



# V2D631R-MXSXB0

Lector63x

IMAGE-BASED CODE READERS

**SICK**  
Sensor Intelligence.



### Ordering information

| Type           | Part no. |
|----------------|----------|
| V2D631R-MXSXB0 | 1078472  |

Other models and accessories → [www.sick.com/Lector63x](http://www.sick.com/Lector63x)



### Detailed technical data

#### Features

|                           |                                                                                                                                                      |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Variant</b>            | Main unit                                                                                                                                            |
| <b>Optical focus</b>      | Adjustable focus (manually)                                                                                                                          |
| <b>Sensor</b>             | CMOS matrix sensor, grayscale values                                                                                                                 |
| <b>Sensor resolution</b>  | 1,280 px x 1,024 px                                                                                                                                  |
| <b>Light source</b>       |                                                                                                                                                      |
| Internal lighting         | To be ordered separately as accessories                                                                                                              |
| Adjustment aid            | Laser, Visible, 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. 50" from June 24, 2007 (IEC 60825-1:2014, EN 60825-1:2014) |
| <b>Scanning frequency</b> | ≤ 50 Hz, With resolution of 1.3 megapixels                                                                                                           |
| <b>Code resolution</b>    | ≥ 0.1 mm <sup>1)</sup>                                                                                                                               |
| <b>Reading distance</b>   | 50 mm ... 2,200 mm <sup>1)</sup>                                                                                                                     |
| <b>Lens</b>               | S-mount                                                                                                                                              |
| Note                      | To be ordered separately as accessories                                                                                                              |

<sup>1)</sup> Depends on lens used, for details see field of view diagram.

#### Mechanics/electronics

|                        |                                                                                                                                                                                             |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Connection type</b> | 1 x M12, 17-pin plug (serial, CAN, I/Os, power supply)<br>1 x M12, 8-pin socket (Ethernet, 1 GBit/s)<br>1 x M8, 4-pin socket (USB)<br>1 x M12, 4-pin socket (external illumination control) |
| <b>Supply voltage</b>  | 12 V DC ... 24 V DC, ± 20 %                                                                                                                                                                 |

<sup>1)</sup> Only housing without lens and protective hood.

|                               |                                                  |
|-------------------------------|--------------------------------------------------|
| <b>Power consumption</b>      | Typ. 10 W, $\pm 20\%$                            |
| <b>Output current</b>         | $\leq 100$ mA                                    |
| <b>Housing</b>                | Aluminum die cast                                |
| <b>Enclosure rating</b>       | IP67 (EN 60529 (1991-10), EN 60529/A2 (2002-02)) |
| <b>Electrical safety</b>      | EN 60950-1 (2011-01)                             |
| <b>Weight</b>                 | + 430 g, without lens and connection cables      |
| <b>Dimensions (L x W x H)</b> | 108 mm x 63.1 mm x 45.8 mm <sup>1)</sup>         |

<sup>1)</sup> Only housing without lens and protective hood.

## Performance

|                                 |                                                                                                                                                                                                                             |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Readable code structures</b> | 1D codes, Stacked, 2D codes                                                                                                                                                                                                 |
| <b>Bar code types</b>           | GS1-128 / EAN 128, UPC / GTIN / EAN, Interleaved 2 of 5, Pharmacode, GS1 DataBar, Code 39, Code 128, Codabar, Code 32, Code 93, USPS (Postnet, Planet, USPS4SCB), Australian Post, Dutch KIX Post, Royal Mail, Swedish Post |
| <b>2D code types</b>            | Data Matrix ECC200, GS1 Data-Matrix, MaxiCode, QR code                                                                                                                                                                      |
| <b>Stacked code types</b>       | PDF417                                                                                                                                                                                                                      |
| <b>Code qualification</b>       | On the basis of ISO/IEC 16022, ISO/IEC 15415, ISO/IEC 18004                                                                                                                                                                 |

