



# V2D631D-MBMGB2

Lector63x

IMAGE-BASED CODE READERS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

| Type           | Part no. |
|----------------|----------|
| V2D631D-MBMBG2 | 1120539  |

**Included in delivery:** C-mount lens (1), Distance bracket (1), Optics protection hood (PMMA) (1), V2D631D-MXCXB0 (1), VI55I-BU2023M0 (1)

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

### Detailed technical data

#### Features

|                           |   |
|---------------------------|---|
| <b>Variant</b>            | Complete device   |
| <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>Illumination</b>       | Integrated  |
| <b>Illumination color</b> | Blue, LED, Visible,   |
| <b>Feedback spot</b>      | LED, Visible, green, 525 nm, ± 15 nm<br>LED, Visible, Red, 630 nm, ± 20 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. 50" from June 24, 2007 (IEC 60825-1:2014, EN 60825-1:2014+A11:2021) |
| <b>Lens</b>               | C-mount (compact)   |
| Optical format            | 1/1.8"  |
| Focal length              | 35 mm   |
| Aperture                  | 8   |
| <b>Reading distance</b>   | 50 mm ... 2,200 mm <sup>1)</sup>  |
| <b>Scanning frequency</b> | ≤ 50 Hz, With resolution of 1.3 megapixels  |
| <b>Code resolution</b>    | ≥ 0.1 mm <sup>1)</sup>  |

<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 %                      |
| <b>Power consumption</b>      | Typ. 10 W, ± 20 %                                |
| <b>Output current</b>         | ≤ 100 mA   |
| <b>Housing</b>                | Aluminum die cast                                |
| <b>Window material</b>        | Plastic  |
| <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>                 | 450 g  |
| <b>Dimensions (L x W x H)</b> | 108 mm x 63.1 mm x 59.1 mm                       |

## Performance

|                                 |   |
|---------------------------------|---|
| <b>Readable code structures</b> | 1D codes, Stacked, 2D codes, direct-marked codes, plain text  |
| <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   |
| <b>OCR/OCV fonts</b>            | Trainable fonts   |

## Interfaces

|                              |   |
|------------------------------|---|
| <b>Ethernet</b>              | ✓, TCP/IP   |
| Function                     | Data interface (read result output), Service interface, FTP (image transmission)  |
| Data transmission rate       | 10/100/1,000 Mbit/s   |
| <b>PROFINET</b>              | ✓   |
| Function                     | PROFINET Single Port (integrated), PROFINET Dual Port (optional via external connection module CDF600-2)  |
| Data transmission rate       | 10/100 MBit/s   |
| <b>EtherNet/IP™</b>          | ✓   |
| Data transmission rate       | 10/100/1,000 Mbit/s   |
| <b>Serial</b>                | ✓, RS-232, RS-422   |
| Function                     | Data interface (read result output), Service interface  |
| Data transmission rate       | 0.3 kBaud ... 115.2 kBaud, AUX: 57.6 kBaud (RS-232)   |
| <b>CAN</b>                   | ✓   |
| Function                     | SICK CAN sensor network CSN (CAN controller/CAN device, multiplexer/server)   |
| Data transmission rate       | 250 kbit/s ... 500 kbit/s   |
| <b>PROFIBUS DP</b>           | ✓   |
| Type of fieldbus integration | Optional over external fieldbus module CDF600-2   |
| <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 |

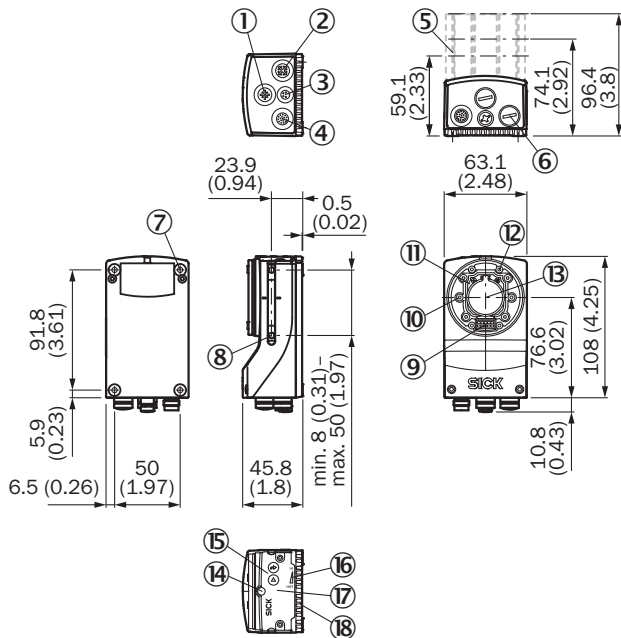
### Ambient data

|  |   |
|--|---|
| <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>Shock resistance</b>                    | EN 60068-2-27:2009-05                                     |
| <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>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 |

