



V2D8509R-1MCIDXAF2SXXXX

Lector85x

IMAGE-BASED CODE READERS

SICK
Sensor Intelligence.



Ordering information

Type	part no.
V2D8509R-1MCIDXAF2SXXXX	1134349

Included in delivery: V2D8509R-1MCXXXAF0SXXXX (1), Spacer (1), C-mount lens (1), Optics protection hood (glass) (1), VI83I-WH3047H0 (1)

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



Detailed technical data

Features

Application	Indoor area
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 16 mm
	Aperture 1.8 ... 16
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, $\pm 20\%$ ¹⁾
Power consumption	Typ. 24 W ²⁾
Current consumption	\leq 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
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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	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

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

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

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.

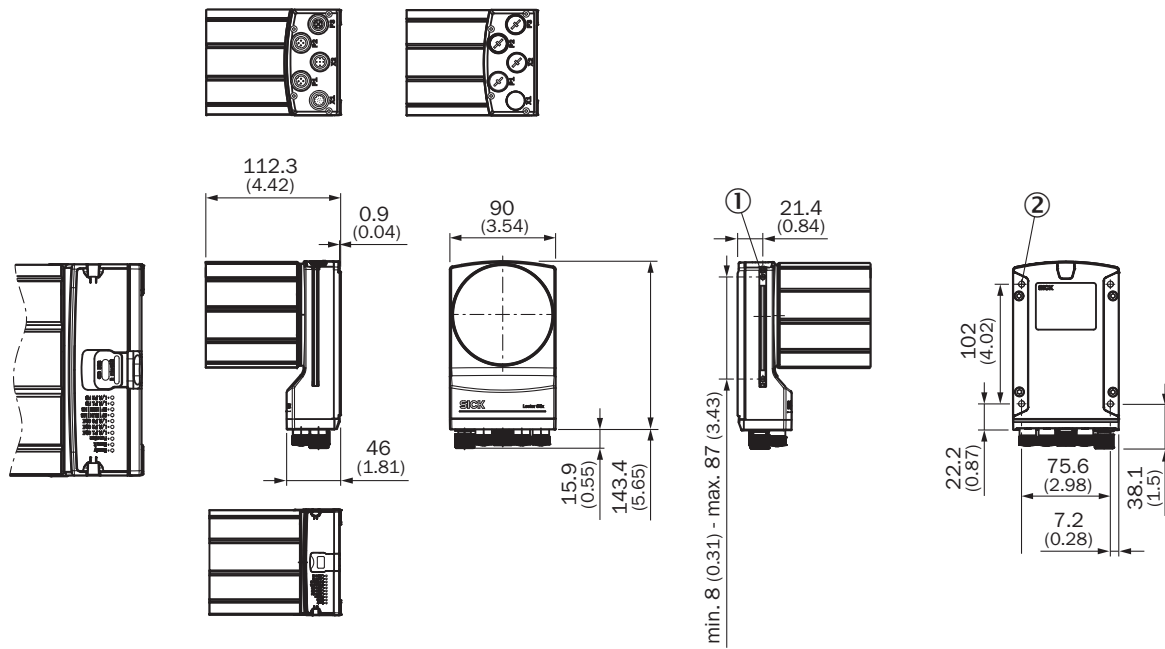
Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓
cULus certificate	✓
Profinet certificate	✓
Ethernet/IP 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