## Interfaces

|                             |                              |                                                                                                                                                                                                                                   |
|-----------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ethernet</b>             | Function                     | ✓, TCP/IP                                                                                                                                                                                                                         |
|                             | Data transmission rate       | Host, AUX, FTP (image transmission)<br>10/100/1,000 Mbit/s                                                                                                                                                                        |
| <b>PROFINET</b>             | Function                     | ✓                                                                                                                                                                                                                                 |
|                             | Data transmission rate       | PROFINET Single Port (integrated), PROFINET Dual Port (optional via external connection module CDF600-2)<br>10/100 Mbit/s                                                                                                         |
| <b>EtherNet/IP™</b>         | Function                     | ✓                                                                                                                                                                                                                                 |
|                             | Data transmission rate       | 10/100/1,000 Mbit/s                                                                                                                                                                                                               |
| <b>Serial</b>               | Function                     | ✓, RS-232, RS-422                                                                                                                                                                                                                 |
|                             | Data transmission rate       | Host, AUX<br>0.3 kBaud ... 115.2 kBaud, AUX: 57.6 kBaud (RS-232)                                                                                                                                                                  |
| <b>CAN</b>                  | Function                     | ✓                                                                                                                                                                                                                                 |
|                             | Data transmission rate       | SICK CAN sensor network CSN (master/slave, multiplexer/server)<br>250 kbit/s ... 500 kbit/s                                                                                                                                       |
| <b>PROFIBUS DP</b>          | Function                     | ✓                                                                                                                                                                                                                                 |
|                             | Type of fieldbus integration | Optional over external fieldbus module CDF600-2                                                                                                                                                                                   |
| <b>USB</b>                  | Remark                       | ✓                                                                                                                                                                                                                                 |
|                             | Function                     | USB 2.0 (for parameterization only)<br>AUX                                                                                                                                                                                        |
| <b>Digital inputs</b>       |                              | 4 ("Sensor 1", "Sensor 2", 2 inputs via optional CMC600 parameter memory in CDB650/CDM420)                                                                                                                                        |
| <b>Configurable inputs</b>  |                              | Encoder input, external trigger                                                                                                                                                                                                   |
| <b>Digital outputs</b>      |                              | 6 (CDB650: "Result 1", "Result 2", "Result 3", "Result 4", 2 external outputs via CMC600 or CDM420: "Result 1", "Result 2", 2 external outputs via CMC600 or cable with open end: "Result 1", "Result 2", "Result 3", "Result 4") |
| <b>Configurable outputs</b> |                              | Good read, External illumination control, free configurable output condition, "device ready"                                                                                                                                      |

|                                      |                                                                                             |
|--------------------------------------|---------------------------------------------------------------------------------------------|
| <b>Reading pulse</b>                 | Digital inputs, non-powered, serial interface, Ethernet, CAN, auto pulse, presentation mode |
| <b>Optical indicators</b>            | 11 LEDs (5 x status display, 5 x LED bar graph, 1 green/red feedback spot)                  |
| <b>Acoustic indicators</b>           | Beeper (configurable)                                                                       |
| <b>Control elements</b>              | 2 buttons (choose and start/stop functions)                                                 |
| <b>Operator interfaces</b>           | Web server                                                                                  |
| <b>Configuration software</b>        | SOPAS ET                                                                                    |
| <b>Memory card</b>                   | Micro SD memory card (flash card) max. 32 GB, optional                                      |
| <b>Data storage and retrieval</b>    | Image and data storage via microSD memory card and external FTP                             |
| <b>Maximum encoder frequency</b>     | 1 kHz                                                                                       |
| <b>External illumination control</b> | Via digital output (max. 24 V trigger) or external illumination connection                  |