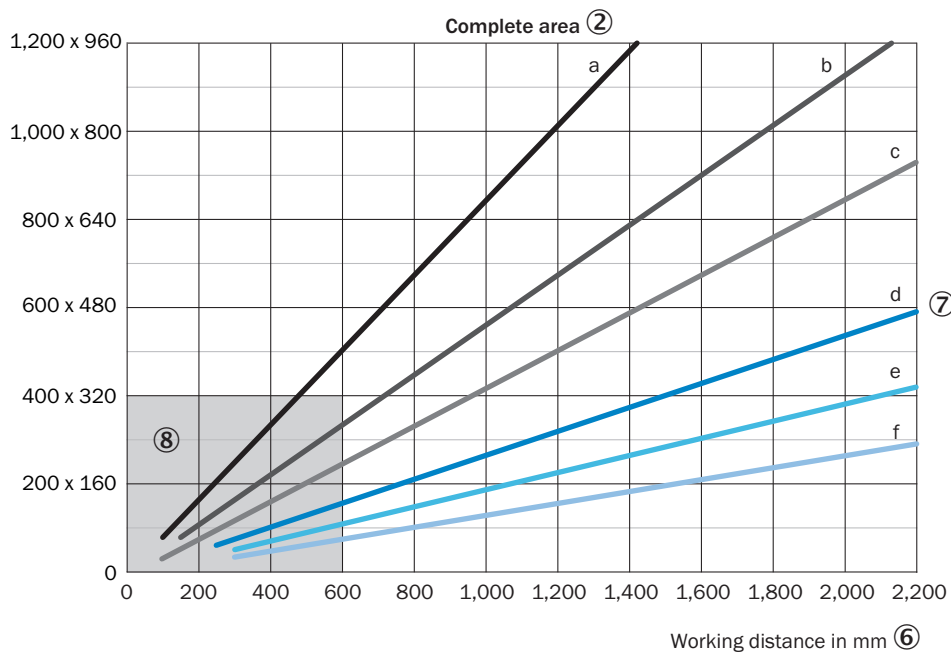
## Dimensional drawing (Dimensions in mm (inch))



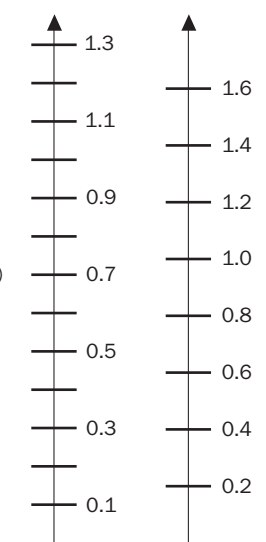
- ① "External light" connection (external illumination unit, female connector, M12, 4-pin, A-coded)
- ② "Ethernet" connection (Gigabit Ethernet, female connector, M12, 8-pin, X-coded)
- ③ "USB" connection (female connector, type M8, 4-pin), for temporary use as a service interface only
- ④ "Power/Serial Data/CAN/I/O" connection (male connector, M12, 17-pin, A-coded)
- ⑤ Optics protection 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

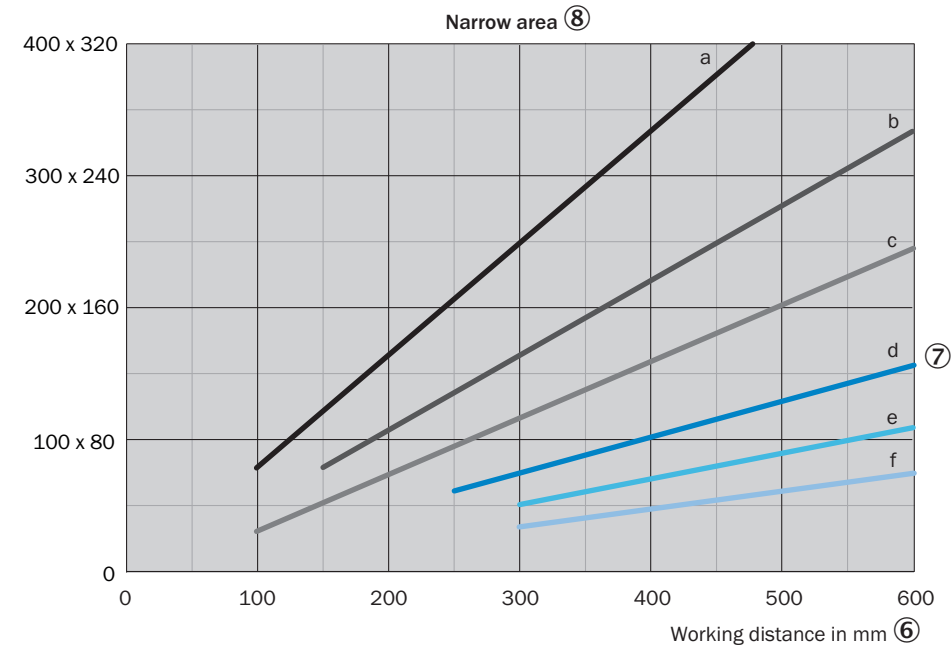
Perceived area of field of view: H x V (mm) ①



