V2D8509R-1MCXXXAF0SXXXX

Lector85x

IMAGE-BASED CODE READERS
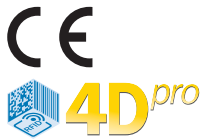
SICK
Sensor Intelligence.

V2D8509R-1MCXXXAF0SXXXX | Lector85x

IMAGE-BASED CODE READERS

Ordering information

Type	Part no.
V2D8509R-1MCXXXAF0SXXXX	1134613

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	4,096 px x 2,176 px (9 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″
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 (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 female connector, A-coded (power, external illumination, I/O) 2 1 x M12, 8-pin female connector, X-coded (Gigabit Ethernet)

[1] Voltage source in accordance with ES1 (EN 62368-1) or SELV (EN 60950-1).

Supply voltage	24 V DC, ± 20 % [1]
Power consumption	Typ. 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).

Safety-related parameters

Conformities	Conformance Class B

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		✓, 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
EtherNet/IP™		✓ (2)
	Function	Data interface (read result output), Trigger interface
	Data transmission rate	10/100 MBit/s
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
PROFINET		✓ (2)
	Function	Data interface (read result output), Trigger interface
	Data transmission rate	10/100 MBit/s
Fieldbus, industrial network		

[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.

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
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
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
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 ≥ 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

Dimensional drawing (Dimensions in mm (inch))
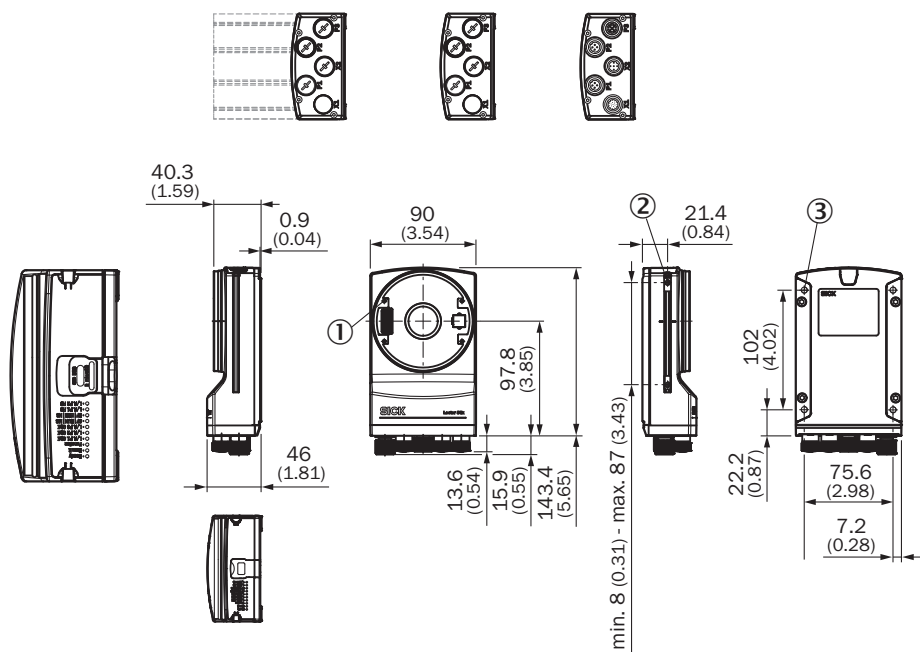
① 4 tapped blind holes, M2.5, 5.5 mm deep, for mounting the spacer
② 2 M5 sliding nuts; 5.5 mm deep; pivoting; as an alternative method of mounting the product
③ 4 tapped blind holes, M5, 5.5 mm deep for mounting the product

Field of view

Perceived area of field of view: H x V (mm) ①

Min. resolution in mm ②

1D code ③   2D code ④

Working distance in mm ⑤

— f = 12 mm
— f = 16 mm
— f = 25 mm
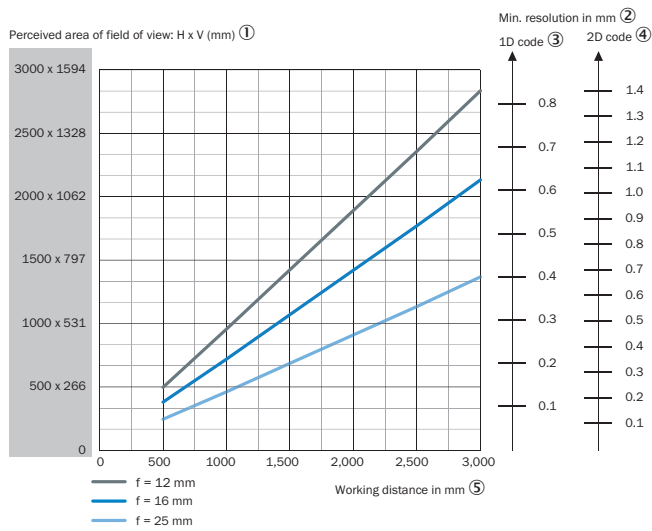
① Perceived field of view area: horizontal x vertical (mm)
② Minimum resolution in mm
③ 1D code
④ 2D code
⑤ Working distance in mm

Selection Guide

V2D8509R, focal length: 12mm

FIELD OF VIEW
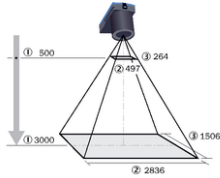
V2D8509R-xxxxxxxxxx, focal length: 12 mm

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

FIELD OF VIEW

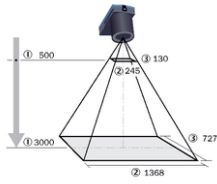**V2D8509R-xxxxxxxxxx, focal length: 25 mm**

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

V2D8509R, focal length: 16mm

FIELD OF VIEW

V2D8509R-xxxxxxxxxx, focal length: 16 mm

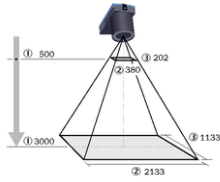*Figure 28: Field of view V2D8509R-xxxxxxxxxx, focal length: 16 mm*

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

Recommended services

Additional services ➜ www.sick.com/Lector85x

	Type	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

	Type	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."

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