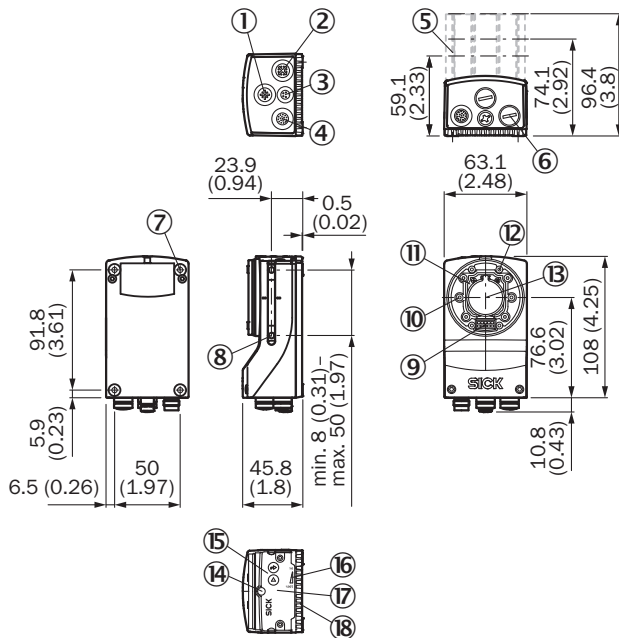
#### Ambient data

|                                            |                                                           |
|--------------------------------------------|-----------------------------------------------------------|
| <b>Electromagnetic compatibility (EMC)</b> | EN 61000-6-2:2005-08 / EN 61000-6-4 (2007-01) + A1 (2011) |
| <b>Vibration resistance</b>                | EN 60068-2-6:2008-02                                      |
| <b>Ambient operating temperature</b>       | 0 °C ... +50 °C                                           |
| <b>Storage temperature</b>                 | -20 °C ... +70 °C                                         |
| <b>Permissible relative humidity</b>       | 90 %, Non-condensing                                      |

#### Classifications

|                       |          |
|-----------------------|----------|
| <b>ECl@ss 5.0</b>     | 27280103 |
| <b>ECl@ss 5.1.4</b>   | 27280103 |
| <b>ECl@ss 6.0</b>     | 27280103 |
| <b>ECl@ss 6.2</b>     | 27280103 |
| <b>ECl@ss 7.0</b>     | 27280103 |
| <b>ECl@ss 8.0</b>     | 27280103 |
| <b>ECl@ss 8.1</b>     | 27280103 |
| <b>ECl@ss 9.0</b>     | 27280103 |
| <b>ECl@ss 10.0</b>    | 27280103 |
| <b>ECl@ss 11.0</b>    | 27280103 |
| <b>ETIM 5.0</b>       | EC002550 |
| <b>ETIM 6.0</b>       | EC002550 |
| <b>ETIM 7.0</b>       | EC002999 |
| <b>UNSPSC 16.0901</b> | 43211701 |

## Dimensional drawing (Dimensions in mm (inch))



- ① "External light" connection (external illumination unit, female connector, M12, 4-pin, A-coded)
- ② "Ethernet" connection (Gigabit Ethernet, female connector, M12, 8-pin, X-coded)
- ③ "USB" connection (female connector, type M8, 4-pin), for temporary use as a service interface only
- ④ "Power/Serial Data/CAN/I/O" connection (male connector, M12, 17-pin, A-coded)
- ⑤ Optics protective hood (length: 22.7 mm, 37.7 mm or 60 mm)
- ⑥ 4 protective caps for sealing off the electrical connections as required for enclosure rating IP67 (delivery condition)
- ⑦ 4 tapped blind holes, M5, 5.5 mm deep for mounting the device
- ⑧ 2 sliding nuts, M5, 5.5 mm deep, as an alternative method of mounting the device
- ⑨ Connection for an integrable illumination unit (VI55I ring illumination unit)
- ⑩ 2 laser alignment aids
- ⑪ S-mount or C-mount optics module
- ⑫ 4 blind tapped holes, 2.5 mm for mounting the spacers for the integrable illumination (VI55I ring illumination unit)
- ⑬ Optical axis and center of the image sensor
- ⑭ Basic device: Manual focus screw for an S-mount lens, accessible via the round opening in the housing cover. To secure the focus setting, cover the round opening with a self-adhesive label. Complete device: The opening is already covered by a label.
- ⑮ 2 function keys
- ⑯ 5 bar graph LEDs
- ⑰ Hinged cover on the top side of the device, access to the microSD memory card and the manual focus screw (S-mount)
- ⑱ 5 status LEDs (2 levels)