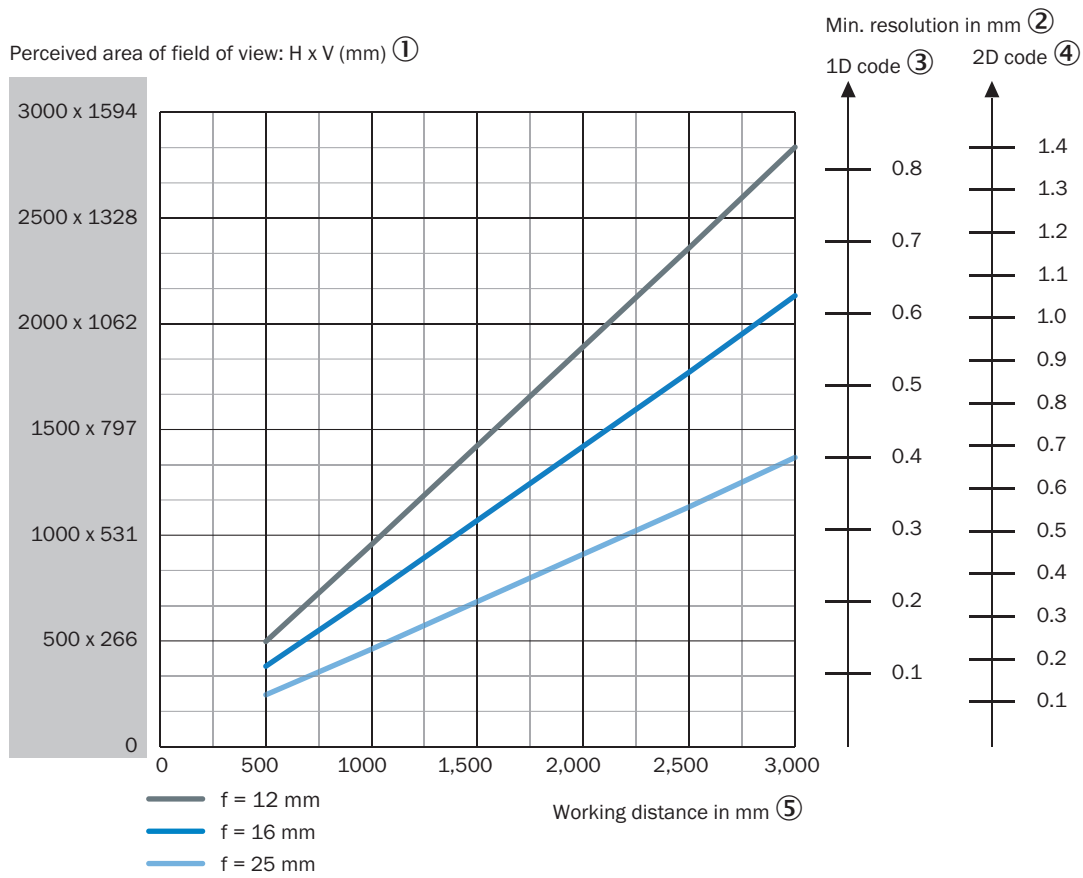
Dimensional drawing



Dimensions in mm (inch)

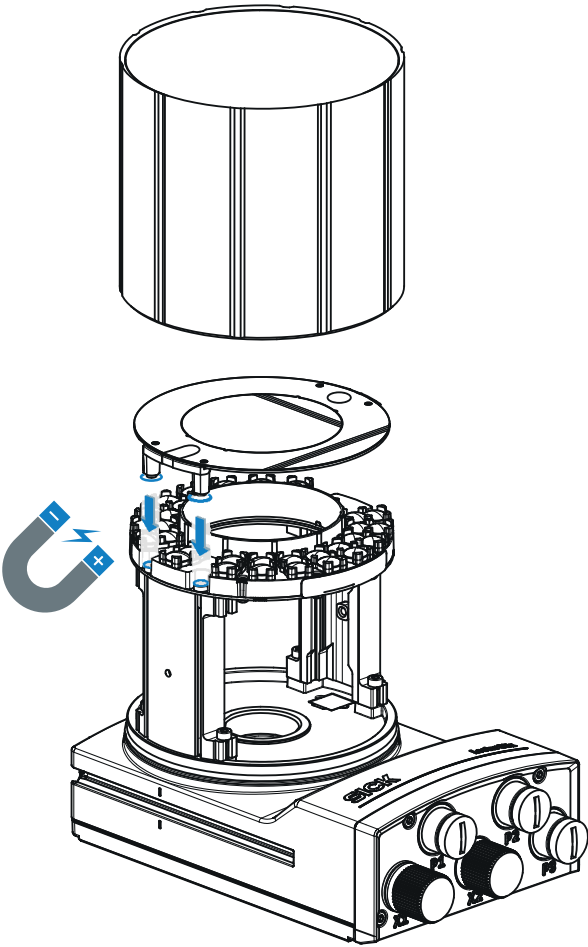
- ① 2 M5 sliding nuts; 5.5 mm deep; pivoting; as an alternative method of mounting the product
- ② 4 tapped blind holes, M5, 5.5 mm deep for mounting the product

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: 16mm

FIELD OF VIEW

V2D8509R-xxxxxxx, focal length: 16 mm

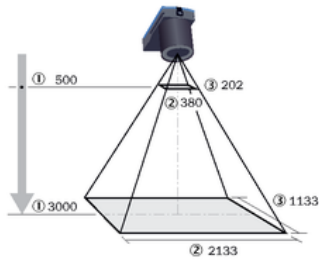


Figure 28: Field of view V2D8509R-xxxxxxx, focal length: 16 mm

- 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

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:

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