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DATA SHEET

V2D8509R-1MCICXAF2SXXXX

Lector85x
Image-based code readers

SICK Sensor Intelligence



IMAGE-BASED CODE READERS

V2D8509R-1MCICXAF2SXXXX

ORDERING INFORMATION

Type	part no.
V2D8509R-1MCICXAF2SXXXX	1143836

Further device versions and accessories at www.sick.com/Lector85x

DETAILED TECHNICAL DATA

FEATURES

Application	Indoor area
Technology	2D snapshot, Image-based code reading
Variant	Complete device
Optical focus	Adjustable focus (manual)
Sensor	CMOS monochrome
Sensor resolution	4,096 px x 2,176 px (9 MP)
Illumination	Integrated
Illumination color	White, LED, Visible,
Anzahl LED	32
Aperture angle	47°, Illumination
LED class	Risk group 1 (low risk) according to EC 62471-1: 2006-07 / EN 62471-1: 2008-09
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 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 female connector, A-coded (power, external illumination, I/O) 2 x M12, 4-pin socket, D-coded (100-megabit Ethernet, dual-port fieldbus) 1 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

[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.

SAFETY-RELATED PARAMETERS

Conformities	Conformance Class B, “Conformance Test”, ET9400 EtherCAT Conformance Test Tool, CTT V2.7.6

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		✓ , 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	SICK CAN sensor network CSN (CAN controller/CAN device, multiplexer/server)
	Data transmission rate	20 kbit/s ... 1 Mbit/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)

[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.

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 (PROFINET)	
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	Baud rate 100 Mbit/s, full-duplex transmission, auto-negotiation, auto-crossover (MDIX), auto-polarity
Net load	Net load class III in accordance with security level 1 test
Fieldbus, industrial network (EtherNet/IP™)	
Data transmission rate	10/100 MBit/s
Supported protocol versions	EtherNet/IP™ specification in accordance with CT21
EDS	EDS in accordance with EZ-EDS 3.38
Network management	DHCP, BOOTP, fixed IP, Address Conflict Detection (ACD), LLDP, SNMP, MIB-2, DLR client support (Media Redundancy)
Switch properties	2-port real-time switch compliant with IEEE 802, including cut-through forwarding
Port properties	Baud rate 100 Mbit/s, full-duplex transmission, auto-negotiation, auto-crossover (MDIX), auto-polarity
Fieldbus, industrial network (EtherCAT®)	
Data transmission rate	100 Mbit/s
Supported protocol versions	EtherCAT according to ETG.1000 Technology Specification, V1.0.4; ETG.1020 Protocol Enhancements, V1.5.0; ETG.1300 Indicator and Labeling, V1.1.1; ETG.9001 Marking Rules, V1.2.5; ETG.9003 Conformance Test Policy, V1.1
ESI	ESI in accordance with ETG.2000 V1.0.18
Conformance	“Conformance Test”, ET9400 EtherCAT Conformance Test Tool, CTT V2.7.6
Switch properties	2-port real-time switch compliant with IEEE 802, including cut-through forwarding
Port properties	Baud rate 100 Mbit/s, full-duplex transmission, auto-negotiation, auto-crossover (MDIX), auto-polarity
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)
X2	2 (DIO 7, DIO 8)
Reading pulse	Digital inputs, CAN, PROFINET via trigger bit, EtherNet/IP™ via trigger bit
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)

[1] If the ambient operating temperature will be ≥ 45 °C, ensure adequate heat dissipation when mounting the device.