### Field of view

Field of view in mm<sup>2</sup> (sq inch)

1,200 x 960  
(47.24 x 37.80)

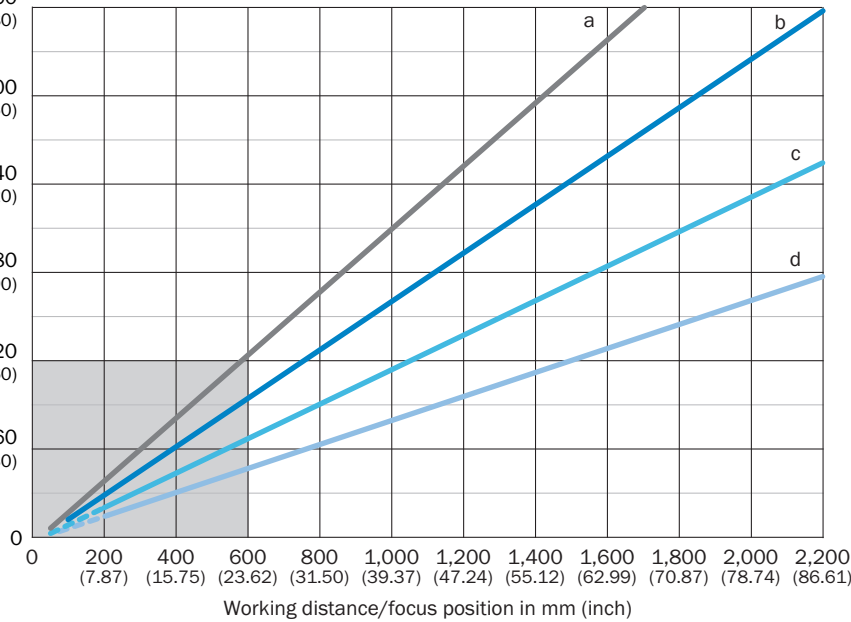
1,000 x 800  
(39.37 x 31.50)

800 x 640  
(31.50 x 25.20)

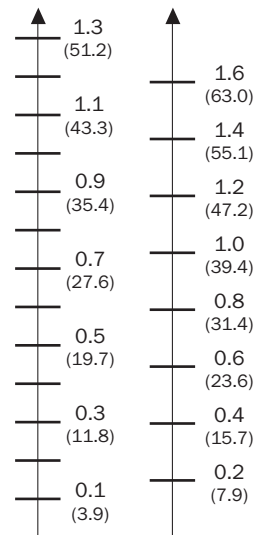
600 x 480  
(23.62 x 18.90)

400 x 320  
(15.75 x 12.60)

200 x 160  
(7.87 x 6.30)



