b>Contamination rating</b>	2 (EN 61010-1)
<b>Altitude (above sea level)</b>	< 5,000 m

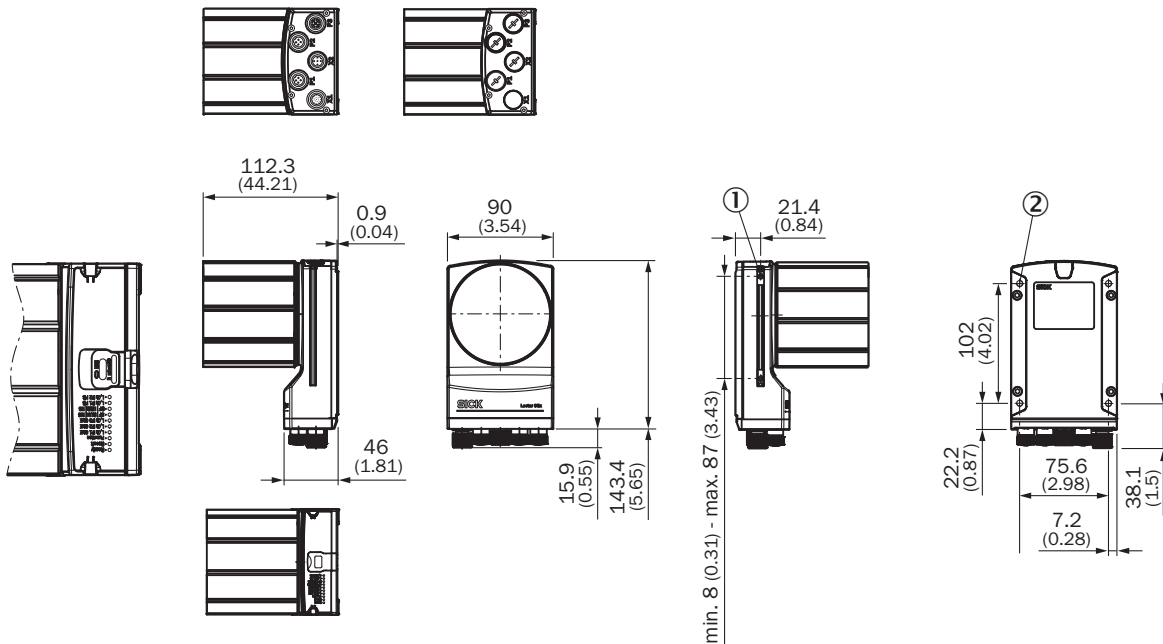
<sup>1)</sup> If the ambient operating temperature will be ≥ 45 °C, ensure adequate heat dissipation when mounting the device.

Classifications

<b>ECLASS 5.0</b>	27280103
<b>ECLASS 5.1.4</b>	27280103

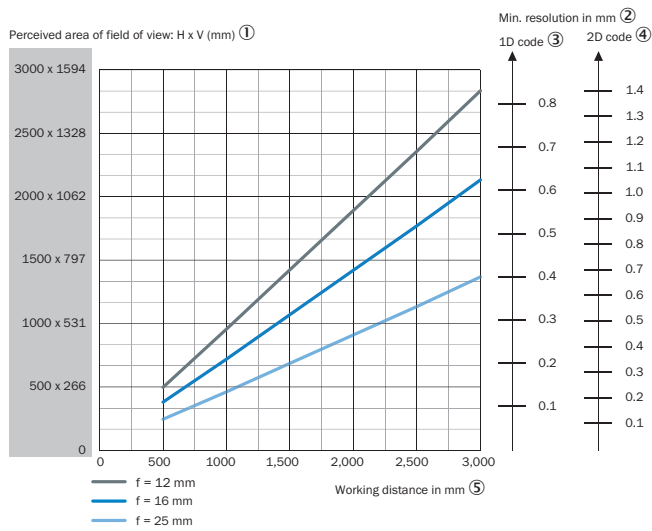
<b>ECLASS 6.0</b>	27280103
<b>ECLASS 6.2</b>	27280103
<b>ECLASS 7.0</b>	27280103
<b>ECLASS 8.0</b>	27280103
<b>ECLASS 8.1</b>	27280103
<b>ECLASS 9.0</b>	27280103
<b>ECLASS 10.0</b>	27280103
<b>ECLASS 11.0</b>	27280103
<b>ECLASS 12.0</b>	27280103
<b>ETIM 5.0</b>	EC002550
<b>ETIM 6.0</b>	EC002550
<b>ETIM 7.0</b>	EC002999
<b>ETIM 8.0</b>	EC002999
<b>UNSPSC 16.0901</b>	43211701

Dimensional drawing (Dimensions in mm (inch))



- ① 2 M5 sliding nuts; 5.5 mm deep; pivoting; as an alternative method of mounting the product
- ② 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: 16mm

### FIELD OF VIEW

V2D8509R-xxxxxxx, focal length: 16 mm

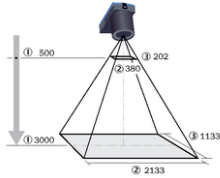


Figure 28: Field of view V2D8509R-xxxxxxx, focal length: 16 mm

- 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

## Recommended services

Additional services → [www.sick.com/Lector85x](http://www.sick.com/Lector85x)

	Type	Part no.
Performance check		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> Image-based code readers</li> <li>• <b>Range of services:</b> Inspection of defined functions, e.g., reading performance</li> <li>• <b>Duration:</b> Additional work will be invoiced separately</li> </ul>	Performance check Lector	1608207
Maintenance		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> Image-based code readers</li> <li>• <b>Range of services:</b> 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</li> <li>• <b>Duration:</b> Additional work will be invoiced separately</li> </ul>	Maintenance Lector	1611421

	Type	Part no.
Commissioning		
<ul style="list-style-type: none"><li>• <b>Product area:</b> Image-based code readers</li><li>• <b>Range of services:</b> 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</li><li>• <b>Duration:</b> Additional work will be invoiced separately</li></ul>	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](http://www.sick.com)