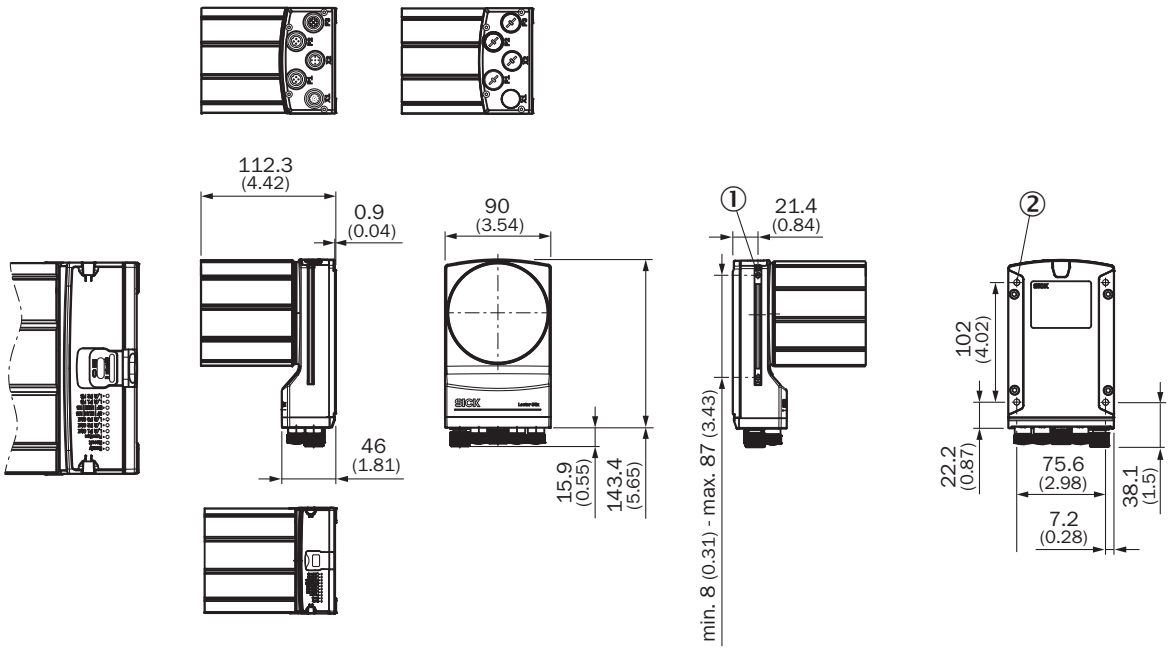
Altitude (above sea level)	< 5,000 m

[1] If the ambient operating temperature will be ≥ 45 °C, ensure adequate heat dissipation when mounting the device.

CERTIFICATES

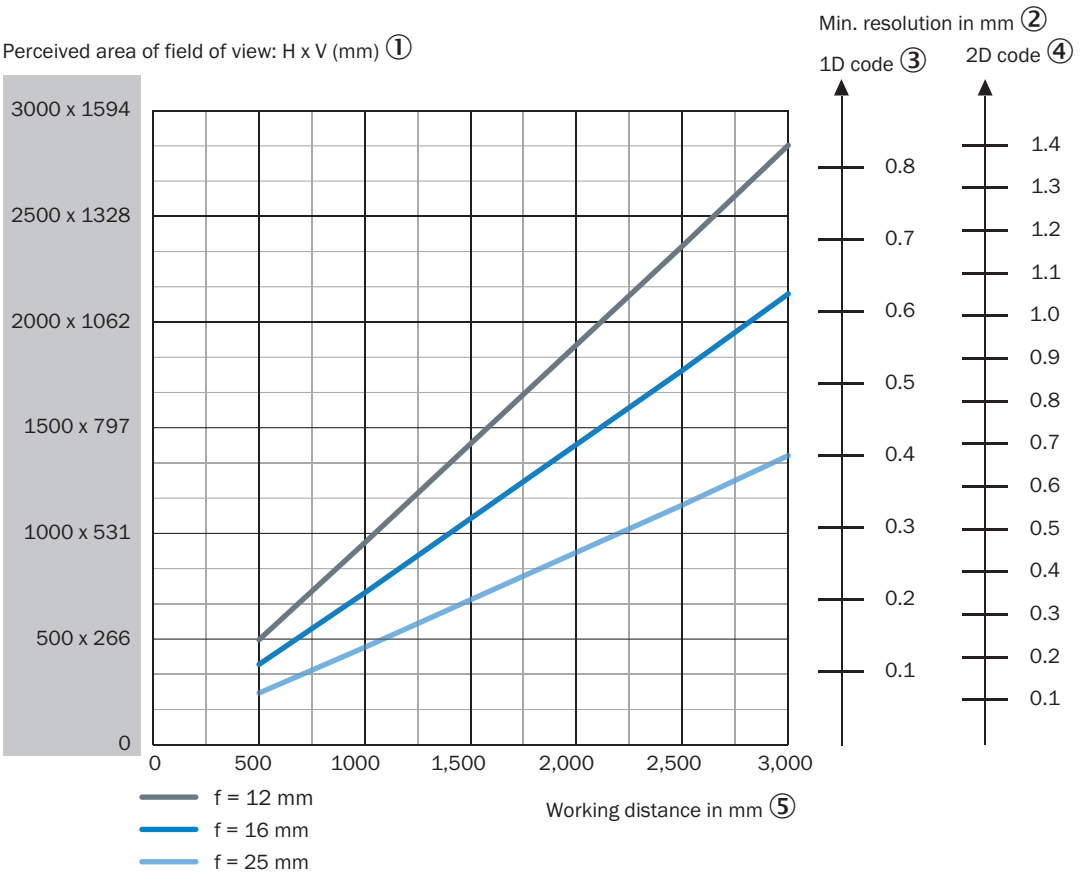
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓
cULus certificate	✓
Profinet certificate	✓
Ethernet/IP certificate	✓
BIS registration	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