Min. resolution in mm (mil)  
1D code 2D code



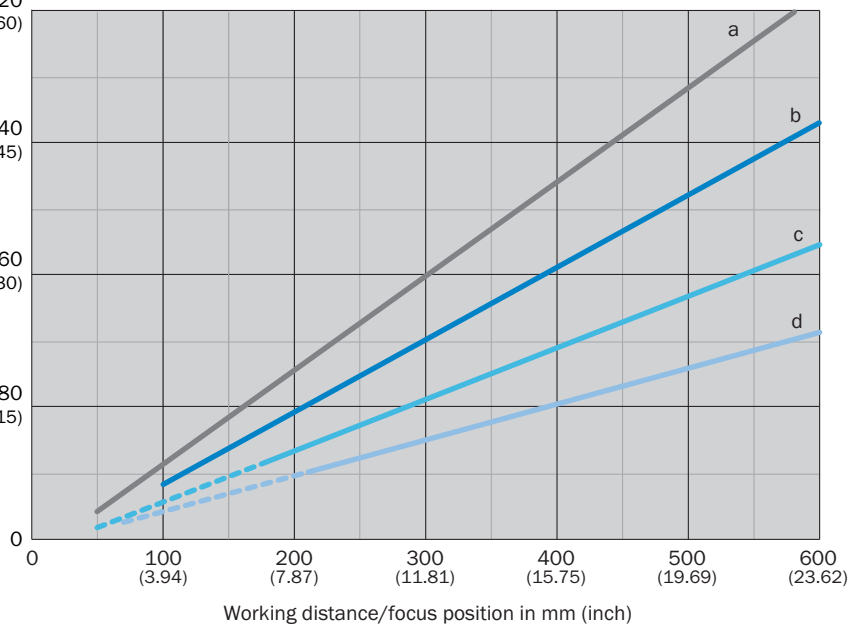
Field of view in mm<sup>2</sup> (sq inch)

400 x 320  
(15.75 x 12.60)

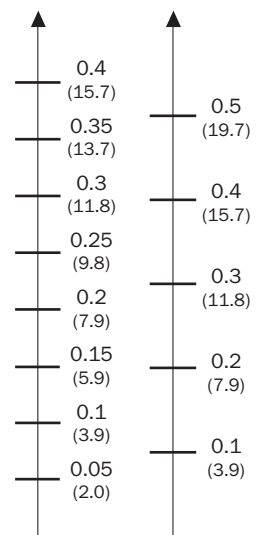
300 x 240  
(11.81 x 9.45)

200 x 160  
(7.87 x 6.30)

100 x 80  
(3.94 x 3.15)