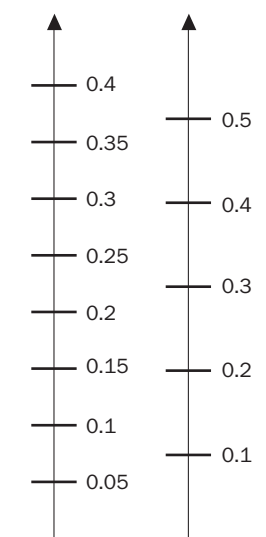
Min. resolution in mm ③  
1D code ④ 2D code ⑤



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



Min. resolution in mm ③  
1D code ④ 2D code ⑤



- a: f = 8.0 mm (C-mount standard only) ⑨
- b: f = 12.0 mm
- c: f = 16.0 mm
- d: f = 25.0 mm
- e: f = 35.0 mm
- f: f = 50.0 mm

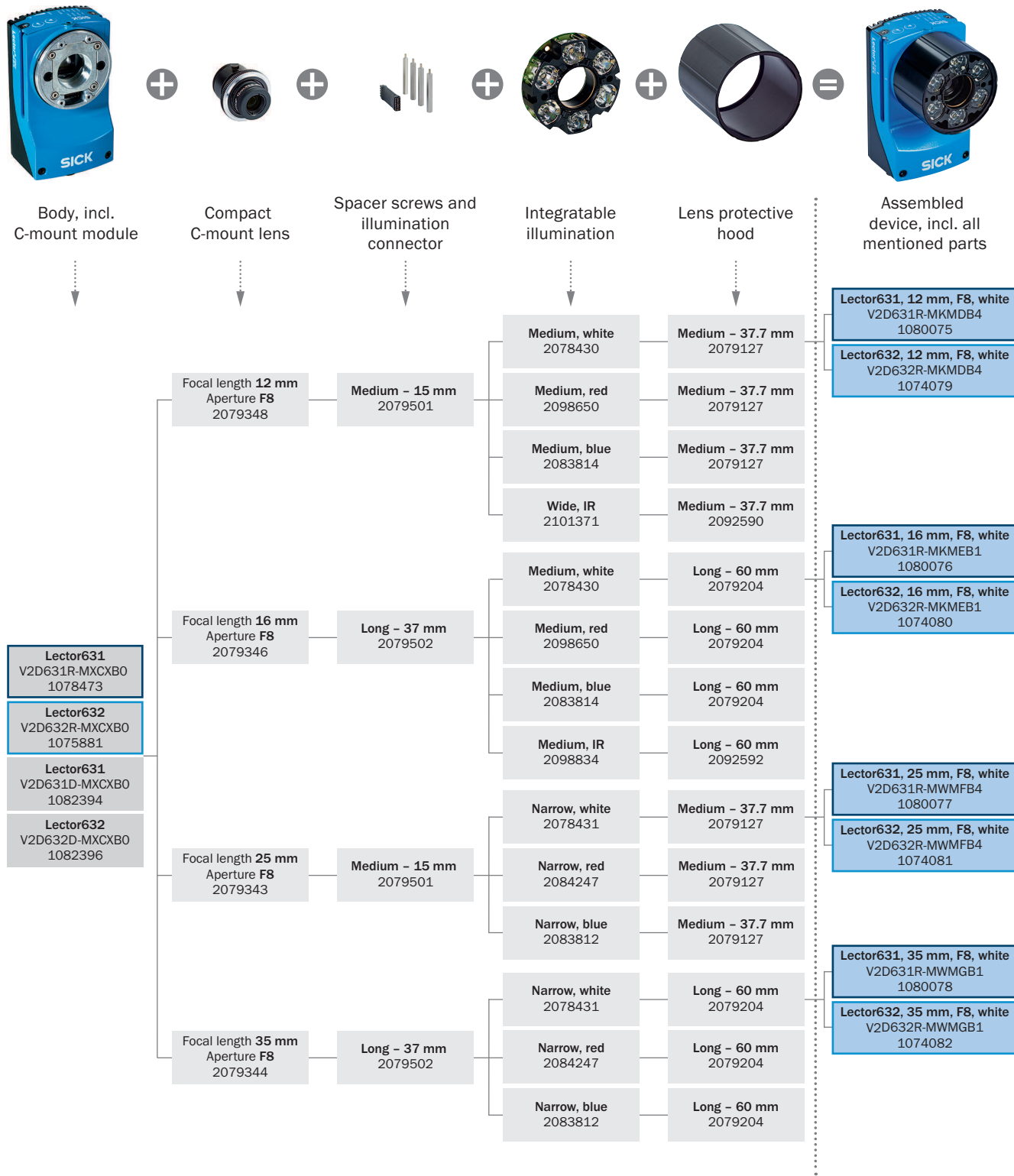
For S-mount and standard C-mount lenses, spacer rings are needed for working distances shorter than approximately 10 times the focal length. For compact C-mount lenses, spacer rings are not needed, but the built-in illumination cannot be used for distances shorter than 300 mm.