DIMENSIONAL DRAWING



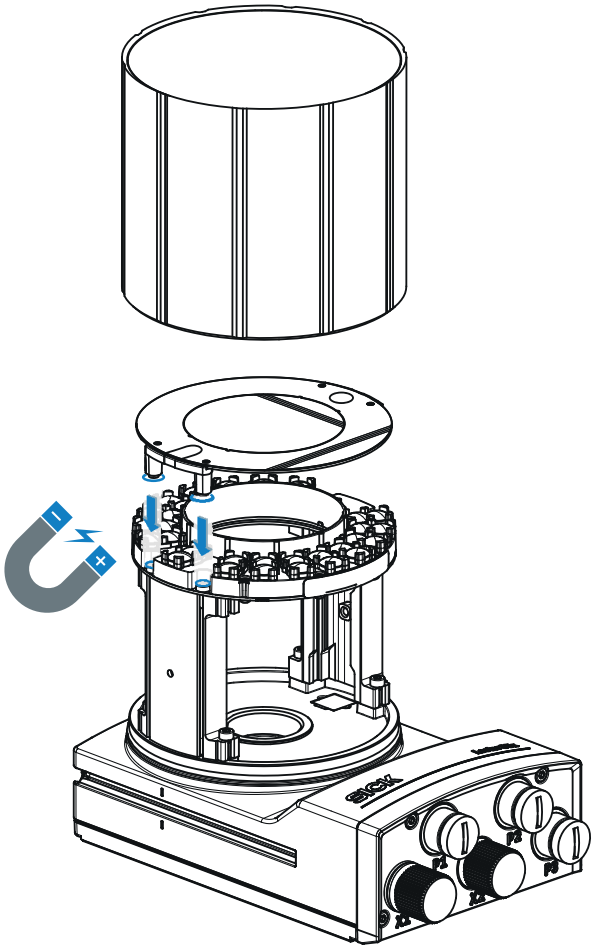
Dimensions in mm (inch)
① 2 M5 sliding nuts; 5.5 mm deep; pivoting; as an alternative method of mounting the product
② 4 tapped blind holes, M5, 5.5 mm deep for mounting the product

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

ASSEMBLY NOTE POLARIZING FILTER



SELECTION GUIDE V2D8509R, FOCAL LENGTH: 12MM

FIELD OF VIEW

V2D8509R-xxxxxxxxxx, focal length: 12 mm

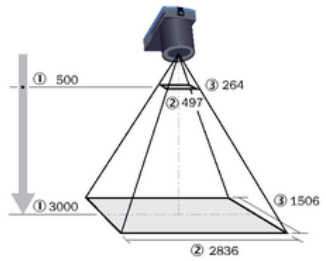


Figure 27: Field of view V2D8509R-xxxxxxxxxx, focal length: 12 mm

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

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/1143836

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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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