Min. resolution in mm (mil)  
1D code 2D code

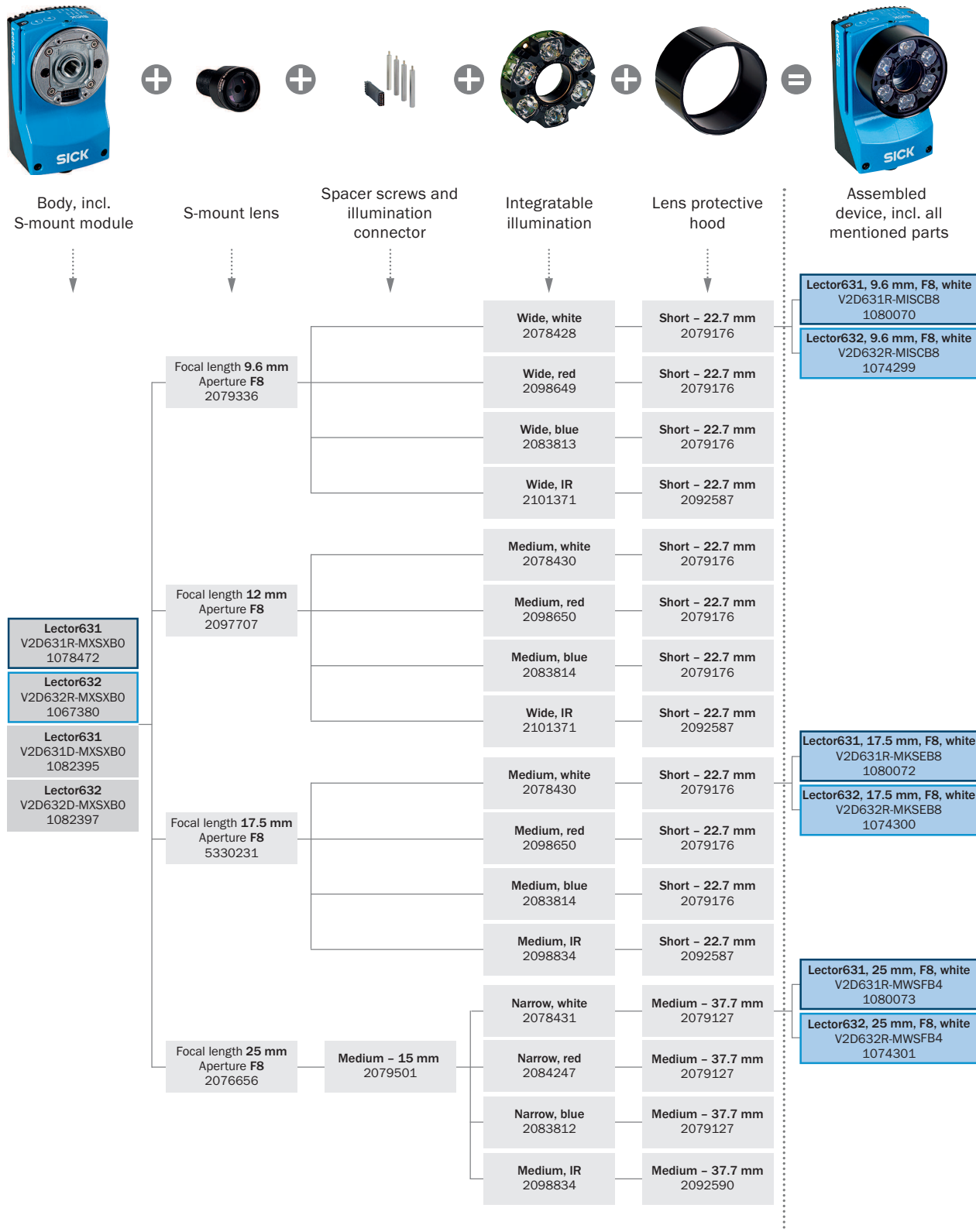


- a: f = 9.6 mm      — c: f = 17.5 mm
- b: f = 12.5 mm    — d: f = 25.0 mm
- Optional spacer rings required

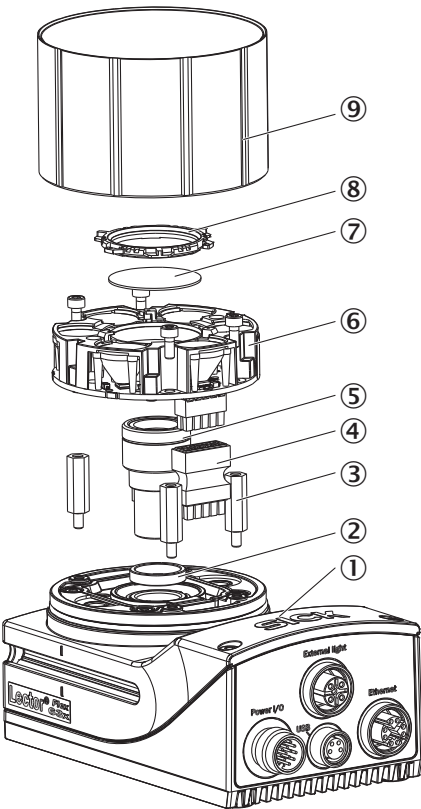
For S-mount and standard C-mount lenses, spacer rings are needed for working distances shorter than approximately 10 times the focal length. For compact C-mount lenses, spacer rings are not needed, but the built-in illumination cannot be used for distances shorter than 300 mm.

### Selection Guide

Lector63x S-mount



Exploded view



- ① Camera housing
- ② Spacer for built-in illumination
- ③ Spacer ring (optional)
- ④ Plug connector for illumination
- ⑤ S-mount lens
- ⑥ Built-in illumination
- ⑦ Optical filter (optional)
- ⑧ Filter holder
- ⑨ Protective cover for optics