① Perceived field of view area: horizontal x vertical (mm)

- ② Complete area
- ③ Minimum resolution in mm
- ④ 1D code
- ⑤ 2D code
- ⑥ Working distance in mm
- ⑦ Focal length of lens, here example for  $f = 25.0$  mm
- ⑧ Close range
- ⑨ Standard C-mount only

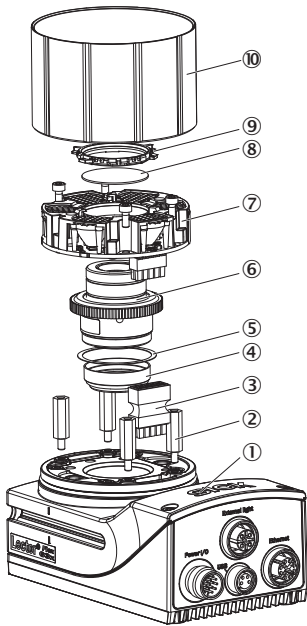
### Selection Guide

Lector63x Compact C-mount








Exploded view




- ① Camera housing
- ② Spacer for built-in illumination
- ③ Plug connector for illumination
- ④ Optical filter (optional)
- ⑤ Spacer disk (included with delivery of filter)
- ⑥ Compact C-mount lens
- ⑦ Built-in illumination
- ⑧ C-mount filter (optional), cannot be used with 15 mm lenses (2080213)
- ⑨ Filter holder
- ⑩ Optics protection hood

Recommended accessories

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

|   | Brief description  | Type               | Part no. |
|---|--|--------------------|----------|
| <b>Mounting brackets and plates</b>   |  |                    |          |
|  | Mounting bracket with screws, L-shaped for mounting with sliding nuts, includes angle indicator for adjusting the tilt angle   | Mounting bracket   | 2078970  |
| <b>Plug connectors and cables</b>   |  |                    |          |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 17-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Male connector, M12, 17-pin, straight, A-coded</li> <li>• <b>Signal type:</b> Power, serial, CAN, digital I/Os</li> <li>• <b>Cable:</b> 2 m, suitable for refrigeration</li> <li>• <b>Description:</b> Power, serial, CAN, digital I/Os, suitable for 2 A, shielded</li> </ul>                    | YM2A8D-020XXXF2A8D | 6053230  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 8-pin, straight, X-coded</li> <li>• <b>Connection type head B:</b> Male connector, RJ45, 8-pin, straight</li> <li>• <b>Signal type:</b> Ethernet, Gigabit Ethernet</li> <li>• <b>Cable:</b> 2 m, 8-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Ethernet, Gigabit Ethernet, shielded</li> <li>• <b>Application:</b> Zones with oils and lubricants</li> </ul> | YM2X18-020EG1MRJA8 | 2106258  |

|   | Brief description  | Type       | Part no. |
|---|--|------------|----------|
| Modules   |  |            |          |
|  | <ul style="list-style-type: none"> <li>• <b>Sub product family:</b> CDB650</li> <li>• <b>Supported products:</b> Lector® series, CLV62x - CLV64x (depending on type), CLV69x, RFID read/write device, InspectorP series</li> <li>• <b>Brief description:</b> 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.</li> </ul> | CDB650-204 | 1064114  |

### Recommended services

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

|                   |  | 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>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 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> <li>• <b>Travel expenses:</b> The prices do not include travel costs such as hotel, flight, travel time and expenses.</li> </ul>                   | Maintenance Lector   | 1611421  |
| 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>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 Lector   | 1608206  |
| Extended warranty |  |  |          |
|                   | <ul style="list-style-type: none"> <li>• <b>Product area:</b> Identification solutions, machine vision, Detection and ranging solutions, safety camera sensors, Safety laser scanners, Safety radar sensors</li> <li>• <b>Range of services:</b> The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery).</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)