Recommended accessories

Other models and accessories → [www.sick.com/Lector63x](http://www.sick.com/Lector63x)

|                                                                                     | Brief description                                                                                                                                                                                                      | Type             | Part no. |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------|
| Mounting brackets and plates                                                        |                                                                                                                                                                                                                        |                  |          |
|  | Mounting bracket with screws, L-shaped for mounting with sliding nuts, includes angle indicator for adjusting the tilt angle                                                                                           | Mounting bracket | 2078970  |
| Terminal and alignment brackets                                                     |                                                                                                                                                                                                                        |                  |          |
|  | Distance bracket and light extension connector (medium) for mounting integratable lighting, length 15 mm, used with compact C-mount lenses with focal length of 12 mm or 25 mm and S-mount lens with focal length 25mm | Distance bracket | 2079501  |

|                                                                                   | Brief description                                                                                                                                                                                        | Type                          | Part no. |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------|
| Lenses and accessories                                                            |                                                                                                                                                                                                          |                               |          |
|  | Lens protective hood medium, enclosure rating IP 67, length 37.7 mm, PMMA, used with compact C-mount lenses with focal length of 12 mm or 25 mm and S-mount lens with focal length 25mm                  | Optics protective hood (PMMA) | 2079127  |
| Modules                                                                           |                                                                                                                                                                                                          |                               |          |
|  | Connection device basic for connecting one sensor with 2 A fuse, 5 cable glands and RS-232 interface to sensor via M12, 17-pin female connector, all outputs available on screw/spring-loaded terminals. | CDB650-204                    | 1064114  |
| Plug connectors and cables                                                        |                                                                                                                                                                                                          |                               |          |
|  | Head A: female connector, M12, 17-pin, straight, A-coded<br>Head B: male connector, M12, 17-pin, straight, A-coded<br>Cable: Power, serial, CAN, digital I/Os, suitable for 2 A, shielded, 2 m           | YM2A8D-020XXXF2A8D            | 6053230  |
|  | Head A: male connector, M12, 8-pin, straight, X-coded<br>Head B: male connector, RJ45, 8-pin, straight<br>Cable: Gigabit Ethernet, twisted pair, PUR, halogen-free, shielded, 2 m                        | YM2X18-020EG2MRJA8            | 6049728  |

## Recommended services

Additional services → [www.sick.com/Lector63x](http://www.sick.com/Lector63x)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Type                        | Part no. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------|
| Product, system, and software training                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                             |          |
| <ul style="list-style-type: none"> <li><b>Range of services:</b> The training contents relate to the Lector® series, Training format and location can be worked out in collaboration with SICK</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                      | Lector® series training     | 1612232  |
| 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 Lector6xx illumination, code configuration, trigger and digital inputs, interfaces and digital outputs as well as data processing</li> <li><b>Travel expenses:</b> The prices do not include travel costs such as hotel, flight, travel time and expenses.</li> <li><b>Duration:</b> Additional work will be invoiced separately</li> </ul> | Commissioning Lector6xx     | 1608206  |
| 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>Travel expenses:</b> The prices do not include travel costs such as hotel, flight, travel time and expenses.</li> <li><b>Duration:</b> Additional work will be invoiced separately</li> </ul>                             | Maintenance Lector6xx       | 1611421  |
| 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>Travel expenses:</b> The prices do not include travel costs such as hotel, flight, travel time and expenses.</li> <li><b>Duration:</b> Additional work will be invoiced separately</li> </ul>                                                                                                                                                                                                                                   | Performance check Lector6xx | 1608207  |

|                                                                                                                                                                                                                                                                                                                                                                                                      | Type                                                           | Part no. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|----------|
| Warranty extensions                                                                                                                                                                                                                                                                                                                                                                                  |                                                                |          |
| <ul style="list-style-type: none"><li>• <b>Product area:</b> Identification solutions, machine vision, Distance sensors, Detection and ranging solutions</li><li>• <b>Range of services:</b> The services correspond to the scope of the statutory manufacturer warranty (SICK general terms and conditions of purchase)</li><li>• <b>Duration:</b> Five-year warranty from delivery date.</li></ul> | Extended warranty for a total of five years from delivery date | 1680671  |

## 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)